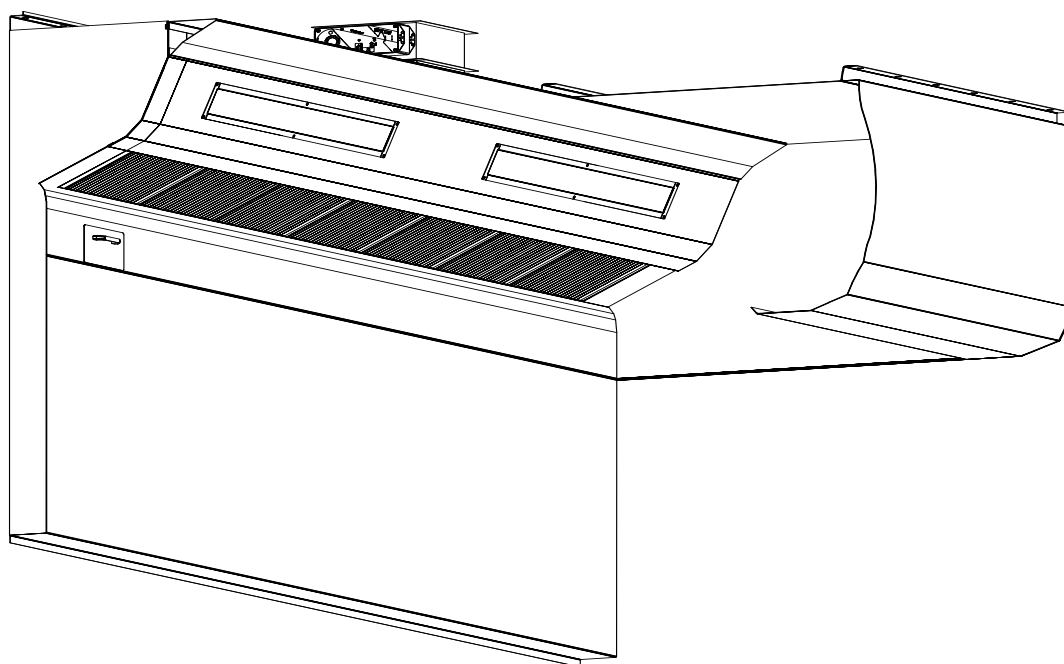




Breathe easy.



**OPERATION, MAINTENANCE
& INSTALLATION MANUAL
For
“ELX” And “ELX-UV” SERIES
VENTILATORS**

GAYLORD INDUSTRIES

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Breathe easy.

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www.gaylordventilation.com

To Our Customers:

Congratulations on your recent purchase of a Gaylord Model ELX Series Ventilator. We are proud to be able to provide you with a quality product that exemplifies our long standing dedication to quality engineering and manufacturing.

Your Gaylord Ventilator is assembled from some to the very finest components available and is designed for years of efficient, effective, and trouble-free operation. In addition, the product has undergone rigorous quality control inspections and testing prior to shipment.

If you have any questions, please contact us at info@gaylordventilation.com or by calling us toll free 800-547-9696. We are more than happy to help.

Sincerely,

Gaylord Industries

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Introduction

About this Technical Manual

The purpose of this manual is to provide the Operator, Maintenance and Service personnel instructions for operating, maintaining and troubleshooting the Gaylord Ventilator. Ventilators incorporating UV Systems, maintenance and repair must be performed by a trained and certified service company. This manual also includes information and guidance to contractors for the initial installation of the Ventilator.

The manual is divided into chapters for easy reference to a particular subject. The pages in the chapters are numbered with the chapter number then a dash and then the page number. So for example pages in Chapter 2 are numbered 2-1, 2-2, 2-3 etc. Figures and Tables are numbered in a similar manor. For example Figure 5-3-2 is on page 5-3 and is the second figure. Please keep your manual in a convenient location for so it can be accessed easily.

If you have any questions or concerns with the installation, operation, maintenance or service of your Gaylord Ventilator, please contact Gaylord Industries;

Web: www.gaylordventilation.com

E-mail: info@gaylordventilation.com

Main Phone: 503-691-2010 Toll Free: 800-547-9696

Safety

It is important that the operator read Chapter 2, Principle of Operation, and Chapter 3, Maintenance, before operating the Ventilator for the first time. Particular attention should be given to all the **Caution** and **Warning** statements.

Related Technical Manuals

1. ELX-UV Series Ventilators are controlled by a Gaylord Command Center. The specific manual for this control is titled **Operation, Maintenance and Installation Manual for the Gaylord Command Center and Wash Control Cabinet**.
2. ELX and ELX-UV Series Ventilators installed in the United States all include a Gaylord Autostart Control. In some instances Ventilators installed outside the United States will include an Autostart Control. To determine if the Ventilator includes an Autostart Control refer to page 1-3 and the Nameplate mounted on the Ventilator. The specific manual for this control is titled **Operation and Maintenance Manual for the Gaylord Autostart Control**.
3. ELX and ELX-UV Ventilators may include a Gaylord "Capture Wall" option. The specific manual for installation of this is titled **Installation Manual – ELX Ventilators with Capture Wall**.

Operation and Maintenance Manuals may be downloaded from the Gaylord website at www.gaylordventilation.com or may be obtained by calling Gaylord Industries.

Model Description

OVERVIEW

The Gaylord Model EL Series Ventilator uses a Listed baffle filter and the ELX uses a Gaylord Model XGS high grease Extractor. The Model ELX-UV Series includes the additional feature of an Ultraviolet Light System that removes up to 99% of the grease particulate.

The EL, ELX and ELX-UV Ventilators come in many different models, some of which are illustrated below. Your Ventilator may appear slightly different as they may have been custom designed to fit the space and application.

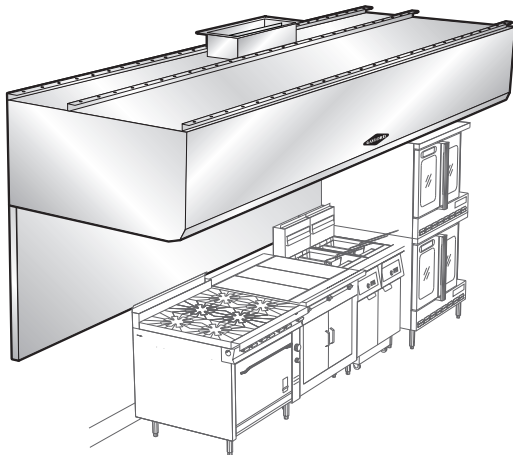


Figure 1-2-1
Model ELX-BDL Series
Wall Mounted Canopy Shown With
Optional Capture Wall

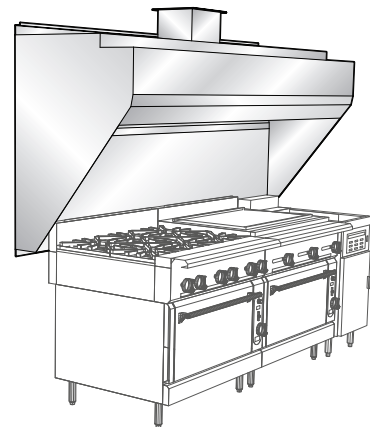


Figure 1-2-2
Model ELX-AB Series
Wall Mounted
Backshelf Style

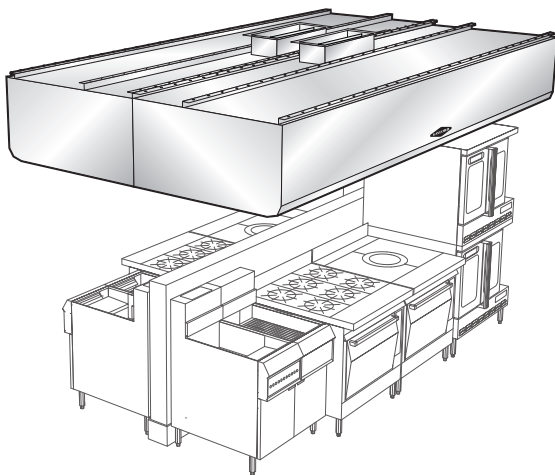


Figure 1-2-3
Model ELX-BB Series
Island Style for all
Double Island Arrangements

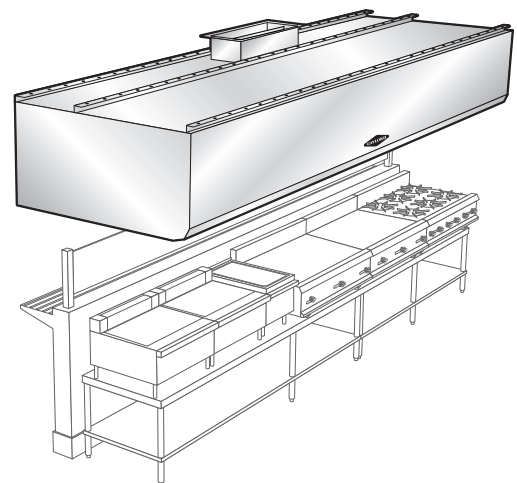


Figure 1-2-4
Model ELX-CL Series
Single Extractor Design
for Single Island Arrangement

Model Number Explanation

Model Number Sequence

Gaylord Ventilator model numbers are made up of an alphabetic prefix followed by a series of alphabetic and/or numeric suffixes to designate the style of ventilator and various options. Sequence of model numbers is as follows.

1. _____	2. _____	3. _____	4. _____	5. _____	6. _____	7. _____	8. _____	9. _____
<i>Series</i>	<i>Damper Type</i>	<i>Style</i>	<i>Front Lip Design (Option)</i>	<i>Apron Design (If Applicable)</i>	<i>Canopy Front Height (Option)</i>	<i>Solid Fuel</i>	<i>AutoStart</i>	<i>Hood Depth</i>

Definition of Prefixes and Suffixes

1. Series

- ELX Non water wash ventilator incorporating XGS Extractors.
 ELX-ENL Non water wash ventilator incorporating ENL XGS Extractors.
 ELX-UV Non water wash ventilator incorporating XGS Extractors and UV filtration.

2. Damper Type

- ND No Damper.
 GBD Gaylord Balancing Damper. Has a mechanical balancing damper located at the duct collar. (Standard)
 GEBD Gaylord Electric Balancing Damper. Has an electric balancing damper located at the duct collar with back draft feature.
 GFBD..... Gaylord Fire Balancing Damper. Has an electric, thermostatically activated Fire/ Balancing damper located at the duct collar with back draft feature. 325°F thermostat standard.
 GBDAV.....Gaylord Volume Damper. Automated volume damper located at the duct collar (w/ AV option).

3. Style

- Blank Wall mounted canopy style.
 CL Island style for single line of cooking equipment using one extraction chamber (**Light to Medium Duty only**).
 BBC-CL Island style for single line of equipment using one extraction chamber with one common exhaust duct.
 BB Island style for double line of equipment using two extraction chambers and two separate exhaust ducts.

4. Front Lip Design (Front lower edge of the hood)

- Blank Facetted front design with 6 inch return flange. (*3 Break or greater at front lip*) (*CL models to have a maximum of 9"*)
 S Square front with 6 inch "Super Capture" lip.
 MAW.....Low velocity front-face discharge MUA plenum

Model Number Explanation – Cont.

Definition of Prefixes and Suffixes – Cont.

4. Front Lip Design (Front lower edge of the hood)

- Blank** Facetted front design with 6 inch return flange. (*3 Break or greater at front lip*)
(*CL models to have a maximum of 9"*)
- S** Square front with 6 inch "Super Capture" lip

5. Apron Design Designation

- Blank** Capture wall to be added below hood.
- A** Hood to have an apron, which will terminate at the bottom lower edge of the canopy. (*No interconnecting drains*).
- UCW**..... Gaylord UDS to be incorporated into capture wall. (Mixed Intertek and UL listing required).

6. Front Canopy Profile Option

- Blank** Standard Profile - 30" or greater canopy height.
- MP** Medium Profile - 24" to 30" front height.
- LP** Low Profile - 12" to 23" front height. (Considerations for proper capture and contain need to be considered with this option).

7. Solid Fuel Equipment (*If Applicable – 700°F Applications only*)

- Blank**..... Cooking equipment powered by sources other than the burning of wood.
- SPA**..... Hood use "XGS-SPA" Spark Arrestor Extractors – Intended applications that utilize the burning of wood as a heat source.

8. AutoStart Option

- Blank** Indicates the hood section does not have Autostart system as required by IMC.
- DCA** Indicates the hood section has Autostart conforming with the IMC requirement.
- AV**..... Indicates the hood is equipped with the second generation AutoStart system conforming with the IMC requirement or the Demand Control Ventilation System complying with IMC IECC, CA Title 24, IGCC, and ASHRAE Std. 90.1 / 189. May include ND designating **No Damper** displayed as AVND.

9. Hood Depth (*Outside of Structural wall to front of hood canopy*)

- (##)** Value in inches to indicate the hood depth.

EL and ELX Series

Turning on the Exhaust Fan

Caution: Always turn on the exhaust fan before turning on the cooking equipment.

Caution: The chemical fire extinguishing system may discharge if the exhaust fan is not on while the cooking equipment is on or still hot.

Caution: Never operate your Ventilator without the XGS Extractors or Grease Filters in place. Refer to Figure 2-1-1.

To operate the exhaust fan flip the fan switch to the ON position. The switch is typically mounted on a wall near the Ventilator or it may be mounted on the face of the Ventilator.

Note 1: The EL and ELX Series Ventilator may be equipped with a Gaylord Electric Balancing Damper, designated “GEBD” in the Ventilator model number, or a Gaylord combination Fire Damper/Balancing Damper, designated “GFBD” in the model number. The Ventilator model number can be found on the Ventilator Nameplate (Refer to Figure 5-5-2 for a sample of the nameplate and to Page 2-12 for information on Balancing Dampers). If the Ventilator includes one of these dampers when the fan is started the damper moves from the closed to open position and it will take approximately 45 seconds for the exhaust to come up to 100%.

Note 2: Typically EL, ELX and ELX-UV Series Ventilators installed in the United States are equipped with a Gaylord Autostart Controller that automatically turns on the exhaust fan if the temperature at the sensors mounted in the canopy exceeds 90°F. (Refer to Figure 2-8-1). In some instances Ventilators installed outside the United States will include an Autostart Control. Inclusion of an Autostart Control is designated by the suffix “AS” in the model number. The Ventilator model number can be found on the Ventilator Nameplate (Refer page 5-5-2 for a sample of the Nameplate). Refer to the Operation, Maintenance and Installation Manual for the Gaylord Command Center for complete information on the Autostart Control.

Grease Extraction

Grease is extracted by either Listed Grease Filters or by the use of Gaylord Model XGS Extractors. Ventilators with Listed Grease Filters are designated EL Series and with Gaylord XGS Extractors they are designated ELX Series. The Gaylord Industries Patent Pending Model XGS Extractor is designed to deliver the absolute optimum in collection efficiency at the lowest possible pressure drop. The Extractors are ETL Recognized as part of the ELX Ventilator. They are constructed of corrosion resistant stainless steel.

EL and ELX Series – Cont.

Turning on the Exhaust Fan – Cont.

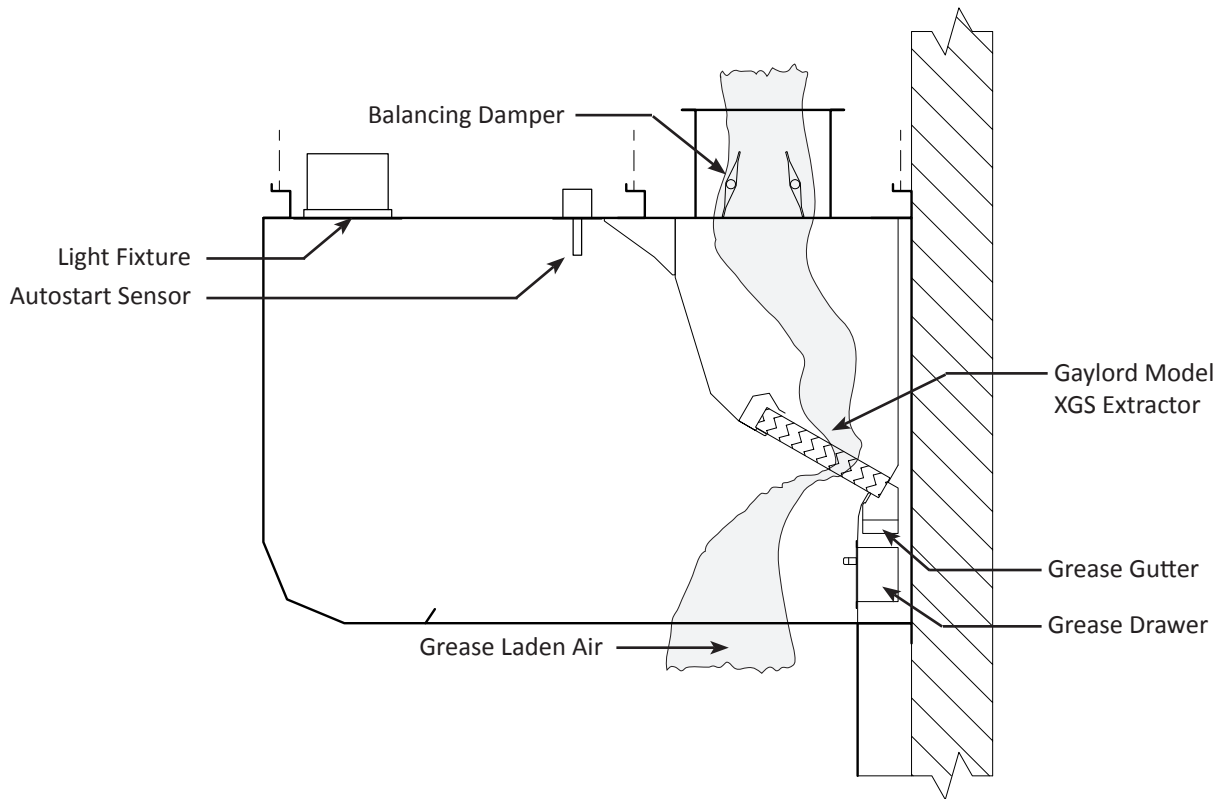


Figure 2-2-1
Grease Extraction

Turning Off the Exhaust Fan

Caution: Always turn off the cooking equipment and allow to cool before turning off the exhaust fan. The chemical fire extinguishing system may discharge if the cooking equipment is on or hot when the exhaust fan is off.

At the end of the cooking day, turn off the cooking equipment and allow to cool before turning off the exhaust fan. To turn off the exhaust fan flip the fan switch to the off position

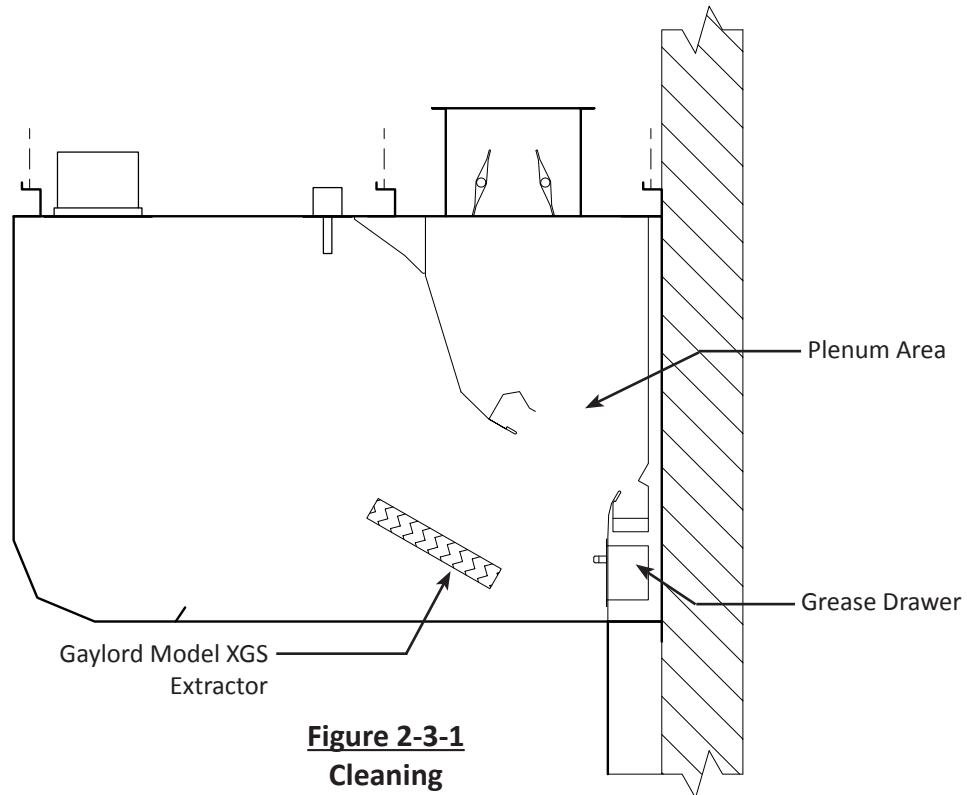
Note 1: If the Ventilator includes a Gaylord Autostart Controller the exhaust fan will stay on if the temperature at the duct collar is above 90°F. Once the temperature drops below 90°F, the fan will continue to run for 60 minutes and then shut off.

Note 2: If the Ventilator is equipped with a Gaylord Electric Balancing Damper, designated “GEBD” or a combination Gaylord Fire/Balancing Damper, designated “GFBD”, when the fan is turned off the damper will move from the open to the closed position, and remain closed until the exhaust fan is re-started. Closing the damper saves building energy by not allowing conditioned air from drafting up the exhaust duct, or in cold climates prevents cold air from coming down the duct and into the kitchen.

EL and ELX Series – Cont.

Cleaning the Ventilator

At the end of the cooking day, or at periodic intervals, depending upon the type of cooking, the XGS Extractors must be removed and cleaned. They may be removed by hand or by use of an Extractor Removal Tool (refer to Figure 2-3-1). In addition the Grease Drawer must be removed and cleaned and the Grease Gutter wiped out. Refer to page 3-1 for detailed instructions on cleaning.



Fire Protection

Fire Damper

The EL and ELX Series Ventilator may be equipped with a combination Gaylord Fire Damper/Balancing Damper, designated “GFBD” in the Ventilator model number. If equipped, a 250°F. thermostat will be mounted at the entrance of the exhaust duct collar (refer to Figure 2-3-1). In the event of a fire and the thermostat reaches 250°F., the following will occur:

1. The fire damper will close preventing fire from extending into the exhaust duct and fan.
2. The exhaust and supply fans will also shut off.
3. If the Ventilator is wired to the building fire alarm system the alarm will activate.
4. Once the thermostat cools below 250°F., the fire damper will open, and the exhaust and supply fans re-start.

EL and ELX Series – Cont.

Fire Protection – Cont.

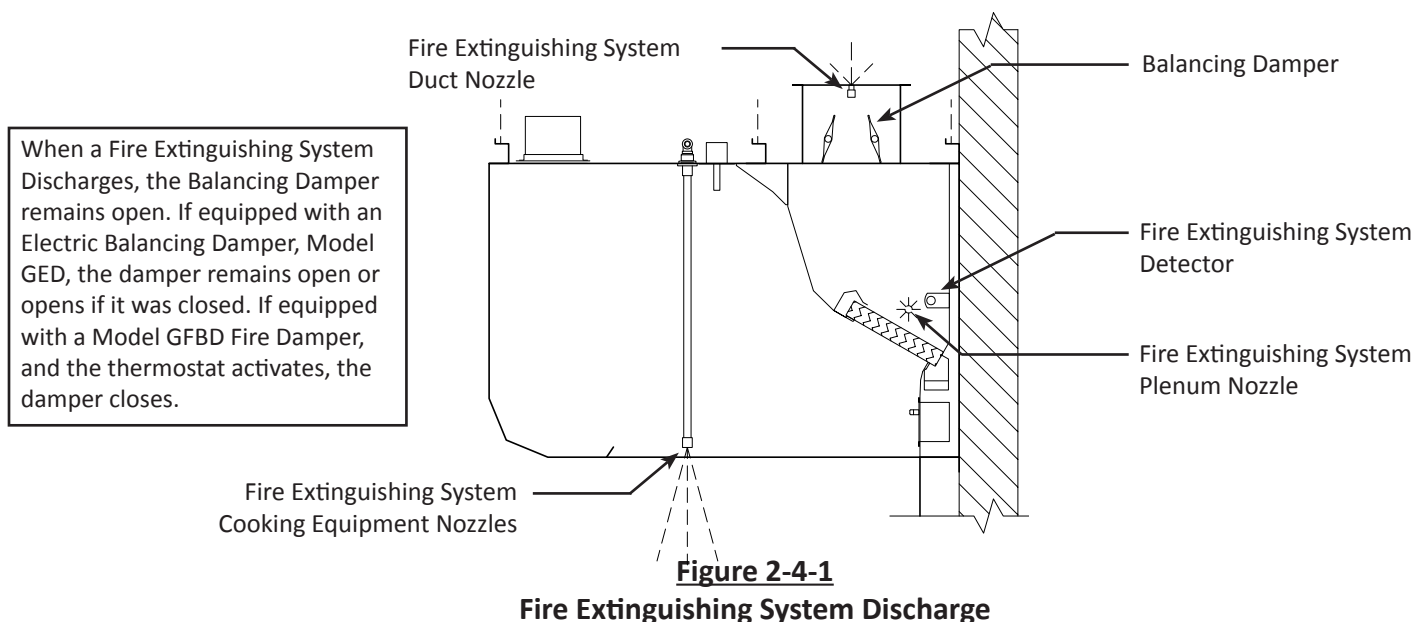
Fire Extinguishing Systems

The National Fire Protection Association Standard 96 (NFPA-96) and the International Fire Code (IFC) requires the use of a Fire Extinguishing System to cover the cooking surfaces, Ventilator exhaust plenums (the area behind the grease extractors), and the exhaust duct (Refer to Figure 2-4-1). Upon activation of the Fire Extinguishing System the follow will occur:

1. Fire extinguishing agent will discharge through the cooking equipment nozzles, the plenum nozzles and the duct nozzle(s).
2. The protected cooking equipment and possibly other cooking equipment will shut off. Refer to the above referenced codes for specific equipment that must shut off.
3. If the Fire Extinguishing System is wired to a building fire alarm system the alarm will activate.
4. If the Fire Extinguishing System is wired to a building management system it will notify of a fire condition.
5. The Fire Extinguishing System should be wired to the Gaylord fan control. If is the following will occur:
 - a) If the exhaust and supply fan were on the exhaust fan would stay on and the supply fan would shut off. If the exhaust and supply fans were off, the exhaust fan would come on and the supply fan would stay off.
 - b) If the Ventilator is equipped with a Gaylord Electric Balancing Damper (model GEBD) or a Gaylord Fire/Balancing Damper (model GFBD) the damper will open.
6. After discharge, the Fire Extinguishing System must be recharged and certified by a fire system contractor before the cooking equipment can be turned back on.

For Operation and Maintenance of the Fire Extinguishing System, refer to the system manufacture's Owner's Manual.

Important: NFPA-96 requires inspection and certification of fire systems every 6 months.



ELX-UV Series

Ultraviolet Systems (UV)

Overview

Ventilators incorporating UV Lamps are designated Model ELX-UV Series Ventilators. UV Systems are used to remove a high percentage of grease that the Extractors cannot remove, offering many benefits to the owner/operator. The UV Lamps are mounted in a UV Module which slide into a track downstream (after) the XGS Extractors (refer to Figure 2-8-1). The electronics and ballasts for UV System are mounted in a UV Ballast Box which is located on the top of the Ventilator (refer to Figure 2-8-1). The ELX-UV Ventilator is equipped with UV Status Lights to monitor the status of the UV System, and Safety Interlocks to protect operators from exposure to UV light (refer to Figure 2-7-1).

For proper UV operation, the Ventilators must be maintained in good working order. The UV system must be inspected periodically and the lamps replaced as necessary. The Ventilator, ductwork and exhaust fan must be inspected in accordance with NFPA-96 or local guidelines, though frequency of duct cleanings should be significantly reduced.

UV Safety

Caution: Exposure to UV light is harmful to skin and eyes.

The ELX-UV Ventilator is equipped with panels and Safety Interlocks to protect operators from direct exposure to UV light. All safety precautions called for in this manual must be followed to avoid the potential for harm to service personnel or operators. Refer to Page 3-3 for complete description of safety precautions.

Turning On the Exhaust Fan and UV System

Caution: Always turn on the exhaust fan before turning on the cooking equipment

Caution: The chemical fire extinguishing system may discharge if the exhaust fan is not on while the cooking equipment is on or still hot.

Caution: Never operate the Ventilator without the XGS extractors in place. Refer to Figure 2-5-2.

Operation of the exhaust fan and UV Lamps is controlled by the Gaylord Command Center (refer to Figure 2-6-1). To start the exhaust fan and turn on the UV Lamps push **START FAN** on the Command Center. The Command Center may be programmed to automatically start the exhaust fan at a specific time. Refer to the Operation, Maintenance and Installation Manual for the Gaylord Command Center for complete operating instructions.

Note 1: The UV Lamps will not come on unless all the XGS Extractors are in place as shown in Figure 2-5-2.

Note 2: The UV Lamps will not come on unless all the UV Module Access Panels are closed and latched as shown in Figure 2-5-2.

ELX-UV Series – Cont.

Turning On the Exhaust Fan and UV System – cont.

Note 3: ELX-UV Series Ventilator may be equipped with a Gaylord Electric Balancing Damper, designated “GEBD” in the Ventilator model number, or a Gaylord combination Fire/Balancing Damper, designated “GFBD” in the model number. The Ventilator Model number can be found on the Ventilator Nameplate (Refer to page 2-12 information on Balancing Dampers and page 5-5-2 for a sample of the nameplate). If the Ventilator includes one of these dampers, when the fan is started the damper moves from the closed to the open position and it will take approximately 45 seconds for the exhaust air to come up to 100%.

Note 4: The ELX-UV Series Ventilator may be equipped with a Gaylord Autostart Controller that automatically turns on the exhaust fan if the temperature at the exhaust duct collar exceeds 90° F. If the Ventilator does include Autostart, the Ventilator will include one or more sensors mounted in the canopy (Refer to Figure 2-5-2). Refer to the Gaylord AutoStart Technical Manual for Operation and Maintenance.



Figure 2-6-1
Gaylord Command Center

ELX-UV Series – Cont.

Turning On the Exhaust Fan and UV System – cont.

UVi Status Lights

Each Ventilator section contains a bank of UVi Status Lights to monitor the UVi System (refer to Figure 2-7-1). There are three colored lights, Green, Yellow and Blue. They indicate the system status as follows:

1. Green On: The UVi system is operating properly.
2. Yellow On: One or more UVi Lamps are not operating.
3. Blue On: One or more XGS Extractors are not in place and/or one or more UV Module Access Panels are not latched properly, or the internal temperature of the Ballast Box has exceeded 118° F. and the High Temperature Shutdown Controller activated. During this mode the UV System is not operating, and is in a UVi System Standby mode until the cause has been corrected.

Note: If either the Yellow or Blue light are on refer the Troubleshooting section of this manual beginning on page 4-1 for corrective action.

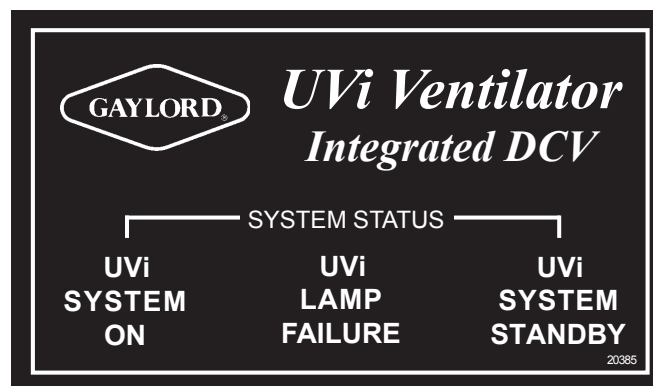


Figure 2-7-1
UV Status Lights

Grease Extraction

Grease is removed from the exhaust air by combination of the Gaylord Model XGS Extractors and the UV Lamps (Refer to Figure 2-8-1). The hot contaminate-laden air rising from the cooking surface is drawn through the Extractors where a high percentage of the grease and other particulate are extracted from the airstream. As the air enters the Plenum chamber, the grease particles are exposed to the ultraviolet light which oxidizes the particles into a light gray powder which are deposited on the Lamps, the Plenum chamber and in the exhaust duct. Some powder may exhaust out the exhaust fan. The extracted liquid grease will drain down the Extractors and into the Grease Gutter which then drains to the Grease Collection Drawer. The sticky grease will remain in the Extractors until cleaned.

The Gaylord Industries Model XGS Extractor is designed to deliver the absolute optimum in collection efficiency at the lowest possible pressure drop. The Extractors are ETL Recognized as part of the ELXC-UV Ventilator. They are constructed of corrosion resistant stainless steel.

ELX-UV Series – Cont.

Turning On the Exhaust Fan and UV System – cont.

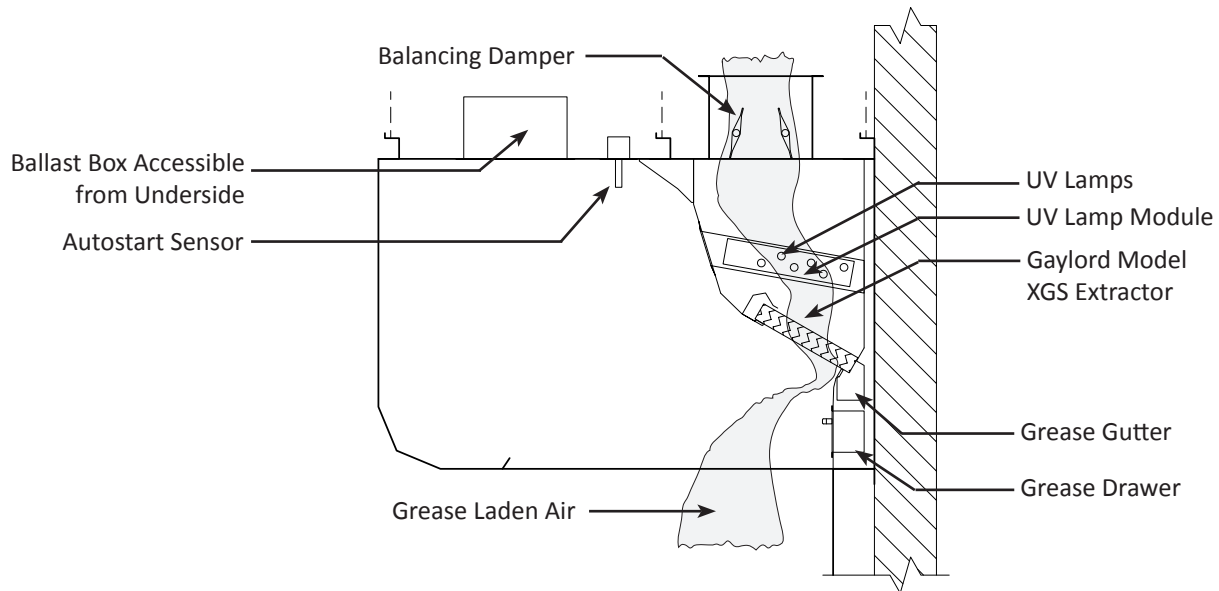


Figure 2-8-1
Grease Extraction

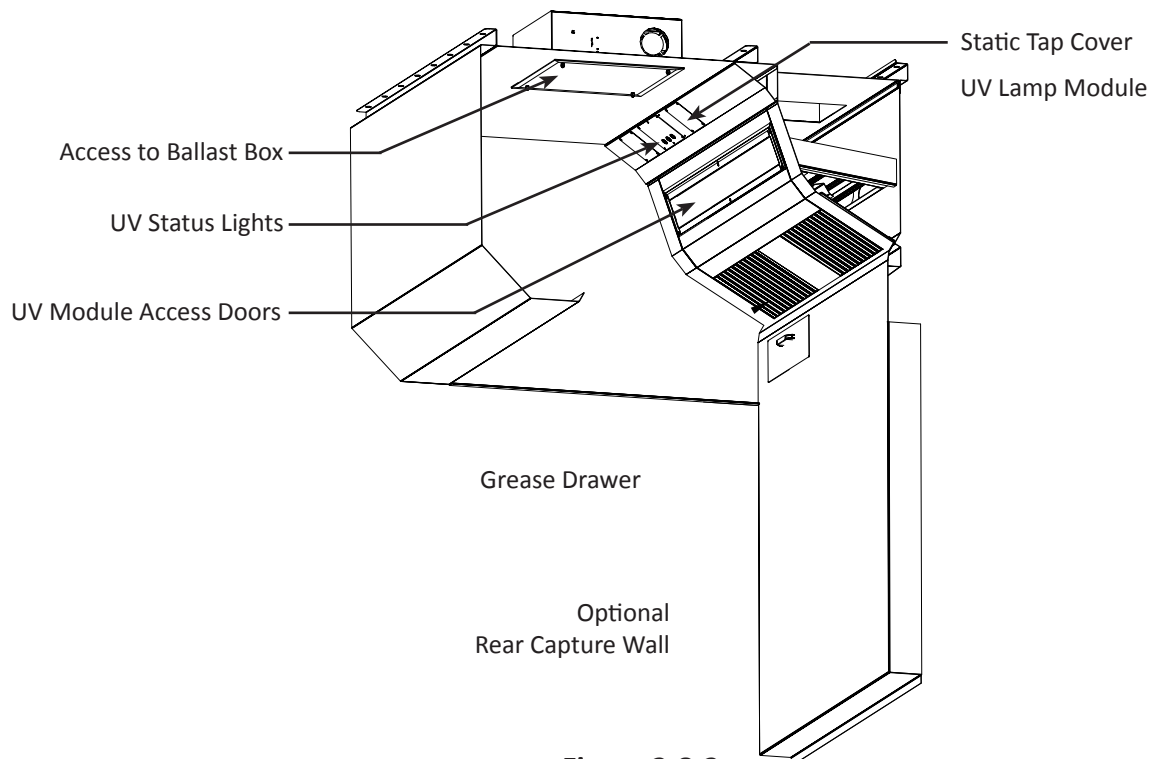


Figure 2-8-2
Model ELX-UV Series Cutaway

ELX-UV Series – Cont.

Turning Off the Exhaust Fan and UV System

Caution: Always turn off the cooking equipment and allow to cool before turning off the exhaust fan. The chemical fire extinguishing system may discharge if the cooking equipment is on or hot when the exhaust fan is off.

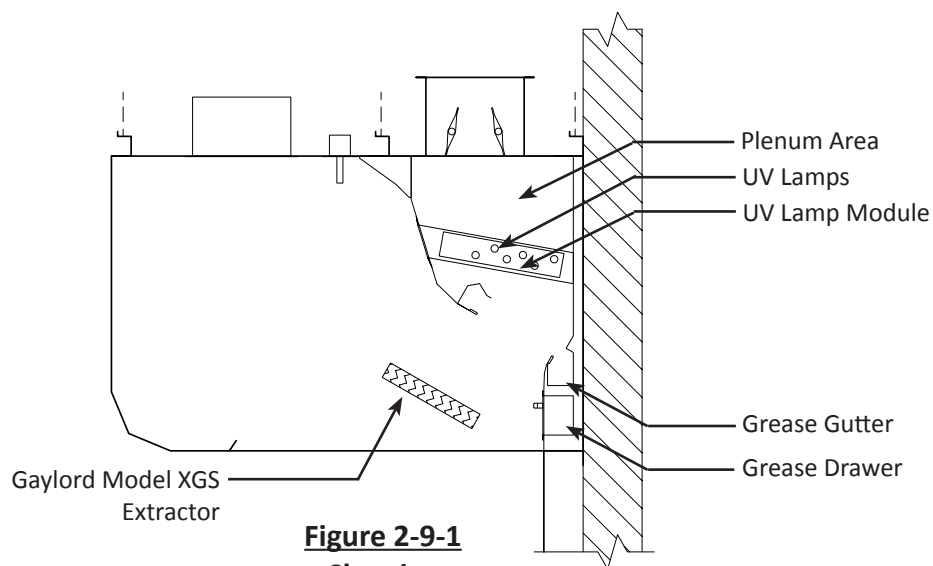
At the end of the cooking day, turn off the cooking equipment and allow to cool before turning off the exhaust fan. To stop the exhaust fan and turn off the UV Lamps push **STOP FAN** on the Gaylord Command Center. The Command Center may be programmed to automatically turn off the exhaust fan at a specific time. Refer to the Operation, Maintenance and Installation Manual for the Gaylord Command Center for complete operating instructions.

Note 1: If the Ventilator includes a Gaylord Autostart Controller the exhaust fan will stay on if the temperature at the duct collar is above 90° F. Once the temperature drops below 90° F., the fan will continue to run for 60 minutes and then shut off.

Note 2: If the Ventilator is equipped with a Gaylord Electric Balancing Damper, designated “GEBD” or a Gaylord combination Gaylord Fire/Balancing Damper, designated “GFBD”, when the fan is turned off the damper will move from the open to closed position and remain closed until the exhaust fan is re-started. Closing the damper saves building energy by not allowing conditioned air from drafting up the exhaust duct, or in cold climates preventing cold air from coming down the duct and into the kitchen.

Cleaning the Ventilator

At the end of the cooking day, or at periodic intervals, depending upon the type of cooking, the XGS Extractors must be removed and cleaned. They may be removed by hand or by use of an Extractor Removal Tool (Refer to Figure 2-9-1). In addition the Grease Drawer must be removed and cleaned and the Grease Gutter wiped out. The UV Lamps should be inspected weekly and cleaned if necessary. Refer to Page 3-1 for detailed instructions.



ELX-UV Series – Cont.

Fire Protection

Fire Damper

The ELX-UV Series Ventilator may be equipped with a combination Gaylord Fire/Balancing Damper, designated “GFBD” in the Ventilator model number. If equipped, a 250°F. thermostat will be mounted at the entrance of the exhaust duct collar (Refer to Figure 2-11-1). In the event of a fire and if the thermostat reaches 250°F., the following will occur:

1. The fire damper will close preventing fire from extending into the exhaust duct and fan.
2. The exhaust and supply fans will shut off.
3. The UV Lamps will shut off.
4. If the Command Center is wired to a building fire alarm system the alarm will activate.
5. If the Command Center is wired to a building management system it will notify of a fire condition.
6. Once the thermostat cools below 250°F., plus a 5 minute cool down, the exhaust and supply fans can be re-started by pushing the **START FAN** on the Command Center.

Fire Extinguishing Systems

The National Fire Protection Association Standard 96 (NFPA-96) and the International Fire Code (IFC) requires the use of a Fire Extinguishing System to cover the cooking surfaces, Ventilator exhaust plenums (the area behind the grease extractors), and the exhaust duct (Refer to Figure 2-11-1). Upon activation of the Fire Extinguishing System the follow will occur:

1. Fire extinguishing agent will discharge through the cooking equipment nozzles, the plenum nozzle(s) and the duct nozzle(s).
2. The protected cooking equipment and possibly other cooking equipment will shut off. Refer to the above referenced codes for specific equipment that must shut off.
3. If the Fire Extinguishing System is wired to a building fire alarm system the alarm will activate.
4. If the Fire Extinguishing System is wired to a building management system it will notify of a fire condition.
5. The Fire Extinguishing System should be wired to the Gaylord Command Center. If it is the following will occur:
 - a) If the exhaust and supply fan were on the exhaust fan would stay on and the supply fan would shut off. If the exhaust and supply fans were off, the exhaust fan would come on and the supply fan would stay off.
 - b) If the Ventilator is equipped with a Gaylord Electric Balancing Damper (model GEBD) or a Gaylord Fire/Balancing Damper (model GFBD) the damper will open.
6. After discharge, the Fire Extinguishing System must be recharged and certified by a fire system contractor before the cooking equipment can be turned back on.

ELX-UV Series – Cont.

Fire Protection – Cont.

Fire Extinguishing Systems – Cont.

For Operation and Maintenance of the Fire Extinguishing System, refer to the system manufacturer's Owner's Manual.

Important: NFPA-96 requires inspection and certification of Fire Extinguishing Systems every 6 months.

When a Fire Extinguishing System Discharges, the Balancing Damper remains open. If equipped with an Electric Balancing Damper, Model GED, the damper remains open or opens if it was closed. If equipped with a Model GFBD Fire Damper, and the thermostat activates, the damper closes.

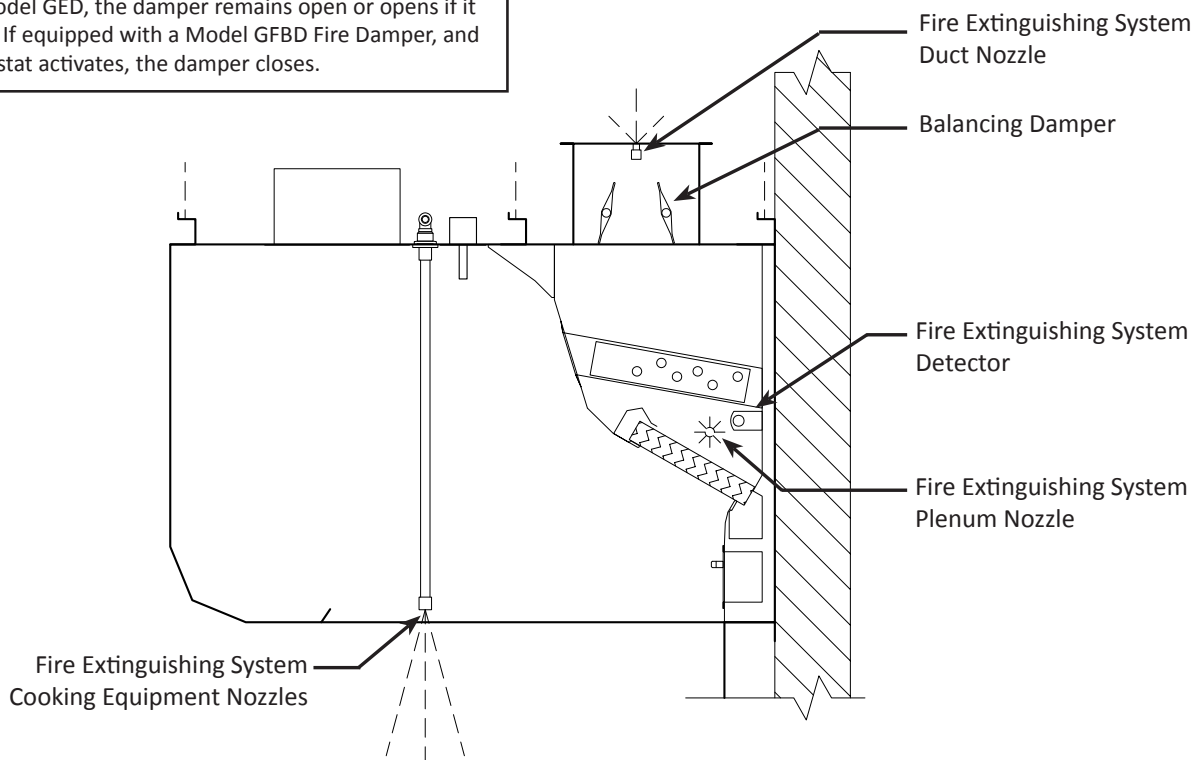


Figure 2-11-1
Fire Extinguishing System Discharge

*The illustration shows the Fire Extinguishing System discharging.

The National Fire Protection Association Standard 96 (NFPA-96) and the International Fire Code (IFC) requires the use of a Fire Extinguishing System to cover the cooking surfaces, ventilator exhaust plenum (the area behind the grease extractors), and the exhaust duct. For Operation and Maintenance of your Fire Extinguishing System, refer to the system manufacture's Owner's Manual.

Important: NFPA-96 requires inspection and certification of fire systems every 6 months.

Balancing Dampers

Balancing Dampers

Balancing Dampers Overview

The ELXC and ELXC-UV Series Ventilators, as a standard, come with one of three models of Gaylord Industries Listed Balancing Dampers. Balancing dampers would typically be used when two or more Ventilators are connected to a common exhaust fan. The purpose of the balancing damper is to raise or lower the air-flow of each Ventilator to achieve the desired exhaust rate. One of the dampers models is a combination Fire/Balancing Damper. If the Ventilators include a Balancing Damper the suffix GBD, GEBD or GFBD will be included in the Ventilator model number shown on the Ventilator Nameplate. Refer to Figure 5-11-1 on page 5-11 for an example of the nameplate.

The three damper models available are as follows:

1. Model GBD (Gaylord Balancing Damper) is a manually adjusted balancing damper with internal setting (refer to Figure 2-20-2). Adjustment is made by removing the Extractor under the exhaust duct collar and reaching up with a wrench to the Adjusting Nut. The nut is loosened, dampers manually adjusted and the Adjusting Nut retightened.
2. Model GEBD (Gaylord Electric Balancing Damper) is an electrically adjusted balancing damper (Refer to figure 2-20-1). Adjustment is made by use of a potentiometer, one for each damper, mounted in a junction box located in the roof of the Ventilator (Refer to figure 2-20-3). The GEBD is set up to automatically close upon shutting off the exhaust fan every night. This feature prevents conditioned air from exiting the building through the Ventilator. In the event of a power failure the damper will automatically open.
3. Model GFBD (Gaylord Fire / Balancing Damper) is a combination thermostatically activated fire damper/ electrically adjusted balancing damper. With this option one or more thermostats are mounted in the exhaust duct collar of the Ventilator (Refer to Figure 2-6-2). The thermostats are factory set for 250°F., and in the event of a fire when the thermostat(s) reach 250°F., the damper will close to prevent fire from extending into the ductwork and up to the exhaust fan. Adjustment for balancing of the system is made by use of a potentiometer, one for each damper, mounted in a junction box located in the roof of the Ventilator (Refer to figure 2-20-3). The GEBD is set up to automatically close upon shutting off the exhaust fan every night. This feature prevents conditioned air from exiting the building through the ventilator. In the event of a power failure the damper will automatically open.

Adjustment

The adjustment of all the models relies on the internal dimension between the two blades called the Damper Set Dimension, “DSD” (Refer to Figure 2-20-2). The manipulation of this distance will balance the airflow between multiple section Ventilators. Refer to the Measuring Airflow section beginning on page 5-1 for more details.

Balancing Dampers – Cont.

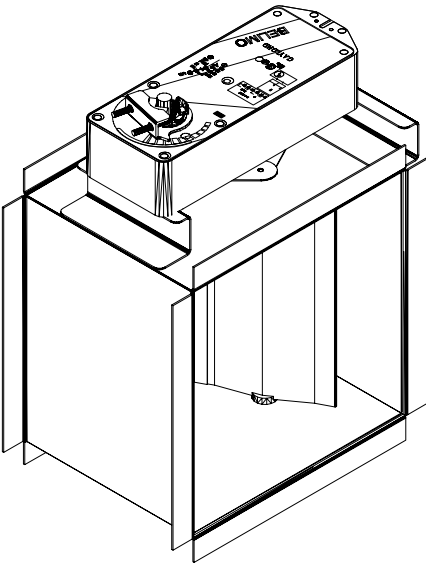


Figure 2-13-1
Typical Model GEBD
Other Models Look Similar
Except Without the Motor

(%) OPEN	DSD (in)
100	4-1/16
90	3-7/8
80	2-15/16
70	2-1/8
60	1-1/2
50	15/16
40	3/8

Table T-2-13-1
Electric Damper Correlation Chart

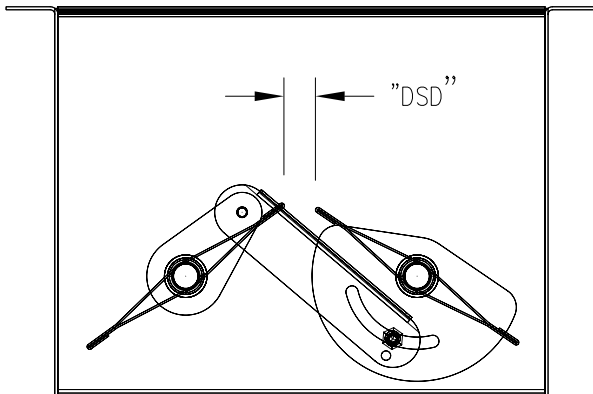


Figure 2-13-2
Section View of Model GBD
The Dampers and the DSD
are the same for all Models

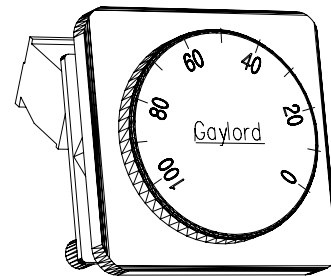


Figure 2-13-4
Potentiometer

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Cleaning and Maintenance

Operator Cleaning and Maintenance

Overview

To maintain the Gaylord Ventilator in good working order, and to keep the system operating at optimum efficiency, preventive maintenance, using the following schedule should be performed.

Important Note: Ventilators incorporating UV Lamps require special maintenance as shown on Page 3-4. Some of the required maintenance on Ventilators with UV can be performed by the operator. However, direct exposure to UV light is hazardous to your skin and eyes and contact with live electrical components poses a significant risk of shock or death.

Daily Cleaning and Maintenance

At the end of the each cooking day, or at periodic intervals, depending upon the type of cooking, the XGS Extractors and Grease Drawer must be removed and cleaned. The Grease Gutter should also be wiped out.

CAUTION: Before proceeding with cleaning, check to see that the exhaust fan is shut off and the cooking equipment is cool. To clean proceed as follows:

1. Remove Extractors: **CAUTION:** Care should be taken when removing the Extractors, especially over fryers. It is recommended that the cooking equipment be cooled down and the fryers be covered prior to removing the Extractors. They may be removed by hand or by use of an optional Extractor Removal Tool (Refer to Figure 3-2-1). To remove, lift up slightly on the Extractor and pull out from the bottom, then straight down.
2. The Extractors may be cleaned either by using a dishwasher or by soaking in a deep well sink using hot water with a degreasing detergent, then scrubbed and rinsed. Gaylord Formula G-510EF detergent is highly recommended for this application. Refer to Page 3-7 for details.
3. With the Extractors removed inspect the back wall and the underside of the exhaust plenum. If necessary clean with hot detergent water.
4. Wipe and clean the Grease Gutter.
5. Remove and empty the Grease Drawer, clean and replace.
6. Replace the filters or Extractors. Note: Filters and Extractors must be installed with the openings running vertical as shown in Figure 3-2-2. Gaylord XGS Extractors have an arrow stamped on the face designating "UP".

Additional Cleaning Instructions for UV Series Ventilators

The UV Lamps will develop a coating of dust, and sometimes debris that will have to be wiped away. The Lamps should be inspected weekly and cleaned when necessary. To clean proceed as follows:

1. Remove all the Extractors.
 2. Reach up through the opening and carefully wipe each Lamp with a non abrasive wet cloth with mild detergent. Remove all the dust, grease or other contaminants that may have collected on the Lamp.
 3. Replace the Extractors.
- Note: Failure to maintain the cleanliness of the Lamps will reduce the UV systems ability to reduce the build-up of grease and debris on the exhaust ducts and fans.

Cleaning and Maintenance – Cont.

Operator Cleaning and Maintenance – Cont.

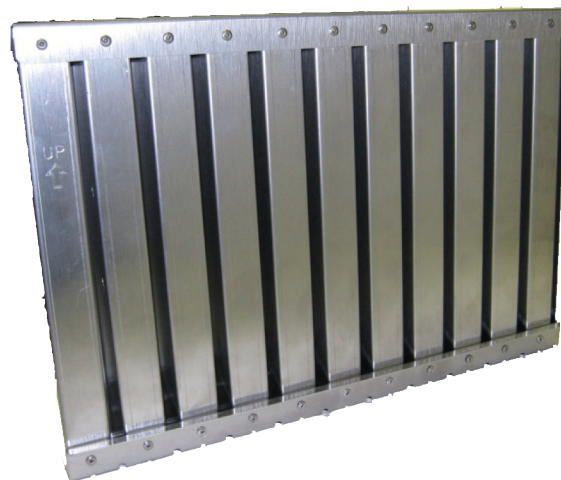
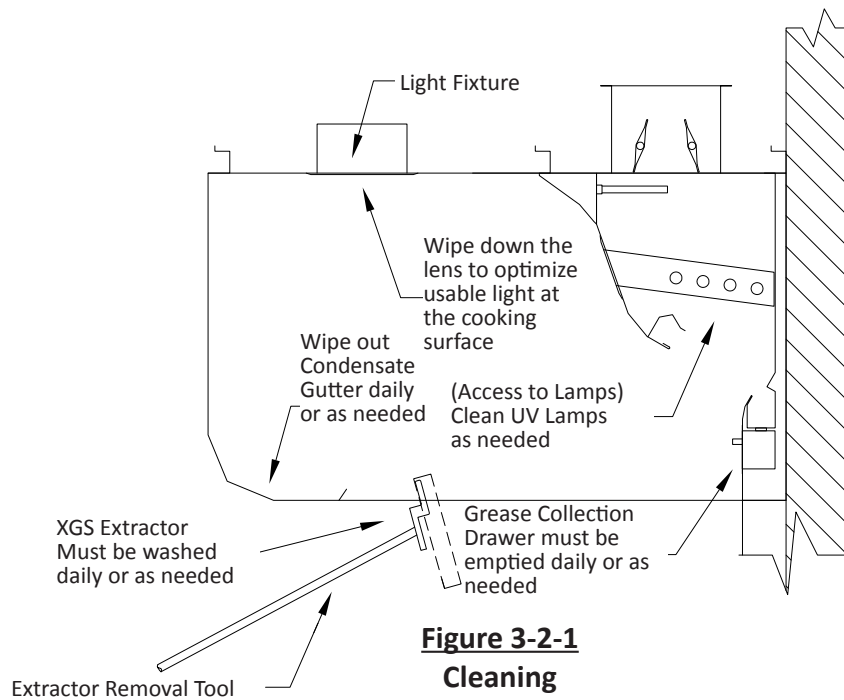


Figure 3-2-2

Gaylord Model XGS Extractor

Cleaning and Maintenance – Cont.

Operator Cleaning and Maintenance – Cont.

Code Required Inspection and Cleaning

The National Fire Protection Association Standard NFPA-96 (Standard for Ventilation Control and Fire Protection of Commercial Cooking Operations) requires that hoods (Ventilators), ducts and exhaust fans must be inspected by a properly trained, qualified and certified company or person(s) in accordance with the following table.

Table T-3-3-1

EXHAUST SYSTEM INSPECTION SCHEDULE	
Systems serving solid fuel cooking operations	Monthly
Systems serving high-volume cooking operations such as 24-hour cooking, charbroiling or wok cooking	Quarterly
Systems serving moderate-volume cooking operations	Semi-annually
Systems serving low-volume cooking operations, such as churches, day camps, seasonal businesses, or senior centers	Annually

Upon inspection, if found to be contaminated with deposits from grease laden vapors, the entire exhaust system shall be cleaned by a properly trained, qualified, and certified company or person(s) acceptable to the authority having jurisdiction.

When a vent cleaning service is used, a certificate showing date of inspection or cleaning shall be maintained on the premises. After cleaning is completed, the vent cleaning contractor shall place or display within the kitchen area a label indicating the date cleaned and the name of the servicing company. It shall also indicate any area not cleaned.

CAUTION regarding pressure washing or steam cleaning: If the Ventilator includes a UV System the UV Modules must be removed prior to pressure washing or steam cleaning.

UV System Scheduled Preventive Maintenance

CAUTION: Preventive maintenance and repairs made to the UV System as outlined on pages 3-3 through 3-5 **MUST** be performed by Gaylord Certified Service Agent. For a list of Gaylord Certified Service Agencies (CSA's) visit www.gaylordventilation.com and go to "Find A Sales Rep/Agent".

WARNING: Certified Service Agent maintenance and repair warning. Do not defeat any Safety Interlocks during cleaning, maintenance and repair.

Safety Requirements

Caution: Exposure to UV light is harmful to skin and eyes. Before servicing or repairing any of the UV System read and perform the following safety requirements.

Overview

The ELX-UV Ventilator is equipped with light attenuation barriers and Safety Interlocks to protect operators from direct exposure to UV light. All safety precautions called for in this manual must be followed to avoid the potential for harm to service personnel or operators.

As with many types of technology if it is not used properly and/or proper precautions are not taken there is the potential for injury or harm. This is especially true of UV light due to the fact that it does not physically hurt at the time of exposure. UV generated in these Ventilators is greater than what results from direct exposure to the sun. Under no circumstances is it acceptable to view the lighted lamps without proper eye protection or expose bare skin directly to the light. All safety precautions called for in this manual must be followed to avoid the potential for harm to service personnel and/or operators.

Personal Protective Equipment

1. Eye protection that prevents 100% of UV light from being transmitted through the lens must be worn at all times when replacing the UV Lamps on any ELX-UV Ventilator that is energized and/or has the potential to be energized and expose personnel to UV light.
2. Whenever service work is performed it is recommended that long sleeve shirts and pants be worn to minimize the potential for inadvertent exposure of the skin to UV light.

Preventive Maintenance

The following Preventive Maintenance items must be performed by a trained and qualified Certified Service Agency at a frequency shown on page 3-2, Table T-3-2-1, EXHAUST SYSTEM INSPECTION SCHEDULE. These tasks involve potential exposure to high doses of UV light and live electrical components. There is a risk of shock, injury and/or death from contact with live electrical components.

1. Testing UV Lamps and Ballasts

(For these tests all XGS Extractors must be in place, the Extractor Access Doors closed and all UV Module Access Doors in place and latched.)

- a. Turn on the exhaust fan at the Gaylord Command Center. The "UVI SYSTEM ON" green Status Light in each Ventilator Section should be on. In addition to the Status Lights on the Ventilator, the Gaylord Command Center should display text indicating the similar message as the Status Lights.

UV System Scheduled Preventive Maintenance - Cont.

Testing UV Lamps and Ballasts - Cont.

- b. If the yellow “UVI LAMP FAILURE” Status Light is on it indicates that one or more of the UV Lamps are not operating. To troubleshoot and replace a lamp refer to the Troubleshooting page 4-4, and Testing and Repair section of this manual beginning on page 5-13.
- c. If the blue “UVI SYSTEM STANDBY” Status Light is on it indicates that one or more XGS Extractors are not in place and/or one or more UV Module Access Doors have not been closed properly or the internal temperature of the Ballast Box has exceeded 118° F. which activates the High Temperature Shutdown Controller. Refer to page 5-26 for troubleshooting and corrective action for the Temperature Shutdown Controller.

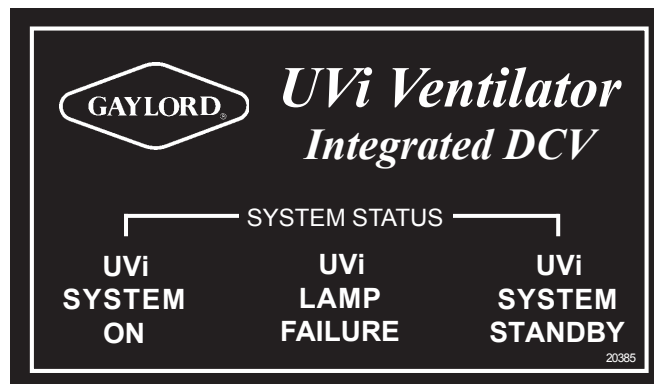


Figure 3-5-1
UVi Status Lights

2. Inspect and Clean UV Modules

- a. Turn off the exhaust fan at the Command Center.
- b. Open the UV Module Access Door(s) (refer to Figure 2-10-2).
- c. Disconnect the UV Module Lamp Ballast Connector.
- d. Remove the UV Module(s) from the Ventilator.
(*Caution: Care must be taken to keep the connector from hitting the lamps while removing the module.*)
- e. Using a damp non abrasive cloth and mild detergent, wipe down the Lamps and Lamp Housing. Lamps should be free of all grease and debris.
- f. Carefully inspect the UV Module Access Door and replace the gasket as needed to ensure a good seal.
- g. Reinstall the UV Module(s) being careful to not hit the Lamps.
- h. Reconnect the UV Module Lamp Ballast Connector.
- i. Close the UV Module Access Door(s).

3. Test Safety Interlocks for the XGS Extractors (Pressure Switches)

(Caution: For the following tests Polycarbonate Safety Glasses must be worn.)

- a. Turn on the exhaust fan at the Command Center. The “UVI SYSTEM ON” green Status Light in each Ventilator Section should be on.

UV System Scheduled Preventive Maintenance - Cont.

Test Safety Interlocks for the XGS Extractors (*Pressure Switches*) - Cont.

- b. Open the Extractor Access Door at the left end of the Ventilator remove one XGS Extractor. The blue “UVi System Standby” Status Light should come on. If this action does not occur, immediately shut down the exhaust fan at the Command Center. Refer to the Troubleshooting section of this manual for corrective action. Repeat tests 3a and 3b for the right most XGS Extractor and again for the center XGS Extractor.
- c. If there is more than one Ventilator section, repeat tests 3a and 3b for each section.

4. Test Safety Interlocks for the UV Module Access Panel (*Pressure Switches*)

(Caution: For the following tests Polycarbonate Safety Glasses must be worn.)

- a. Turn on the exhaust fan at the Command Center. The “UV System On” green Status Light in each Ventilator Section should be on.
- b. Open one UV Module Access Door (refer to Figure 2-10-2). (**Note:** If there are two UV Module Access Doors always open the shortest door for the test). The blue “UVi System Standby” Status Light should come on. If this action does not occur, immediately shut down the exhaust fan at the Command Center, refer to the Trouble Shooting section beginning on page 4-4 for corrective action.
- c. If there is more than one Ventilator section, repeat the tests above, 4a and 4b, for each section.

5. Lamp Replacement

The UV Lamps need to be replaced after 13,000 hours of use. After 13,000 hours the Lamps will still work but the performance of the Lamps decreases dramatically. The Gaylord Command Center has a built-in UV hours of operation clock. Refer to the Operation and Maintenance Manual for the Gaylord Command Center for complete operational instructions. If the Lamps have been in use over 13,000 hours they should be replaced. Refer to Page 5-13 of this manual for detailed instructions for replacing Lamps.

Cleaning and Maintenance – Cont.

Detergent for Cleaning

FORMULA G-510EF is the only cleaner recommended by Gaylord Industries for use in cleaning Gaylord Model ELX Extractors. FORMULA G-510EF is a concentrated colloid cleaner specially formulated to remove the daily accumulation of grease in the Extractors and all other interior and exterior surfaces of the Ventilator. FORMULA G-510EF is safe for kitchen personnel and has a variety of uses.

FORMULA G-510EF Safety

FORMULA G-510EF is registered with the U.S. EPA's Design for the Environment Program (DfE) which seeks to promote the use of institutional cleaners and maintenance products with improved environmental and human health characteristics.

Cleaning the Gaylord Extractors

The Gaylord XGS Extractors may be cleaned by running through a dishwasher or by soaking in a deep well sink.

To soak proceed as follows:

1. Place the Extractors in a deep well sink.
2. Pour in 2-3 cups of FORMULA G-510EF.
3. Fill sink with hot water until the water covers the Extractors.
4. Let soak for 15-30 minutes.
5. Scrub and rinse.
6. Repeat if necessary.

FORMULA G-510EF for Cleaning the Ventilator Exterior

Mix one part FORMULA G-510EF to twenty parts water in hand spray bottle. Spray on, let stand for a few minutes and wipe off.

FORMULA G-510EF for Other Cleaning Jobs

The colloidal action of FORMULA G-510EF makes it a cleaner especially well-suited for use in kitchens. The colloids break up dirt and grease into millions of tiny particles that constantly repel each other. These particles cannot recombine or redeposit on a surface and are, therefore, easily washed away. FORMULA G-510EF contains no harsh chemicals, yet offers outstanding performance on the toughest cleaning jobs.

Use a mixture of one part FORMULA G-510EF to twenty parts water for:

- VINYL/PLASTIC/WALLS...Removes dirt, grease, food deposits and fingerprints.
- REFRIGERATORS...Removes dirt, spilled milk, blood, mildew and objectionable odors.
- RESTROOMS...Add a disinfectant to clean all fixtures, walls, floors, etc.

Use a mixture of one part FORMULA G-510EF to five parts water for extremely heavy grease build-up, such as on the floor and on equipment around deep-fryers. Spray on, let set for a few minutes and rinse or wipe off. For extremely soiled areas, gentle agitation, followed by a soaking period, will result in more thorough cleaning. DON'T be afraid to experiment with FORMULA G-510EF because it contains no phosphates, nitrates, enzymes, sulfates, suffocates or silicates.

Limited Warranty

2010 Products, Inc. warrants that Formula G-510EF will not cause cleansing agent damage to the rubber and synthetic parts of the injection pump (“O” rings, diaphragms, washers, tubing, and other such parts) used with The Gaylord Ventilator, Heat Reclaim Unit, or Pollution Control Equipment so long as used pursuant to its product instructions. 2010 Products, Inc. obligation under this warranty and any warranties implied by law shall be limited to repairing or replacing, at its option, any of said parts which 2010 Products, Inc. examination shall disclose to its satisfaction to have been damaged by the use of Formula G-510EF for the life of the detergent pumping system. This warranty shall not cover damages caused by any other detergent. The use of any other detergent shall void this warranty. All repairs and replacement parts under this warranty shall be F.O.B. 2010 Products, Inc. The owner shall pay the necessary freight and delivery charges; also removal and installation costs. Any federal, state or local taxes are also extra. Requests for repairs or replacement part should be made to 2010 Products, Inc., P.O. Box 7609, Salem, Oregon, 97303. This is the sole warranty with respect to FORMULA G510EF.

2010 Products, Inc. MAKES NO 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 OBLIGATION ARE HEREBY DISCLAIMED AND EXCLUDED FROM THIS AGREEMENT. 2010 Products, Inc. SHALL NOT BE RESPONSIBLE FOR INCIDENTAL OR CONSEQUENTIAL DAMAGES RESULTING FROM A BREACH OF THIS WARRANTY.

IMPORTANT

If a cleansing agent other than FORMULA G-510EF is used with The Gaylord Ventilator injection pump and solenoid valves, it is recommended that a warranty similar to the above be obtained from the manufacturer of said product, that the detergent has foaming properties similar to FORMULA G-510EF and that the above-referenced Warranty shall become null and void.

FORMULA G-510EF Distributor

For the name and address of the nearest FORMULA G-510EF distributor contact:

Gaylord Industries
10900 SW Avery Street
Tualatin, OR 97062
E-mail: info@gaylordventilation.com
Website: www.gaylordventilation.com
Phone: 800-547-9696

Gaylord Part Number :

Formula G-510EF GPN 23425 GL-G510EF 20L (5 Gallons)

Troubleshooting

Using the Troubleshooting Charts

The following Troubleshooting Charts are designed to easily find common problems, the probable cause and guidance for corrective action. In some cases the Corrective Action column will reference the Testing and Repair section of this manual for additional guidance and actions.

SMOKE LOSS		
SYMPTOM	PROBABLE CAUSE	CORRECTIVE ACTION
1 The Ventilator is not exhausting all the smoke, heat and grease properly.	A. Exhaust volume is low due to fan performance issues or a Gaylord Balancing Damper, is not adjusted properly. Measure the exhaust volume as described on page 5-1 through 5-4.	1 Check exhaust fan for broken or slipping belts. Adjust or replace belts as required.
		2 Confirm proper rotation of fan wheel.
		3 Check for proper size of exhaust fan. Fan must deliver Ventilator Nameplate rating.
		4 Check and adjust Gaylord Balancing Damper as described pages 2-12 of this manual.
		5 Check for open access panel in duct system and close or re-install if open.
	B. Exhaust volume is low due to a heavy grease accumulation on the Extractors.	1 Remove the Extractors and inspect for grease accumulation. If the extractors are not clean refer to page 3-1 for proper method of cleaning.
	C. The Ventilator must have its own exhaust system and no other exhaust, such as dishwasher hoods should be tied into it.	1 Inspect the duct system and verify that there are no other non Ventilator systems tied in. If so they must be removed.
	D. Improperly placed make-up air diffusers.	1 Make-up air directed at the Ventilator will likely create cross drafts disrupting the air flow into the Ventilator. Adjust the louvers to direct the make-up air away from the Ventilator. Refer to page 5-5 for guidance.
		2 Make-up air should be delivered through registers at ceiling height, and distributed throughout the kitchen area. Refer to page 5-5 for guidance.
		3 Make-up air registers located near the Ventilator, the louvers should be adjusted to direct the air away from the Ventilator. Directing or forcing the make-up air at the Ventilator typically creates cross drafts resulting in smoke loss. Refer to page 5-5 for guidance.
	E. Inadequate make-up air	1 Make-up air must be supplied for replacement of air exhausted through all kitchen exhaust systems. Refer to page 5-5 for guidance.
		2 A general "rule of thumb" is that 60% of the replacement air should be fresh, conditioned, (heated or cooled) air brought into the kitchen area, with the remaining 40% allowed to flow into the kitchen from
	F. Exhaust fan discharge	1 There should be no screen over the discharge. If one is found, it should be removed.
		2 The direction of discharge should not be into the prevailing winds nor downward onto the roof. A vertical discharge is highly recommended.

Troubleshooting – Cont.

GREASE EXTRACTION		
SYMPTOM	PROBABLE CAUSE	CORRECTIVE ACTION
1 Poor grease extraction.	A. Ventilators exhausting too much air can cause an excessive amount of noise and allow grease to be pulled through the Extractors. Ventilators exhausting below design will also allow grease to be pulled through the Extractors.	1 Check for proper exhaust volume by following the instructions beginning on page 5-1.
	B. Sticky grease may have accumulated within the Extractors, creating a higher velocity within the Extractors allowing grease to be pulled through.	1 Remove the Extractors and inspect for grease accumulation. If dirty, clean as instructed on Page 3-1.

EXHAUST FAN		
SYMPTOM	PROBABLE CAUSE	CORRECTIVE ACTION
1 If the exhaust fan is started but the exhaust fan does not come on.	A. Overload protector on the magnetic starter has tripped.	1 Push the "Reset" button on the magnetic starter and start the fan.
	B. If a HOA (Hands Off/Automatic) type magnetic starter switch is used, the selector switch may have been moved from the automatic position.	1 Check the switch and turn the selector to the automatic position.
	C. Exhaust fan circuit breaker tripped.	1 Re-set circuit breaker.
	D. If the system is equipped with a fused disconnect switch for the exhaust fan, a fuse or fuses may have blown out.	1 Check continuity of fuses and replace if necessary.
	E. Faulty start switch or if equipped, the Gaylord Command Center may have been improperly wired.	1 Refer to the wiring diagrams beginning on page 7-1.
	F. If equipped with a Gaylord Command Center it may be malfunctioning.	1 Refer to the Operation, Maintenance and Installation Manual for the Gaylord Command Center, the Troubleshooting section.
2 When the exhaust fan is started and air is not being pulled through the Ventilator, but you can hear the fan running.	A. If the Ventilator is equipped with a manually adjustable balancing damper, the damper may be closed or closed down too far.	1 Check the balancing dampers. For guidance on the proper opening refer to instructions beginning on page 2-12.
	B. If the ventilator is equipped with either a electric balancing damper or a fire/balancing damper, the damper closes each time the exhaust fan is pushed. The damper may not be re-opening when the fan is started.	1 Open the Extractor Access Panel nearest the exhaust duct collar and remove the Extractor. Start the exhaust fan and observe the damper. If the damper does not move to a partially open or fully open position then there is either a mechanical or electrical malfunction. Refer to page 2-12 instructions on corrective action.
	B. Fan drive belt is slipping.	1 Tighten belt and then measure exhaust volume to verify. Refer to instructions on measuring exhaust volume beginning on page 5-1.
	C. Fan is running in reverse.	1 Contact electrical contractor to wire correctly.

Troubleshooting – Cont.

UV SYSTEM		
SYMPTOM	PROBABLE CAUSE	CORRECTIVE ACTION
1 After exhaust fan is started and the UV Status lights on the Ventilator section(s) illuminate as follows: 1. Green light is Off . 2. Yellow light is Off . 3. Blue light is On .	A. XGS Extractor is missing.	1 Find and replace missing XGS Extractor.
	B. Extractor Access Door open.	1 Close Access Door.
	C. UV Module Access Panel missing or partially open.	1 Replace or close panel.
	D. Safety Interlock Pressure Switch(s) is out of adjustment.	1 Refer to page 5-16 for instructions on adjusting.
	E. Airflow is too low.	1 Confirm Ventilator is at design exhaust volume. Refer to instructions beginning on page 5-1 for measuring exhaust volume.
	F. The internal temperature of the Ballast Box has exceeded 118°F. and the High Temperature Shutdown Controller has activated.	1 Confirm that the cooling fan has not failed. If failed, refer to page 5-16 for instructions on replacing. 2 Check the removable filter in front of the Ballast Box Ventilation Fan to see that it is not clogged or that air inlet to the fan or the louvers at the air outlet is not blocked by building insulation or any other material. Clean the filter or replace with a new filter and/or remove the material that is blocking the air inlet or outlet. 3 Building insulation has been placed over the top of the Ballast Box. Corrective action: Cut a rectangular opening in the insulation, the size of the Ballast Box, and slide it down around the sides of the box. Tape the insulation down so it will not interfere with the openings. Note: the ELX-UVi Ventilator has been approved and listed for such application, and must not be covered with insulation impeding the cooling openings going into the Ballast Box. 4 Ballast Box Access Cover Plate gasket is missing or broken down. Remove old gasket and replace. Refer to the Parts section of this manual to order a new gasket. 5 The cooking equipment under the Ventilator is in a "runaway" condition operating to hot. Check with owner to see if cooking equipment is operating properly.
2 After exhaust fan is started and the UV Status lights on the Ventilator section(s) illuminate as follows: 1. Green light is On . 2. Yellow light is On . 3. Blue light is Off .	A. One or more UV Lamps has failed	1 Refer to page 5-7 for instructions on determining which Lamp has failed and replace.
	B. UV Ballast has failed.	1 Refer to page 5-14 for instructions on determining which Ballast has failed and replace.
	C. Loose wires.	1 Check wires 1A and 3A from the Command Center to the UV Ballast Box. If either are loose, re-secure and tighten.
3 After exhaust fan is started and the UV Status lights on the Ventilator section(s) illuminate as follows: 1. Green light is Off . 2. Yellow light is On . 3. Blue light is Off .	A. No electrical power to the UV Ballast Box located on the top of each Ventilator section.	1 Take steps necessary to supply power to each UV Ballast Box. Refer to the wiring diagrams in Chapter 7 for voltages. 2 Check the Circuit Breaker.
	B. Lamp / Ballast Connector unplugged.	1 Plug in connector. Refer to page instructions beginning on page 5-7.
	C. Loose wire at the Command Center or UV Ballast Box.	1 Check terminal 1U from UV Ballast Box back to the Command Center.
	D. Green status light miss-wired or failed.	1 Confirm light is getting power and/or replace lamp(s) as necessary.

Troubleshooting – Cont.

UV SYSTEM - Cont.

SYMPTOM	PROBABLE CAUSE	CORRECTIVE ACTION
4 After the exhaust fan is started the UV Status Lights on the Ventilator sections do not illuminate.	A. No power on terminal 6U in the Command Center.	1 Check and replace the 4 amp fuse located in the Command Center. Confirm 6U is not shorted and the reason the fuse is blown. If 6U is shorted at some point, find the pinch or short and repair as needed.
	B. Loose wire.	1 Check for voltage on 5U and 6U. Re-secure any loose connections between the Ventilator and the Command Center.
5 Repeated Ballast / UV Lamp fail	A. UV Ballast Box located on the top of the Ventilator is too hot.	1 Refer to line 1-F on the previous page for corrective action. 2 Check out removable filter. Shake out and replace.
	B. Cooling fan opening and vents are covered up with insulation.	1 Remove all obstructions from the inlet to the fan, and the exit vents. Access to the top of the Ventilator will be required. Note: the ELX-UV Ventilator has been tested and listed for such application, and must not be covered with insulation impeding the cooling openings going into the Ballast box.
	C. Ballast Box Access Cover Plate gasket is missing or has broken down.	1 Remove old gasket and replace. Refer to the Parts section of this manual to order a new gasket.
6 Command Center not functioning as intended.	A. Varies.	1 Refer to Operation, Maintenance and Installation Manual for the Gaylord Command Center, the Troubleshooting section.

Measuring Airflow

Measuring Airflow

Overview

ELX and ELX-UV Ventilators are factory engineered to operate at a specific exhaust volume, CFM (Cubic Feet per Minute), based on, primarily, the type of cooking appliance, and the exact model of the Ventilator. Smoke capture, grease extraction efficiency and heat removal are dependent upon the proper exhaust volume (Airflow) through the Ventilator. If the exhaust volume is below design, smoke, grease and heat may escape the confines of the Ventilator creating an uncomfortable kitchen for the operators. It will also reduce grease extraction efficiency of the XGS Extractors resulting in additional grease depositing in the duct system and exhaust fan. This can lead to sanitation problems and fire hazards if left uncorrected. If the exhaust volume is higher than design, more energy will be used to operate the exhaust fan, excessive noise levels will result, and grease can be pulled through the Extractors depositing in the duct and fan. Operating the Ventilator at higher or lower airflows than design will result in the entire kitchen ventilation system being out of balance.

It is important that at initial installation of the Ventilator the exhaust volume is measured to verify that it meets design. It is also recommended that the exhaust volume be measured once every two or three years to insure that the exhaust fan is operating properly. The exhaust volume for each Ventilator section is stamped on the Ventilator Nameplate (refer to Figure 5-4-1 on page 5-4).

The Ventilator exhaust volume is determined by measuring the inlet velocity of the XGS Extractors and applying the value to a formula converting velocity, in FPM, to an exhaust volume in CFM. This requires an Anemometer, and the recommended unit is a Pacer rotating vane Model DA40 or DA4000 Digital Anemometer. These instruments can be purchased from Gaylord Industries.

To measure the velocity and confirm the exhaust volume, proceed as follow:

Instructions

1. For safety purposes turn off the cooking equipment and allow to cool.
2. Confirm that all XGS Extractors are clean and in place.
3. If model ELX-UV Series, make sure all UV Module Access Doors are closed and latched.
4. Turn on the exhaust fan.
5. Attach the cable from the sensing head to the meter (refer to Figure 5-3-1 and 5-3-2).
6. Attach the handle sections to the sensing head.
7. Beginning at the left Extractor, called extractor No. 1, place the sensing head against the face of the Extractor, as shown in Figure 5-3-1.
8. Using the 16 second averaging feature on the meter, slide the sensing head in a “Z” pattern as shown on Figure 5-3-1, slowly, at a rate that would last roughly 16 seconds. If you reach the end of the “Z” pattern before the 16-Second interval has elapsed, continue moving the probe head back the other direction (without removing it) until the 16 second sample interval has expired.
9. At the end of 16 seconds an average velocity will appear on digital readout of the meter.
10. Record the average velocity and identify as Extractor No. 1.
11. Repeat the process for the remaining extractors, No. 2, 3 etc.
12. Upon completing average velocity readings for each Extractor, add the readings together for a total. Then divide this total by the number of Extractors. The result is called the Total Average Velocity (TAV).

Measuring Airflow Cont.

The Gaylord Model XGS Extractors come in two sizes, a nominal 11" H x 16" W, Model XGS-11, and a nominal 18" H x 16" W, Model XGS-18. It is necessary to know the area of an Extractor, in sq. ft., to determine the exhaust volume. Gaylord Industries has predetermined The Manufacturer's Corrected Area for each of the two sizes. They are as follows:

- a. Size 11" H x 16" W = .75 sq. ft. Extractor Area (EA)
- b. Size 18" H x 16" W = 1.25 sq. ft. Extractor Area (EA)

13. To Determine the exhaust volume, CFM, for a Ventilator section use the following formula:

$$\text{CFM} = \text{TAV} \times \text{EA} \times \text{NOE}$$

Where:

CFM = Cubic Feet per Minute (exhaust volume)

TAV = Total Average Velocity (of the Extractors)

EA = Extractor Area (the area of each Extractor in sq. ft.)

NOE = Number Of Extractors

Example:

Assume you have seven 11" x 16" Extractors and the average velocity of each Extractor is:
 $394+368+392+402+399+379+388 = 2722$ divided by 7 = 389 (rounded up).

This is your TAV (Total Average Velocity).

$$\text{CFM} = \text{TAV} \times \text{EA} \times \text{NOE}$$

$$\text{CFM} = 389 \times .75 \times 7$$

$$\text{CFM} = 2042$$

14. Compare the measured CFM with the CFM stamped on the Ventilator Nameplate (refer to Figure 5-4-1). The acceptable range is 0% low and 10% high. If the CFM is not within acceptable range then corrective action must be taken to bring the exhaust volume within design. Typically low or high exhaust volumes are caused by one of the following:

- a) If the Ventilator has a balancing damper and if the Determined CFM is low, the Balancing Damper needs to be opened slightly. If the Determined CFM is high the Balancing Damper needs to be closed slightly. Refer to page 2-12 for specific instructions on adjusting the dampers.
- b) **Important Note: Keep in mind that as one damper is adjusted it will affect the exhaust volume in the remaining Ventilator sections so making minor adjustments, and coming back and retaking static readings is highly recommend.** Continue either opening or closing the Balancing Damper until the measured CFM is at or close to the desired CFM stamped on the label.
- c) The exhaust fan may not be operating properly. Refer to the Troubleshooting section, page 4-1 for possible problems and corrective action.

Measuring Airflow – Cont.

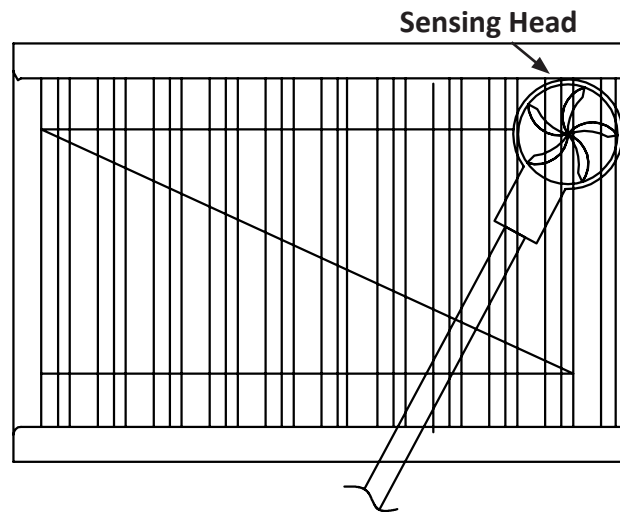



Figure 5-3-1
Sensing Head Placement



Figure 5-3-2
Anemometer

Measuring Airflow – Cont.

Total Exhaust CFM Here



Intertek
42106

EXHAUST HOOD WITH OR WITHOUT EXHAUST DAMPERS

CONFORMS TO UL STD 710 & 710C NSF STD 2
CERTIFIED TO ULC STD S646

LISTED FOR USE AT ZERO CLEARANCE TO COMBUSTIBLE MATERIALS ON WALL SIDE SURFACE OF HOOD AND UV ELECTRICAL ENCLOSURE.

DISTANCES FROM COOKING SURFACE TO FILTER LESS THAN 18 INCHES ALLOWED ON XGS FILTERS ONLY.

ELXC MODEL HOOD FOR USE WITH LISTED SUB-ASSEMBLY CONTROL AND WASH DOWN CABINET MODEL GPC-7000 SERIES.

THIS EXHAUST HOOD MEETS ALL REQUIREMENTS OF THE LATEST EDITION OF NFPA-96 AND THE IMC (INTERNATIONAL MECHANICAL CODE).

PROVISIONAL COA# 5571

GAYLORD INDUSTRIES
10900 S.W. AVERY STREET
TUALATIN, OR 97062 USA
(800) 547-9696
EMAIL: info@gaylordventilation.com
www.gaylordventilation.com
PATENT PENDING

ELX0314 / 20137

ELX SERIES ENGINEERING DATA

MODEL NO. ELX -

SERIAL NO.

☐ (11 X 16) XGS ☐ (18 X 16) XGS

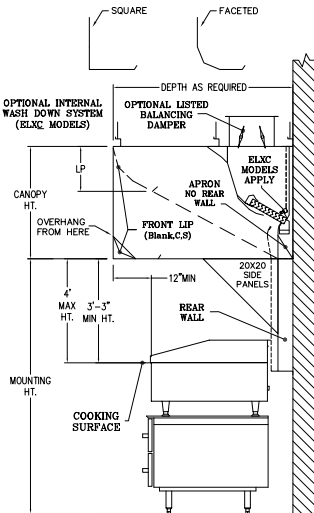
NUMBER OF EXTRACTORS: _____

1. MIN SUGGESTED TOTAL EXHAUST VOLUME FOR THIS SECTION C.F.M.

2. EXHAUST STATIC PRESSURE AT DUCT COLLAR W.G.

MAXIMUM COOKING SURFACE TEMPERATURE	400°F	600°F	700°F
CANOPY HT.	LISTED MIN VALUES IN CFM/LF OF HOOD		
	FACETED, CHAMFERED, OR ROUND FRONT 6 TO 12 INCH SUPER CAP LIP		
HP-30 INCH MIN W/ REAR WALL	104	110	216
HP-30 INCH MIN NO REAR WALL	131	131	233
MP-24 INCH MIN W/ REAR WALL	137	151	243
MP-24 INCH MIN NO REAR WALL	137	144	262
LP-12 INCH MIN W/ REAR WALL	147	147	381
LP-12 INCH MIN NO REAR WALL	170	170	412
BBC-24/30 INCH MIN. ISLAND	127	127	307
BB-12 INCH MIN (DOUBLE, VALUE/SIDE)	170	170	381
BB-30 INCH MIN (DOUBLE, VALUE/SIDE)	131	131	233

- REFER TO GAYLORD VENTILATOR TECHNICAL MANUAL FOR METHOD(S) OF VERIFYING AIR VOLUMES.
- ELECTRICAL RATING OF LIGHT FIXTURES; 120 VOLT, 60HZ. OR 220 VOLT 50HZ OVERALL RATING - 12 AMPS OR LESS.
- IF HOOD IS EQUIPPED WITH ULTRAVIOLET LAMP SYSTEM, CONSULT GAYLORD VENTILATOR TECHNICAL MANUAL FOR PROPER MAINTENANCE AND SAFETY PRECAUTIONS.
- FRONT OVERHANGS ARE 12" FRONT / 6" SIDE UNLESS OTHERWISE NOTED. BBC MODEL HOODS ARE 12" FRONT / 12" SIDE. (SEE LOCATION BELOW)



SECTION VIEW

Figure 5-4-1
Ventilator Nameplate

The minimum required exhaust volume can be found stamped on on the ETL nameplate located on each hood section. The minimum values do not always correspond to the design requirements for each hood section.

Makeup Air Guidelines

Capture Performance

All Gaylord Ventilators are factory engineered to operate at a specific exhaust volume, CFM (Cubic Feet per Minute), based on, primarily, the type of cooking appliance, and the exact model of the Ventilator. Capture performance is based on two primary functions, 1) the ventilator is exhausting the engineered CFM and 2) the makeup air is being introduced correctly. Makeup air introduced incorrectly will typically result in smoke and heat loss into the kitchen, even if the Ventilator is operating at the engineered CFM. Makeup air is typically brought into the kitchen space through ceiling diffusers or through a combination of Gaylord Makeup Air Plenum Boxes, Model PBW, (refer to Figure 5-6-1) and ceiling diffusers.

Capture and Performance Guarantee

Gaylord Industries provides the following guarantee for all Gaylord Ventilators:

Gaylord Capture Performance Guarantee

Gaylord Industries warrants the Capture Performance of the Ventilator, only if the Exhaust Air Volumes are correct, per the Exhaust Volume Guidelines as stated below, and the Makeup Air Volumes are correct and delivered correctly per the Makeup Air Delivery Guidelines as stated below.

Exhaust Volume Guidelines

1. The amount of exhaust CFM through the Ventilator shall be between 100% and 110% of the values stamped on the Ventilator Nameplate for each Ventilator section.

Makeup Air Delivery Guidelines

- A. With Gaylord Plenum Boxes and ceiling diffusers.
 1. Gaylord Plenum Boxes Model PBW, shall be located immediately in front of the Ventilator, a minimum of 18" from the lower lip of the Ventilator to the discharge surface of the PlenumBox. (Refer to Figures 5-6-1 and 5-6-2).
 2. The amount of makeup air delivered through the Gaylord Plenum Box(s) shall be between 90% and 100% of the values shown on Gaylord Submittal Drawings.
 3. The amount of makeup air through the Plenum Boxes shall not exceed 60% of the exhaust volume of the Ventilator.
 4. Ceiling diffusers shall be at least 6'-0" away from all sides of the Ventilator and the outlet velocity at the diffusers shall not exceed 150 Feet per Minute (FPM).
- B. With ceiling diffusers only.
 1. Ceiling diffusers shall be at least 15'-0" away from all sides of the Ventilator and the outlet velocity at the diffusers shall not exceed 300 Feet per Minute (FPM) (Refer to Figure 5-6-1).
- C. Additional Requirements.
 1. The maximum velocity of the makeup air from diffusers, transfer air diffusers, or any other type of diffusers shall not be greater than 75 FPM on all open sides of the lower edge of the Ventilator.
 2. Cross drafts from pass through windows, hallways, or other openings shall not exceed 50 FPM.
 3. All forms of makeup air, such as ceiling diffusers, transfer air diffusers, and Plenum Boxes must be evenly distributed around each Ventilator to prevent unequal pressurization.
 4. Kitchen pressurization shall not exceed -0.02" W.G. relative to the dining or adjacent spaces as stated in NFPA-96 and ASHRAE Standard 154.
 5. For more information on acceptable methods of makeup air delivery reference ASHRAE Standard 154.

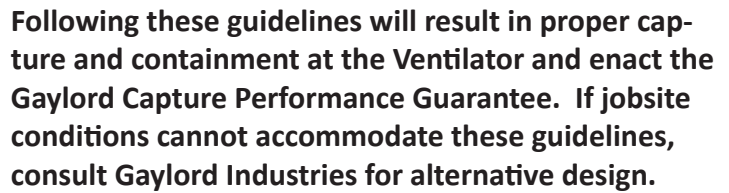
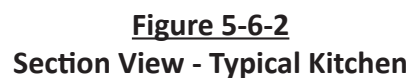


Figure 5-6-1
Plan View - Typical Kitchen



Replacing UV Lamps

Overview

The UV Lamp Modules come in two lengths, a nominal 3'-0" and 5'-0". The length and number of modules is dependent on the length of the Ventilator section (refer to Table T-5-7-1). There are six lamps in each module.

Table T-5-7-1

Number of UV Lamp Modules		
Active Ventilator Length	Number of 3'-0" Modules	Number of 5'-0" Modules
4'-0" – 6'-5"	1	0
6'-6" – 7'-5"	0	1
7'-6" – 9'-11"	2	0
10'-0" – 12'-5"	1	1
12'-6" – 16'-0"	0	2

Replacing UV Lamps

DANGER: Replacing UV Lamps as outlined on this page **MUST** be performed by a Gaylord Certified Service Agent. For a list of Gaylord Certified Service Agencies (CSA's) visit www.gaylordusa.com and go to "Find A Sales Rep/Agent".

SAFETY PRECAUTIONS

Tasks involved to replace UV Lamps involve potential exposure to high doses of UV light and live electrical components. There is a risk of serious injury to skin and eyes from UV light. There is a risk of shock, injury, and /or death from live electrical components.

Personal Protective Equipment

1. Eye protection that prevents 100% of UV light being transmitted through the lens must be worn at all times when replacing the UV Lamps on any ELXC-UV Ventilator that is energized and/or has the potential to be energized and expose personnel to UV light.
2. Whenever service work is performed it is recommended that long sleeve shirts and pants be worn to minimize the potential for inadvertent exposure of the skin to UV light.

Replacing UV Lamps - Cont.

Instructions for Replacing UV Lamps

To replace UV lamps carefully use the following step by step instructions.

1. Turn off all power to the Gaylord Command Center.
2. Turn off all circuits that supply power to the UV Lamps.
3. Open the UV Module Access Door (Refer to Figure 5-9-1).
4. Disconnect the Lamp / Ballast Connector cable by twisting the connector counter clockwise (refer to Figure 5-13-1).
5. Carefully slide out the UV Module (refer to Figure 5-9-1).
6. Referring to Figure 5-9-2, remove the two bolts pc #9, washer's pc #8, Module End Cap pc #7, and Silicon Gasket pc #6 from each end of the module.
7. Slide off each UV Lamp Sockets, pc #5, from the Lamps at each end of the Module.
 - Each UV Lamp Socket should be labeled 1 to 6.
 - Lamp #1 is at the front of the Ventilator when the UV Module is installed.
 - Lamp #6 is at the back of the Ventilator when the UV Module is installed.
 - Be sure to re-label the Lamp Sockets if necessary.
8. Lubricate the Lamps around the Grommets, pc # 2, on each end of the UV Lamp with a small amount of Formula G-510EF or similar detergent.
9. CAREFULLY slide the UV Lamp out one end.
10. Inspect the Grommets around the Lamps.
 - Replace any Grommet that show cracks, or any other damage.
11. Check all UV Lamp Sockets and wires for damage.
 - Replace Light Sockets if the socket or wire show damage.
12. Before installing, lubricate each of the new UV Lamps with a small amount of Formula G-510EF or similar detergent.
13. Slide in all the new UV Lamps.
14. Reconnect all the UV Lamp Sockets to the appropriate numbered Lamp, #1 through #6.
15. Check the Silicon Gaskets for cracks or deterioration. Replace if needed.
16. Re-install the Silicon Gaskets, Module End Caps, Washers and bolts, and torque the bolts to 20 in – lbs.
17. Slide the UV Module back into the Ventilator.
18. Reconnect the Lamp / Ballast Connector Cable.
19. Check the UV Module Access Door Gasket for cracks or deterioration. Replace if needed.
20. Close the UV Module Access Door.
21. Close all Extractor Access Doors.
22. Turn on all circuits that supply power to the UV Lamps.
23. Turn on power to the Gaylord Command Center.
24. Check for proper operation of the UV Lamps and Pressure Switches following the Test Lamps and Ballasts instructions beginning on page 3-4.

Replacing UV Lamps - Cont.

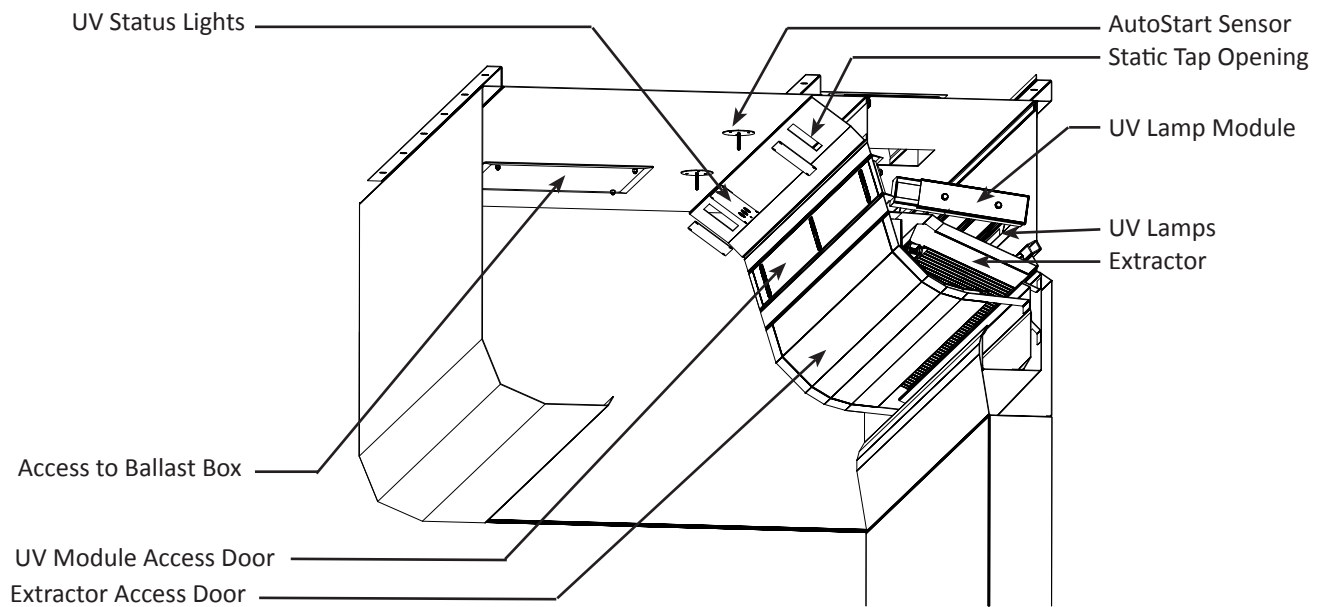


Figure 5-9-1

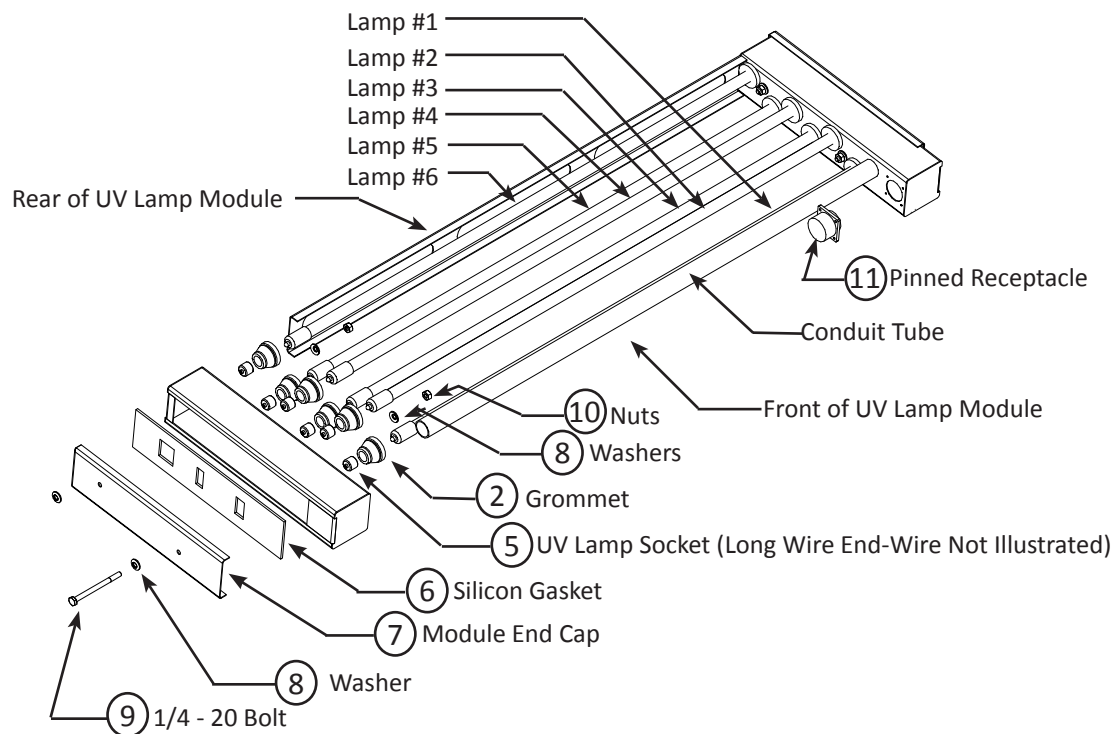


Figure 5-9-2
UV Module
(Exploded View)

Replacing UV Lamp Sockets

Overview

If the UV Lamp Socket or wire connected to it is damaged they must be replaced. The UV Lamp Socket and the wire come as one piece. They are not available individually. There are two methods of replacing UV Lamp Sockets, the Individual Method or the Wiring Harness Method. Use the following directions for replacing:

DANGER: Replacing UV Lamp Sockets as outlined on the following pages MUST be performed by a Gaylord Certified Service Agent. For a list of Gaylord Certified Service Agencies (CSA's) visit www.gaylordventilation.com and go to "Service Agencies" or call Gaylord Industries at 503-691-2010.

Safety Precautions

Caution: Tasks involved in replacing UV Lamp Sockets involve potential exposure to high doses of UV light and live electrical components. There is a risk of serious injury to skin and eyes from UV light. There is a risk of shock, injury, and /or death from contact with live electrical components.

Personal Protective Equipment

1. Eye protection that prevents 100% of UV light being transmitted through the lens must be worn at all times when working on UV Lamp Modules on any ELXC-UV Ventilator that is energized and/or has the potential to be energized and expose personnel to UV light.
2. Whenever service work is performed it is recommended that long sleeve shirts and pants be worn to minimize the potential for inadvertent exposure of the skin to UV light.

Instructions for Replacing UV Lamp Sockets – Individual Method

To replace UV Lamp Sockets carefully use the following step by step instructions.

1. Turn off all power to the Gaylord Command Center.
2. Turn off all circuits that supply power to the UV Lamps.
3. Open the UV Module Access Door (Refer to Figure 5-9-1).
4. Disconnect the Lamp / Ballast Connector Cable by twisting the connector counter clockwise (refer to Figure 5-13-1).
5. Carefully slide out the UV Module and place on a work bench.
6. Referring to Figure 5-13-3, remove the two bolts pc #9, washers, pc #8, Module End Cap pc #7, and the Silicon Gasket, pc #6, from each end of the module.
7. Slide off each UV Lamp Socket, pc #5, from the Lamps at each end of the Module.
8. Remove the four screws that hold the base of the Pinned Receptacle, Figure 5-13-3 pc #11, to the Lamp Module and pull the base away from the Module until the wires are exposed.
9. The UV Lamp Sockets are numbered 1 through 6. The wire from each UV Lamp Socket is wired back to the Pinned Receptacle and connected to a pin labeled A through N (refer to Figure 5-11-1). There are two UV Lamp Sockets with wire per Lamp. One is called the UV Lamp Socket Long Wire, the one that runs to the opposite end of the Pinned Receptacle. The other is called the UV Lamp Socket Short Wire, the one that is at the end with the Pinned Receptacle. Identify the wire by number to be replaced.
10. Cut the identified wire at the Pinned Receptacle. CAUTION: Do not pull the UV Lamp Long Wire out at this time. It is needed to pull the new Lamp Socket through the conduit tube.

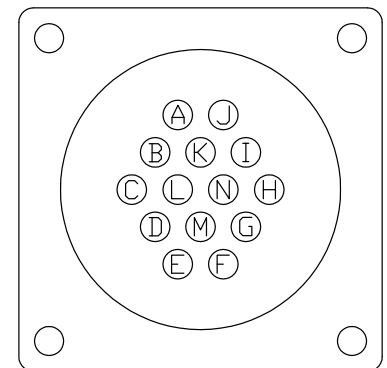
Replacing UV Lamp Sockets - Cont.

Instructions for Replacing UV Lamp Sockets – Individual Method – Cont.

1. Slide off the UL Lamp Sockets from the Lamp and remove the UV Lamp Socket Short Wire. CAUTION: Do not pull the UV Lamp Long Wire at this time. It is needed to pull the new Lamp Socket through the conduit.
2. Using a Pin Removal Tool, Gaylord Part Number 20415, push the associated pin out of the base of the Pinned Receptacle.
3. All Lamp Sockets come with a 76" wire length so each has to be cut to match the one being replaced.
4. Cut the correct length wire, and at the end opposite the Lamp Socket, strip back 1/4" of the insulation. Solder on the pin that is provided.
5. Push the soldered wire pin into the base of the Pinned Socket, for both the Short and Long Wire, at the appropriate letter socket. Refer to Table T-5-11-1 and Figure 5-11-1.
6. Re-install the Pinned Socket base.
7. Replace the UV Socket Long Wire by tying the end of the cut Long Wire to the socket end of the new UV Socket Long Wire and pull it through the conduit wire way (Refer to Figure 5-13-3).
8. Slide the UV Sockets onto the Lamp at both ends.
9. Check the Silicon Gaskets for cracks or deterioration. Replace if needed.
10. Re-install the Silicon Gaskets, Module End Caps, Washers and bolts, and torque the bolts to 20 in – lbs.
11. Slide the UV Module back into the Ventilator.
12. Reconnect the Lamp / Ballast Connector Cable.
13. Check the UV Module Access Door Gasket for cracks or deterioration. Replace if needed.
14. Close the UV Module Access Door.
15. Turn on all circuits that supply power to the UV Lamps.
16. Turn on power to the Gaylord Command Center.
17. Check for proper operation of the UV Lamps and Pressure Switches following the Test Lamps and Bal-lasts instructions beginning on page 3-4.

Connection Points From Pinned Receptacle to UV Lamp Sockets														
Pin Letter	A	B	C	D	E	F	G	H	I	J	K	L	M	N
Left End Long Wire Lamp Socket #							4	3	2	1	5	Not Used	Ground Wire	6
Right End Short Wire Lamp Socket #	1	2	3	4	5	6								

Table 5-11-1



**Figure 5-11-1
Pinned Receptacle**

Replacing UV Lamp Sockets - Cont.

Instructions for Replacing UV Lamp Sockets – Wiring Harness Method

DANGER: Replacing UV Lamp Sockets as outlined on this page **MUST** be performed by a Gaylord Certified Service Agent. For a list of Gaylord Certified Service Agencies (CSA's) visit www.gaylordventilation.com and go to "Find A Sales Rep Agent" or call Gaylord Industries at 503-691-2010.

Safety Precautions

Caution: Tasks involved in replacing UV Lamp Sockets involve potential exposure to high doses of UV light and live electrical components. There is a risk of serious injury to skin and eyes from UV light. There is a risk of shock, injury, and /or death from contact with live electrical components.

Personal Protective Equipment

1. Eye protection that prevents 100% of UV light being transmitted through the lens must be worn at all times when replacing the UV Lamps on any ELX-UV Ventilator that is energized and/or has the potential to be energized and expose personnel to UV light.
2. Whenever service work is performed it is recommended that long sleeve shirts and pants be worn to minimize the potential for inadvertent exposure of the skin to UVC light.

Overview

The UV Lamp Sockets Wiring Harness comes with 6 Lamp Sockets Long Wire and 6 Lamp Sockets Short Wire connected to the base of a Pinned Receptacle.

Instructions

To replace all UV Lamp Sockets with a wiring harness carefully use the following step by step instructions.

1. Turn off all power to the Gaylord Command Center.
2. Turn off all circuits that supply power to the UV Lamps.
3. Open the UV Module Access Door.
4. Disconnect the Lamp / Ballast Connector Cable by twisting the connector counter clockwise (refer to Figure 5-13-1).
5. Carefully slide out the UV Module and place on a work bench.
6. Referring to Figure 5-13-3, Remove the two bolts pc #9, washers, pc #8, Module End Cap pc #7, and the Silicon Gasket, pc #6, from each end of the module.
7. Slide off each UV Light Socket, pc #5, from the Lamps at each end of the Module.
8. Remove the four screws that hold the base of the Pinned Receptacle, pc #11, to the Lamp Module and pull the base away from the Module until the wires are exposed.
9. The UV Lamp Sockets are numbered 1 through 6. The wire from each UV Lamp Socket is wired back to the Pinned Receptacle and connected to a pin labeled A through N (refer to Figure 5-13-2). There are two UV Lamp Sockets with wire per Lamp. One is called the UV Lamp Socket Long Wire, the one that runs to the opposite end of the Pinned Receptacle. The other is called the UV Lamp Socket Short Wire, the one that is at the end with the Pinned Receptacle. Cut all the wires at the Pinned Receptacle. **CAUTION:** Do not pull the UV Lamp Long Wire at this time. It is needed to pull the new Lamp Socket Long Wire through the conduit tube.

Replacing UV Lamp Sockets - Cont.

1. Remove all the UV Lamp Socket Short Wire. CAUTION: Do not pull the UV Lamp Long Wire at this time. It is needed to pull the new Lamp Socket through the conduit.
2. Pull all but one of the UV Lamp Socket Long Wire.
3. Install the new Pinned Socket base.
4. Replace the group of UV Socket Long Wires by tying the end of the one remaining Long Wire to the socket ends of the new group of UV Socket Long Wires and pull them through the conduit tube.
5. Slide all the UV Sockets onto the Lamp pins at both ends being careful to match the number on the UV Sockets to the number on the Module.
6. Check the Module End Caps Silicon Gaskets for cracks or deterioration. Replace if needed.
7. Re-install the Module End Caps with gasket, washers and bolts, and torque the bolts to 20 in – lbs.
8. Slide the UV Module back into the Ventilator.
9. Reconnect the Lamp / Ballast Connector Cable.
10. Check the UV Module Access Door Gasket for cracks or deterioration. Replace if needed.
11. Close the UV Module Access Door.
12. Turn on all circuits that supply power to the UV Lamps.
13. Turn on power to the Gaylord Command Center.
14. Check for proper operation of the UV Lamps and Pressure Switches following the Test Lamps and Ballasts instructions beginning on page 3-4.



Figure 5-13-1
Lamp / Ballast Connector

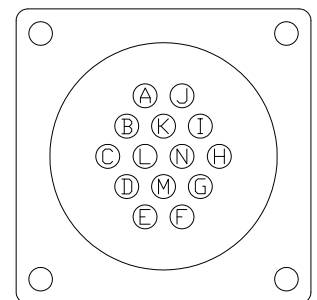


Figure 5-13-2
Pinned Receptacle

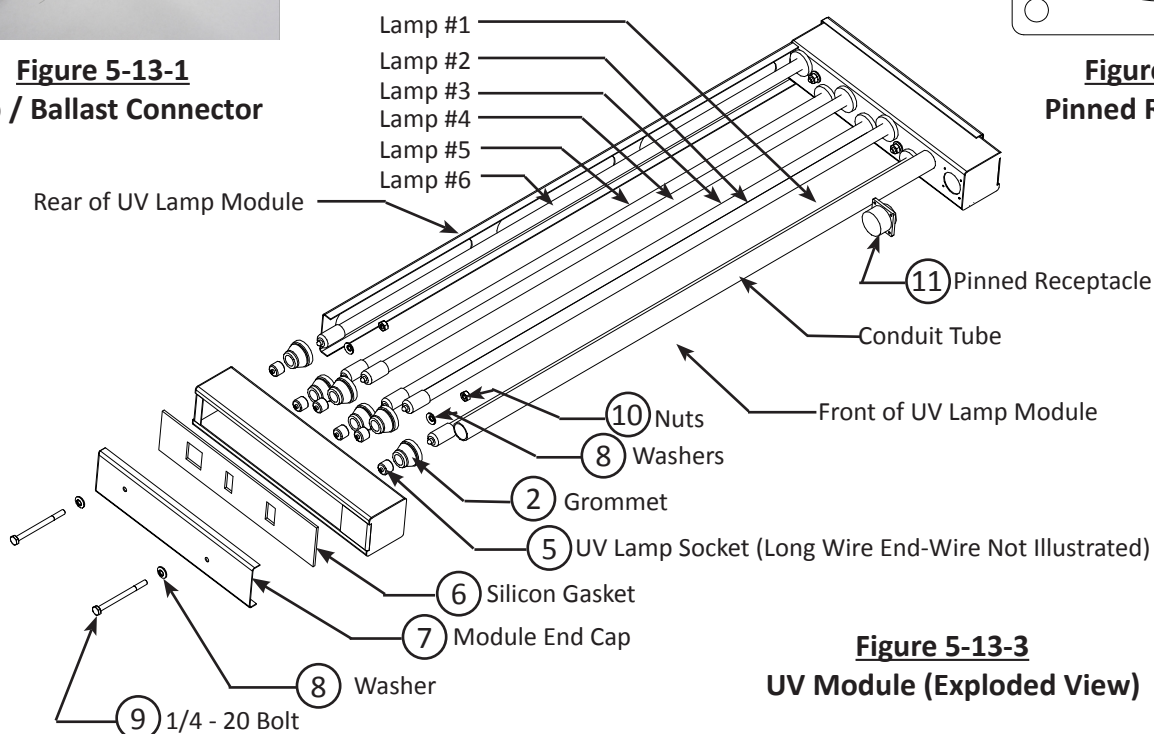


Figure 5-13-3
UV Module (Exploded View)

UV Ballast Box

Overview

There is one UV Ballast Box for each Ventilator section. The UV Ballast Box contains the Ballasts and other electrical components necessary to operate the UV System (Refer to Figure 5-21-2). A list of all the components and their part numbers are shown on Page 6-7 and 6-8. To replace any of the components proceed as follows:

Ballast

The Ballasts are called Ballast Boards (refer to Figures 5-21-2 and 5-22-1). The number of Ballasts Boards is dependent upon the number of UV Lamp Modules, one or two. One Ballast Board serves two UV Lamps. So, for example, if the Ventilator has two UV Lamp Modules then there would be a total of 12 Lamps and therefore six Ballasts Boards. The Ballasts Boards are mounted on Ballast Board Plates (Refer to Figure 5-21-2). If the Ventilator has two UV Lamp Modules there are two Ballast Board Plates, one mounted in front of the other. The Front Ballast Board Plate always serves the left UV Lamp Module and the Rear Ballast Board always serves the right UV Lamp Module. So, for example if the Ventilator has two Lamp Modules the Front Ballast Board Plate would have two Ballast Boards and the Rear Ballast Board Plate would also have two Ballast Boards.

The Ballast Boards are numbered 1, 2 and 3. Ballast Board number 1 serves Lamp number 1 and 2, Ballast Board number 2 serves Lamp number 3 and 4, and ballast Board number 3 serves Lamp number 5 and 6. (Refer to Table T-5-14-1).

Table T-5-14-1

Ballast Board / Lamp Chart			
Left UV Module Front Ballast Board Plate		Right UV Module Rear Ballast Board Plate	
Serves Ballast Board #	Serves Lamp #	Serves Ballast Board #	Serves Lamp #
1	1	1	1
	2		2
2	3	2	3
	4		4
3	5	3	5
	6		6

There are two Green and two Red Status Lights on a Ballast Board, one set for each Lamp (refer to Figure 5-19-2). The Status Lights are numbered Lamp 1 through 6 to correspond with the Lamp number. A Green light indicates the Lamp is operational and a Red light indicates the Lamp is not operational and must be replaced. If both lights are out then the Ballast Board is faulty and it must be replaced.

UV Ballast Box - Cont.

Replacing Ballast Boards

To replace the Ballast Board proceed as follows (refer to Figure 5-21-2 and 5-22-1):

Caution: Turn off all power to the Command Center and to the UV Ballast Box. There is a risk of shock, injury, and /or death from contact with live electrical components.

1. Turn off all power to the Gaylord Command Center.
2. Turn off all circuits that supply power to the UV Lamps.
3. Remove the UV Ballast Box Access Cover.
4. Unplug the Ballast Board power.
5. Remove the two screws that hold the Front Ballast Board Plate. Remove the Rear Ballast Board Plate if necessary.
6. Remove all wires from the terminal blocks. Label if necessary.
7. In three corners of the Ballast Board are plastic standoff retainers and the fourth corner is a screw. Using a screwdriver push in the retainer tab on the plastic standoff while pulling up on the Ballast Board. Remove the one screw.
8. Install a new Ballast Board, wire the plug in harness to the terminal block, mount the Ballast Board to the Ballast Board Plate and remount, and plug the harness back in.
9. Inspect the UV Ballast Box Access Cover Gasket for cracks and deterioration and replace if necessary.
10. Replace the Access Cover.
11. Turn on all circuits that supply power to the UV Lamps.
12. Turn on power to the Gaylord Command Center.
13. Check to make sure both Green lights are on.

Replacing UV Ventilation Control Board

The UV Ventilation Control Board (Refer to Figures 5-19-2 and 5-22-2) monitors all the Safety Interlock Pressure Switches. If the Safety Interlock Pressure Switches are in a normal operational condition, a signal is sent to activate the Ballast Contactor allowing the UV System to operate. If a Safety Interlock Pressure Switch detects a problem, such as an Extractor Access Door or UV Module Access Panel being left open, a signal is sent to deactivate the Ballast Contactor which turns off the UV System. The UV Ventilation Control Board has three main components, the UV Monitoring Board, the Ballast Contactor and the Status Light Relay. If it is determined that any of these three components are defective replace as follows:

Caution: Turn off all power to the Command Center and to the UV Ballast Box. There is a risk of shock, injury, and /or death from live electrical components.

1. Turn off all power to the Gaylord Command Center.
2. Turn off all circuits that supply power to the UV Lamps.
3. Remove the UV Ballast Box Access Cover.
4. Uncouple the wire plug that interties the UV Ventilation Control Board to the Ballast Boards.
5. Unplug the wires leading to the Pressure Switches.
6. Remove all wires from the appropriate terminal blocks. Label if necessary.

UV Ballast Box - Cont.

Replacing UV Ventilation Control Board – Cont.

1. Remove the 2 screws that hold the Din Rail and remove the entire assembly.
2. Loosen and slide off the end retainer (Refer to Figure 5-22-2).
3. Slide off the components as required.
4. Slide on the new component and tighten the end retainer.
5. Reinstall the Din Rail and reconnect all the wires.
6. Inspect the UV Ballast Box Access Box Access Cover Gasket for cracks and deterioration and replace if necessary.
7. Replace the Access Cover.
8. Turn on all circuits that supply power to the UV Lamps.
9. Turn on power to the Gaylord Command Center.

Replacing Ventilation Fan

The Ventilation Fan removes the heat generated by all the electrical components. It is on, typically, whenever the exhaust fan is on. If the Ventilation Fan is not pushing enough air, pull out the mesh filter, clean and replace. If the Ventilation Fan is determined to be defective, replace it as follows (Refer to Figure 5-21-2).

Caution: Turn off all power to the Command Center and to the UV Ballast Box. There is a risk of shock, injury, and /or death from live electrical components.

1. Turn off all power to the Gaylord Command Center.
2. Turn off all circuits that supply power to the UV Lamps.
3. Remove the UV Ballast Box Access Cover.
4. Disconnect the wires from the terminal block.
5. Remove the 4 screws from the holding bracket and remove the fan.
6. Install a new fan in the reverse order.
7. Inspect the UV Ballast Box Access Box Access Cover Gasket for cracks and deterioration and replace if necessary.
8. Replace Access Cover.
9. Turn on all circuits that supply power to the UV Lamps.
10. Turn on power to the Gaylord Command Center.

Pressure Switches

There are two Pressure Switches used as the Safety Interlocks that monitor if all the XGS Extractors are in place, and if the UV Module Access Panels are closed and latched. If one or more XGS Extractors are missing and / or one or more UV Module Access Panels are not in place the Pressure Switches will sense a pressure drop and shut down the UV System.

A 1/8" copper tube runs from a Static Pressure Tap in the Ventilator plenum into the Ballast Box. The copper tube is then connected to a clear vinyl tube which in turn is connected to the Pressure Switch. The vinyl tube is called a Vacuum Release Tube and has a small hole midway in the tube to allow trapped pressure

UV Ballast Box - Cont.

Pressure Switches - Cont.

that may have been caused by the static tap plugging with grease, to bleed off. This safety feature will automatically shut off the UV System if the static tap becomes plugged. **Caution: If the vinyl tube needs replacing always use Gaylord Industries Vacuum Release Tube (refer to Parts 6-8).**

The Pressure Switches must be set prior to the initial operation of the Ventilator, and after the exhaust volume has been verified in accordance with the Measuring Airflow section on pages 5-1 through 5-4. To set the Pressure Switches proceed as follows (Refer to Figure 5-19-1).

Caution: Testing the Pressure Switches must be performed by Gaylord Certified Service Agent. For a list of Gaylord Certified Service Agencies (CSA's) visit www.gaylordventilation.com and go to "Find A Sales Rep/Agent".

Caution: The Pressure Switches are located in the Ballast Box which is only accessible from the underside of the Ventilator. Therefore before you get started setting the Pressure Switches be sure to provide yourself secure means to the equipment in order to gain access to the critical components contained in the ELX Ballast Box.

Caution: To set the Pressure Switches the exhaust fan must be on and therefore the Ballast Box will have live electrical components. Be extremely careful not to make contact with live electrical components. It is recommended that gloves be worn while adjusting the switches. There is a risk of shock, injury, and/or death from contact with live electrical components.

CAUTION: Verify that the SPADE CONNECTORS ARE IN PLACE PRIOR TO ANY ADJUSTING as illustrated in Figure 5-19-1. If Not proceed to "Spade Connector not in Place Procedure".

PRIOR to Starting (Site Conditions): The Kitchen Exhaust system is to be fully balanced. All Doors and windows to be closed and sealed consistent with the future operation of the kitchen. Make up air and transfer air systems are to be activated and running during this procedure. Cooking Equipment is to be OFF. Kitchen Ambient Temperatures are to be between 75°F and 85°F. Kitchens running outside these temperatures may not be set correctly. A follow up must be conducted with the kitchen after it is in operation to verify the operations of the UV system and its interlocks.

Setting the Pressure Switches

1. Confirm the Ventilators are properly balanced and verify that if so equipped the Demand Control System is running at 100%.
 2. Install all XGS Extractors.
 3. Remove the UV Ballast Box Access Cover located on the roof of the canopy for each Ventilator section. A 7/16" Nut Driver will be needed. (Gently push up the inner cover, then slide over and down to remove).
 4. Use a (SHORT) Philips screwdriver to remove the Cover Screws holding the Plastic Covers on both Pressure Switches, as shown in Figure 5-19-1.
 5. Once the covers are removed, verify spade connectors are in place as shown in Figure 5-19-1.
- CAUTION:***RISK OF SHOCK***** If the spade connectors shown are not in place turn off the power immediately. Follow the "Spade Connector not in Place Procedure" shown at the end of this section.

UV Ballast Box - Cont.

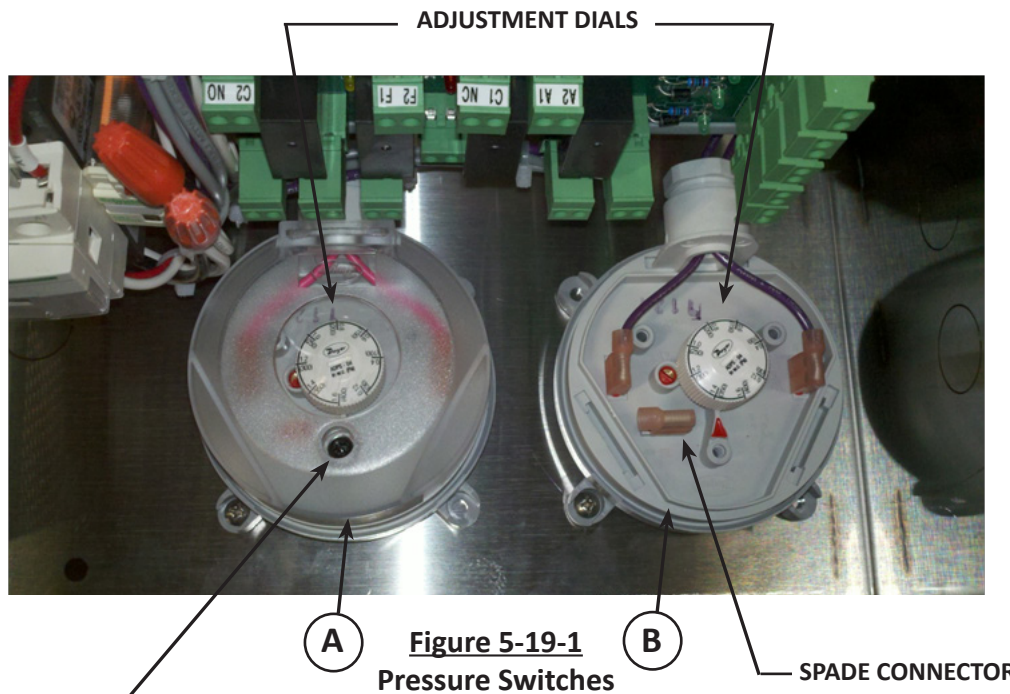
Setting the Pressure Switches - Cont.

6. With gloves on and Ventilator running at 100%, turn the Adjustment Dial, as shown in Figure 5-19-1 on Pressure Switch “A”, COUNTER CLOCKWISE until you hear a click, and the corresponding green LED lights illuminate on the Ventilation Control Board, shown in Figure 5-19-2. Then turn the Adjustment Dial Pressure Switch “B” COUNTER CLOCKWISE until you hear a “click”. The green LED lights on the Ventilation Control Board will illuminate, and the green UV SYSTEM ON light, on the Ventilator, will also come on. (NOTE: Both Pressure Switches need to be on for the UV system to turn on. LED lights will always come on when the pressure switch closes)
7. Once the UV Lamps are activated, all green LED lights on the Ventilation Control Board are illuminated, and the green UV SYSTEM ON light on the Ventilator is illuminated, gently turn Pressure Switch Adjustment Dial on Pressure Switch “A”, CLOCKWISE until the UV Lamps deactivate, then back again slowly COUNTER CLOCKWISE until the UV system comes back on. Repeat this process for Pressure Switch “B”. The Pressure Switches are now set.
8. Replace the pressure switch covers.
9. Briefly secure the Ballast Box Access Cover. It must be in place to maintain proper pressurization in the Ballast Box enclosure.
10. **Test the System:** Remove the XGS Extractor(s) at one end of the Ventilator. The UV SYSTEM ON light(s) must DEACTIVATE and the UV Lamps shut off immediately, less than one second. If they do not, place the XGS Extractors back in the Ventilator and repeat steps 3 through 9.
11. Repeat this process until the UV SYSTEM ON lights remains illuminated, and the UV Lamps stay on.
12. Once the system is functioning properly, completely secure the Ballast Box Access Cover, and move on to the next Ventilator section. Repeat as needed.

Spade Connector not in Place Procedure:

1. Shut off Power to the UV Ventilator. Note: There are two breakers to deactivate.
 - a) 208/240 UV module power.
 - b) 120 VAC Power to the Command Center.
2. Verify power is shut down by checking voltage on terminal 6U on the Ventilation Control Board. Also check terminals L3/L4. Voltage for both needs to be 0. Refer to Figure 5-19-2
3. Place a Spade Terminal on the live Terminal shown in Figure 5-19-1, for both Pressure Switches as needed. Return to “Setting the Pressure Switches”.

UV Ballast Box - Cont.



CAUTION: VERIFY SPADE CONNECTOR IS IN PLACE PRIOR TO ADJUSTMENT. IF IT IS NOT, FOLLOW “SPADE CONNECTOR NOT IN PLACE” PROCEDURE ON PAGE 5-18

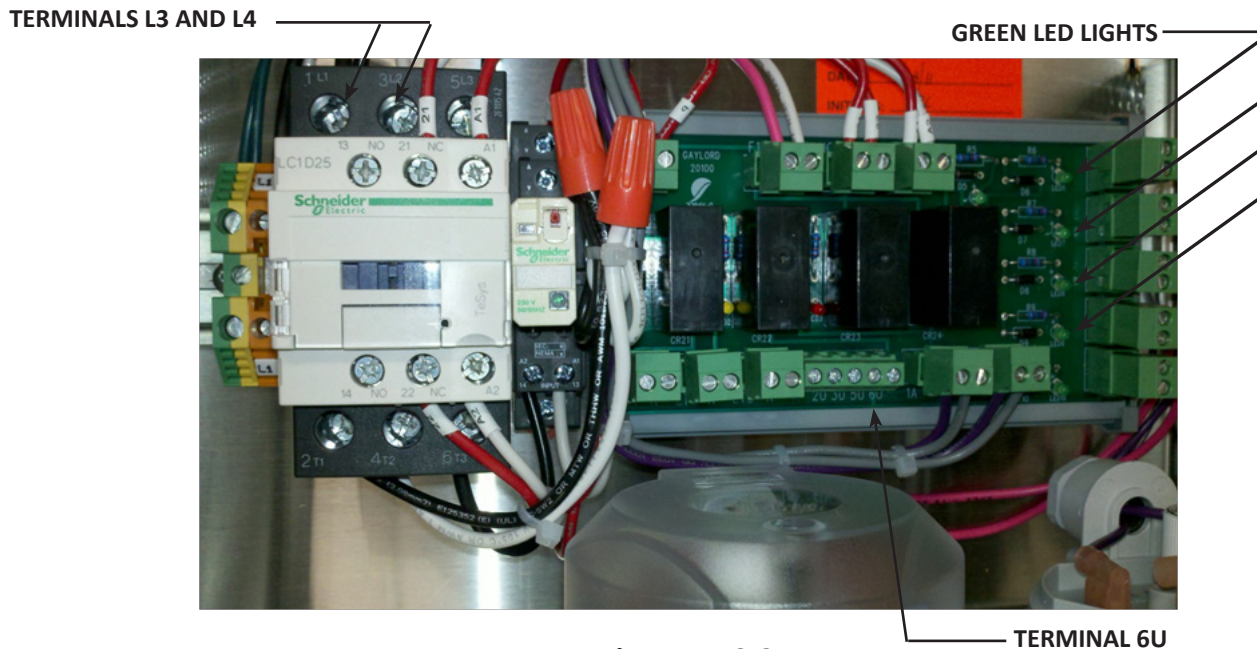


Figure 5-19-2
Ventilation Control Board

UV Ballast Box - Cont.

High Temperature Shutdown Controller

A High Temperature Shutdown Controller is mounted in the Ballast Box to monitor the internal temperature of the box and to shut down the UV System if the temperature in the Ballast Box exceeds 118°F. (Refer to Figure 5-21-2). Temperatures above 118°F may cause the Ballast Box components to fail. Activation of the High Temperature Shutdown Controller (Refer to Figure 5-21-1) will shut off the UV system, turn on the Blue UV System Standby status light mounted on the Ventilator, and the Gaylord Command Center will display text indicating a similar message as the status light. The exhaust fan will remain on. The High Temperature Shutdown Controller will typically activate for the following reasons:

1. The Ventilation Fan has failed. To replace the Ventilator Fan follow the instructions on page 5-16.
2. The Mesh Filter on the fan inlet is clogged or the inlet is blocked by building insulation or other material.
Corrective action: Clean or replace the Mesh Filter and/or remove any building insulation from the inlet.
3. The louvers at the opposite end of the Ventilation Fan are blocked by building insulation or other material.
Corrective action: Remove any building insulation from the inlet of the louvers.
4. Building insulation has been placed over the top of the Ballast Box. Corrective action: Cut a rectangular opening in the insulation, the size of the Ballast box, and slide it down around the sides of the box. Tape the insulation down so it will not interfere with the openings.
5. The cooking equipment under the Ventilator is in a “runaway” condition and operating too hot. Corrective action: Check with owner/equipment operator to see if cooking equipment is operating properly. If not, it must be serviced.

Important Note: The above conditions must be corrected or a UV Ballast failure will follow.

Checking the High Temperature Shutdown Controller Program

The High Temperature Shutdown comes programmed from the Gaylord factory and should never need to be reprogrammed. To check the program, use the following instructions:

1. Push the “**START FAN**” button on the Command Center. Check to insure that the Green UV System On status light is on.
2. Confirm controller is showing current ambient temperature (Refer to Figure 5-21-1).
3. Briefly push Set, “SP” will appear.
4. Press Set a second time, then release. “118” will appear. If it does not, the control is either faulty or needs to be reprogrammed. Consult a Gaylord Service Agency or call Gaylord Industries for instructions.

UV Ballast Box - Cont.



Figure 5-21-1
High Temperature
Shutdown Controller

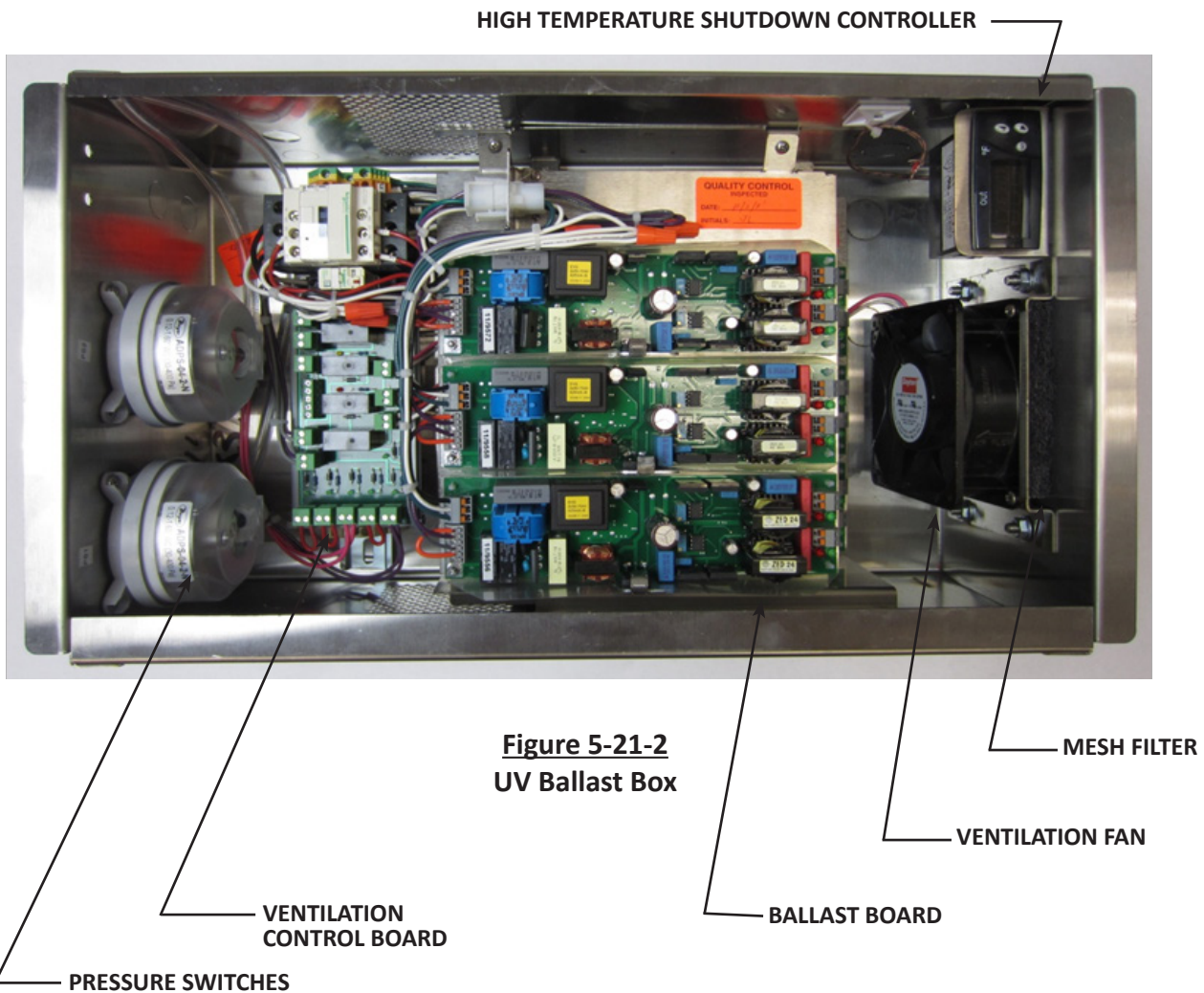


Figure 5-21-2
UV Ballast Box

UV Ballast Box - Cont.

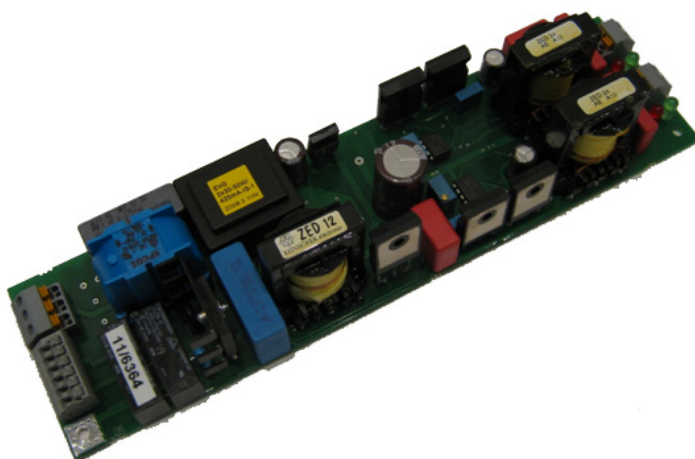


Figure 5-22-1
Ballast Board

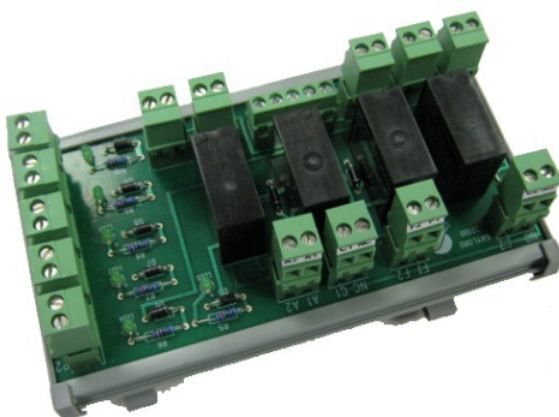
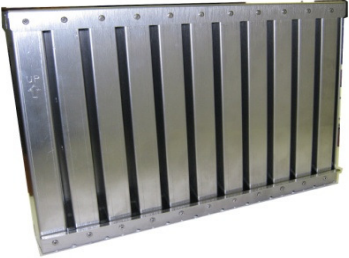


Figure 5-22-2
Ventilation Control Board







Figure 5-22-3
Safety Interlock Pressure Switch

Ventilator Parts

Parts - Ventilator			
PC No.	Description	Gaylord Part No.	Illustration
1	Extractor - Model XGS - Size 11" H x 16" L	76044	
2	Extractor - Model XGS-SPA (Spark Arrestor) Size 11" H x 16" L	76045	
3	Extractor - Model XGS-18-Size 18" H x 16" L	30514	
4	Extractor - Model XGS-18-SPA (Spark Arrestor) Size 18" H x 16" L	76042	
5	Extractor Removal Tool	76046	
6	Grease Drawer with Handle - for Ventilators with Rear Wall Design	76040	
7	Grease Drawer with Handle - for Ventilators with Apron Design (no rear wall)	76072	
8	Grease Drawer Handle	75587	
9	100 Watt Surface Mounted Light Lens	10119	
10	12 x 12 Recessed Incandescent Light Lens and Retainer	13211*	 *Complete fixture shown for Parts 13211, 10112, and 10111
11	48" Long Recessed Fluorescent Light Lens and Retainer	10112*	
12	36" Long Recessed Fluorescent Light Lens and Retainer	10111*	
13	LED Lamp for 48" Fluorescent Lights	20613	 Lamps sold individually
	for 36" Fluorescent Lights	20614	
	for 48" Fluorescent Lights	20614	




Ventilator Parts - Cont.

Table T-6-2-1

Parts - Ventilator - Cont.			
PC No.	Description	Gaylord Part No.	Illustration
1	Ventilator Exhaust Duct Collar Thermostat. 12" Long, NC Contacts, Factory set at 250 degrees F.	18465	
2	Ventilator Exhaust Duct Collar Thermostat. 15" Long, NC Contacts, Factory set at 250 degrees F. Note: For ELX-BBC Series Only.	18466	
3	Static Tap	19545	
4	Damper Control Motor 24 Volts) For GFBD and GEBD Model Dampers	19176	

Ventilator Parts - Cont.

Table T-6-3-1

Parts - Ventilator - Cont.			
PC No.	Description	Gaylord Part No.	Illustration
1	Autostart Sensor DCA	20319	
2	Autostart Sensor TST	76004	
3	Autostart DCA Controller complete with box	20317	




UV Ventilator Parts

Table T-6-4-1

Parts - UV Ventilator			
PC No.	Description	Gaylord Part No.	Illustration
1	UV Module - 3'-0", 6 Lamps (Includes Lamps)	76057	
2	UV Module - 5'-0", 6 Lamps (Includes Lamps)	76058	
3	3'-0" Lamp (single lamp)	20269	
4	5'-0" Lamp (single lamp)	20270	
5	UV Module / Ballast Connector	20138	
6	UV Status Lamp - Green	19725	
7	UV Status Lamp - Yellow	19724	
8	UV Status Lamp - Blue	20766	
9	Gasket for UV Module Access Doors 3'-0" Module 5'-0" Module	20170 20171	
10	Lift & Turn Latch for UV Module Access Door Latch key provided to only certified contractors.	19351	




UV Lamp Module Parts

Table T-6-5-1

Parts - UV Lamp Module				
Pc. No.	Description	Qty. per Module	Gaylord Part No.	Illustration
	1/4" Bonded Washer	10 PK	20140	Not Illustrated
	1/4"-20-2-1/2" Bolt	10 PK	19356	
	1/4" Cap Nut	EACH	10766	
6	Silicon Gasket for Lamp Module End Cap	2	20299	
7	UV Lamp Grommet	12	19312	
8	Heraeus UV Lamp 3'-0" Lamp (single lamp each) 5'-0" Lamp (single lamp each) *Lamps sold individually	* *	20269 20270	


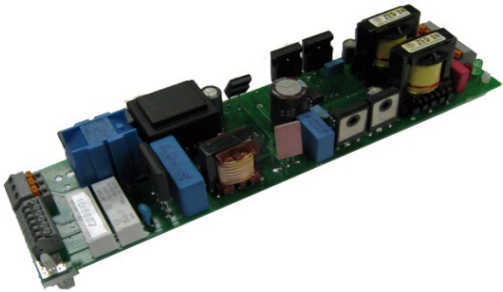
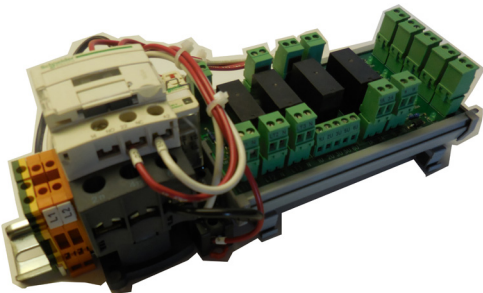

UV Lamp Module Parts - Cont.

Table T-6-6-1

Parts - UV Lamp Module - cont.			
Pc. No.	Description	Gaylord Part No.	Illustration
1	Pin Extractor Tool for Pinned Receptical	20415	
	Pin Insertion Tool for Pinned Receptical	20414	
2	Pins, Male, for UV Pinned Receptical	20416	Not Illustrated
3	Single Pin UV Lamp Socket with 76" Halogen Free Wire and Connector Pin Shipped Loose.	19799	
4	Complete Single Pin UV Lamp Socket wiring harness for 6 Lamp Modules. Includes the short and long Lamp Socket wires pre-wired to the base of the Panel Mount Base Receptical. For 3'-0" Lamp Module For 5'-0" Lamp Module	20412 20413	

UV Ballast Box Parts

Table T-6-7-1

Parts - UV Ballast Box			
PC No.	Description	Gaylord Part No.	Illustration
1	Ventilation Fan	19430	
2	UV Ballast Board (complete)	22472	
3	UV Monitoring Board with Contactor - Complete Mounted on Din Rail	76029	
4	Contactor	30529	

UV Ballast Box Parts - Cont.

Table T-6-8

Parts - UV Ballast Box - Cont.			
PC No.	Description	Gaylord Part No.	Illustration
1	Relay	30833	
2	UV Pressure Switch	20489	
3	The space intentionally left blank		
4	Gasket for UV Ballast Box Access Cover 11-1/2" x 20" 16" x 16"	20173 20172	
5	1/4-20 Chrome Acorn Nut for UV Ballast Box Cover Bonded Sealing Washer	10766 20140	

The Wiring Diagrams on the following pages are typical for various applications and may not represent your installation. Always refer to the Gaylord submittal drawings for the actual Wiring Diagrams for your installation.

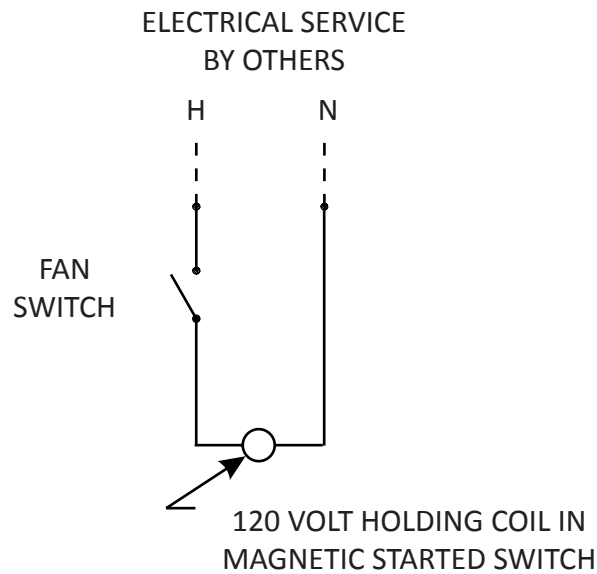


Figure 7-1-1
Typical Exhaust Fan Wiring
For Ventilators Without UV
or Electric Dampers

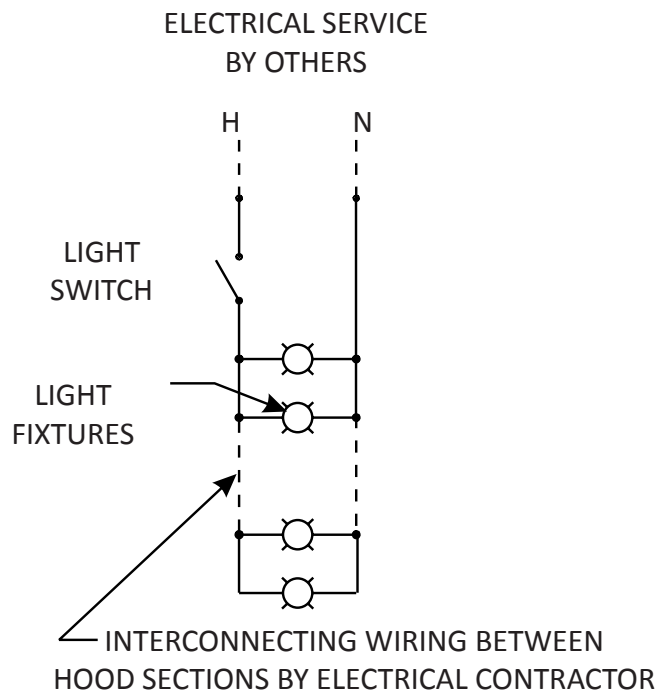
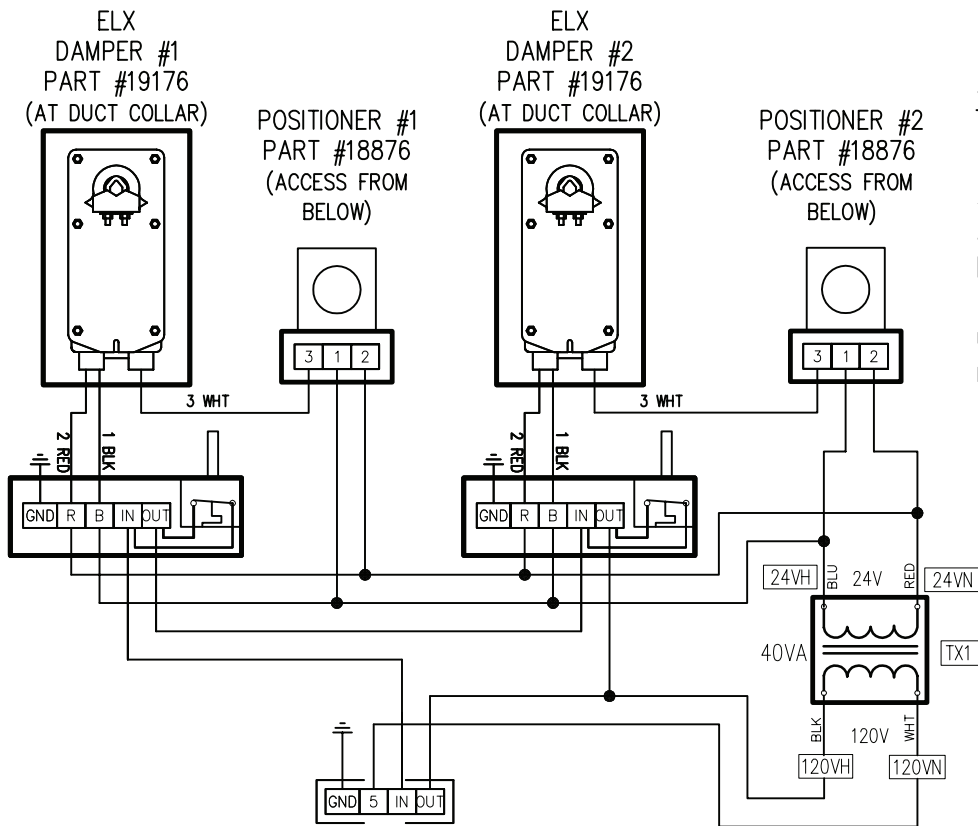


Figure 7-1-2
Typical Light Fixture Wiring

GFBD & GEBD INTERNAL WIRING / SINGLE SECTION



GFBD (Fire Balancing damper) . Dual duct wiring shown. Transformer and potentiometer to be accessed inside the hood's canopy unless otherwise noted on the drawings.

Figure 7-2-1
Wiring Diagram
with GFBD

GEBD (Electric Balancing damper) . Dual duct wiring shown. Transformer and potentiometer to be accessed inside the hood's canopy unless otherwise noted on the drawings.

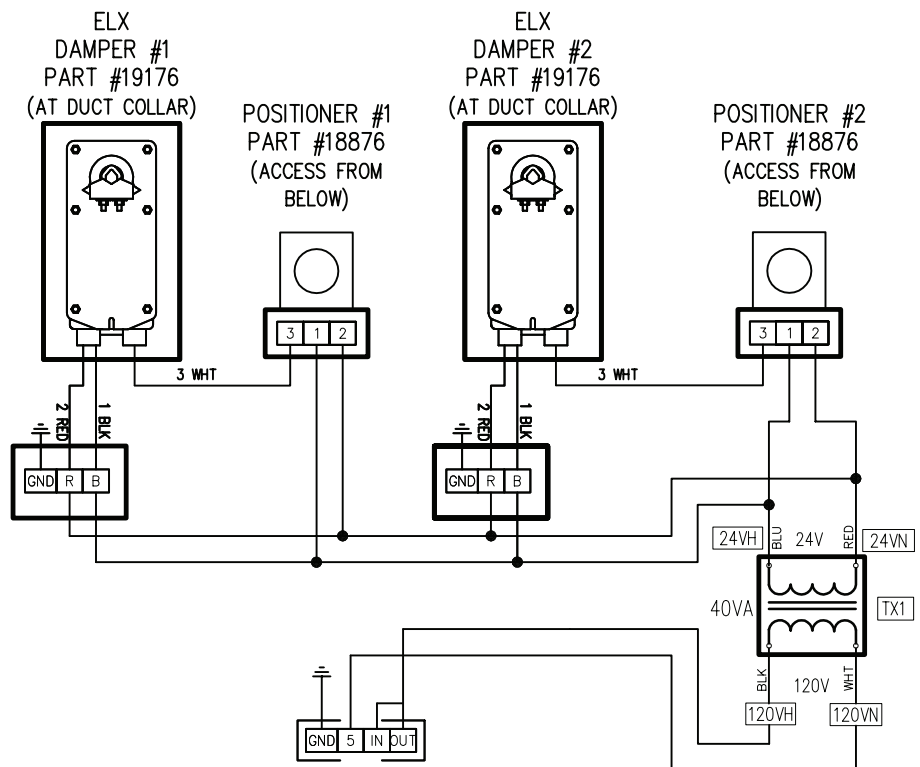


Figure 7-2-2
Wiring Diagram
with GEBD

GFBD External Wiring / Multiple Section

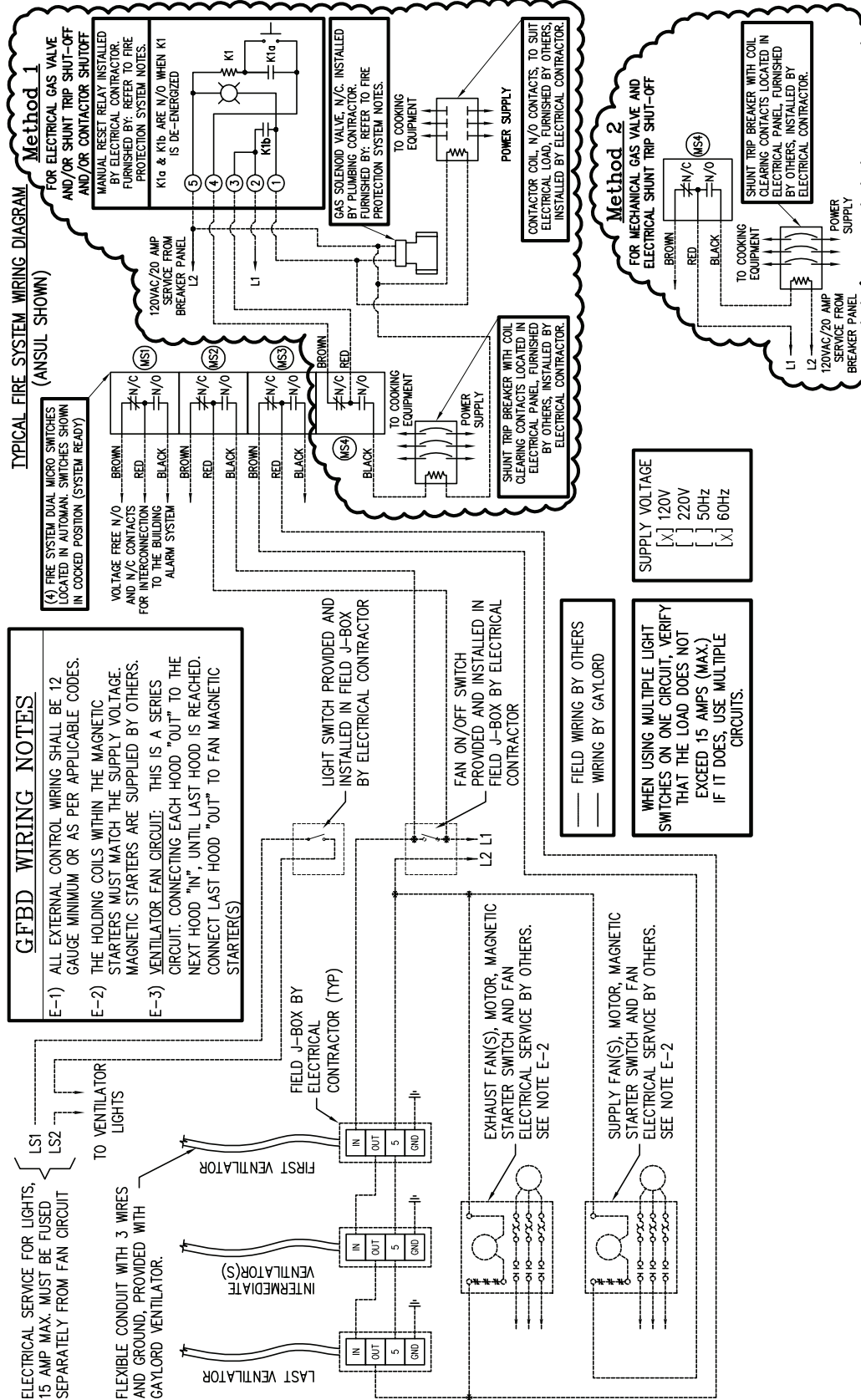


Figure 7-3-1

GFBD External Wiring Diagram





ELX-UV-GBD-ND

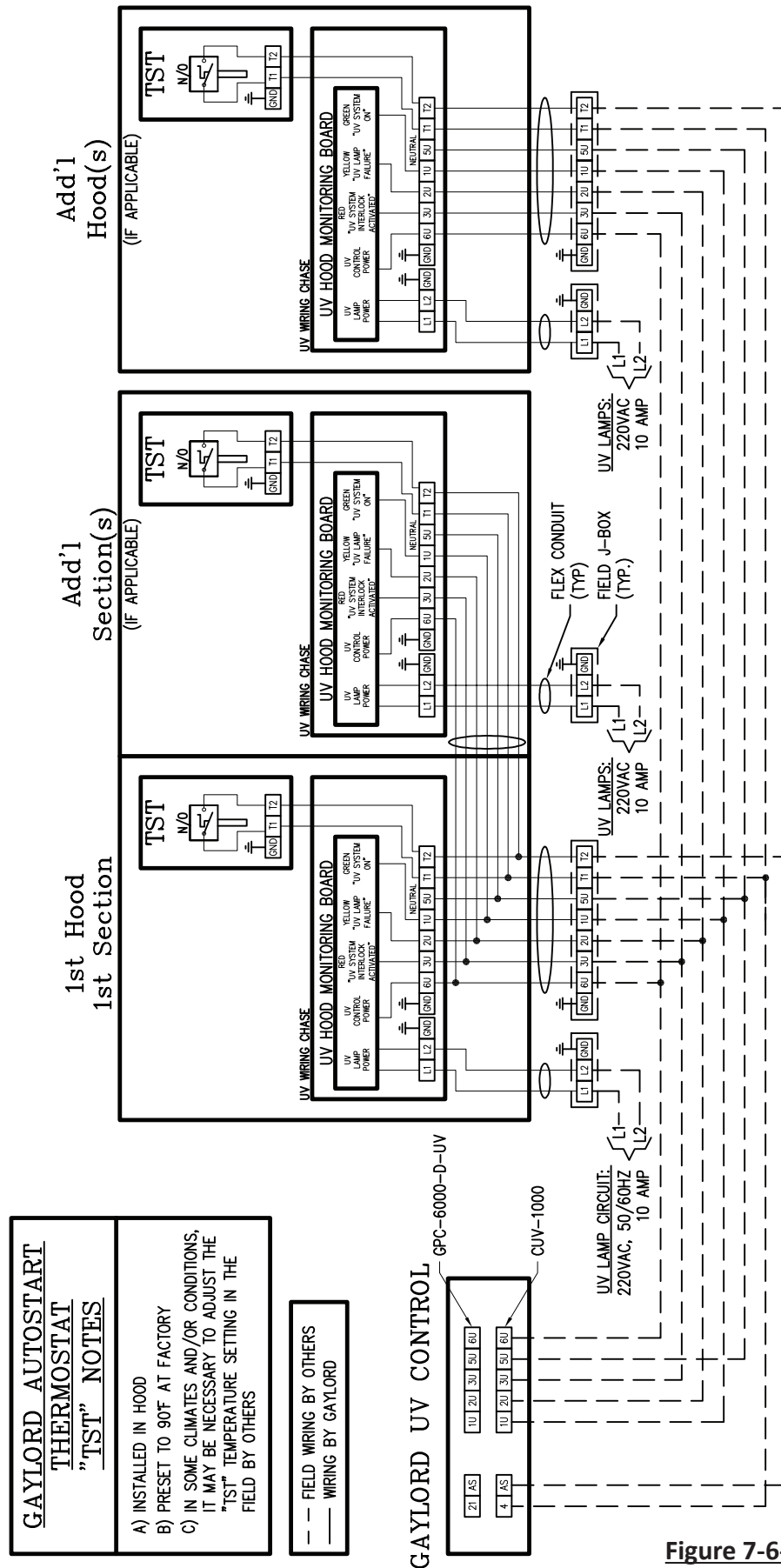


Figure 7-6-1

ELX-UV-GFBD

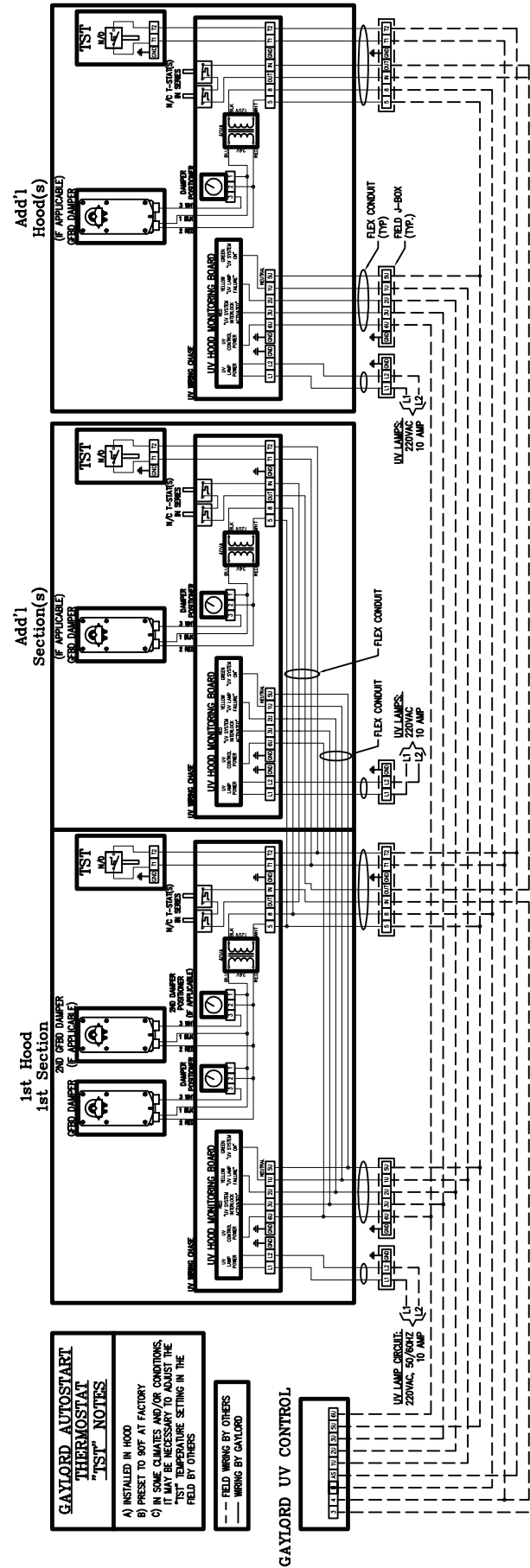


Figure 7-7-1

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Installation Requirements

Code Compliance

Ventilators must be installed to comply with all applicable codes.

1. Ventilator to be installed in accordance with NFPA-96, Standard for Ventilation Control and Fire Protection of Commercial Cooking Operations, the IMC, International Mechanical Code, and all other local applicable codes.
2. All plumbing and electrical must comply the applicable codes.
3. Contractors must review applicable codes with code authorities before approving drawings for fabrication.
4. Special attention must be given to code regulations relative to clearances from surrounding combustible constructions (walls, ceilings, etc.).

Permits

IMPORTANT NOTE: Most building departments require the Ventilator (hood) permit separate from any other general building permit. In addition if a Fire Extinguishing System is involved a separate permit from the Ventilator permit is typically required. The Ventilator permit is typically obtained through the plan review department and the Fire Extinguishing System permit through the fire prevention bureau. The installing contractor must check with local building departments for their requirements, and to obtain necessary permits.

Ventilator Listing

The Gaylord Model ELX and ELX-UV Series Ventilators are listed to UL 710 and Recognized by ETL. Any modification made to the Ventilator at the jobsite will void the listing.

Hanging the Ventilator

Use the following guidelines for hanging the Gaylord Ventilator:

1. The maximum section length of a Gaylord Ventilator is 16'-0". Ventilators longer than 16'-0" are made up of multiple sections.
2. The weight of the Ventilator is shown on the Gaylord Submittal Drawings.
3. Each Ventilator section has a full length Rear Mounting Bracket at the rear for bolting to the wall and/or hanging from the overhead. There are two other full length hanging brackets; the Middle Mounting Bracket and the Front Mounting Bracket for hanging from the overhead (refer to Figure A-2-1). All three Hanging Brackets have pre-punched holes centers for hanging from the overhead. Hanging rods to be supplied by the Ventilator installer. If the rear bracket is used for bolting to the wall the holes must be drilled by the installing contractor at a support point in the wall. Refer to Table T-A-1-1 for minimum number of mounting points.
4. It is recommended that the number of hanging rods used be no less than the recommend minimum as shown on Table T-A-2-1.
5. The Ventilator(s) must be installed at the distance from the finish floor and the minimum side overhang dimension from the end of the Ventilator to the cooking equipment as shown on the Gaylord Submittal Drawings.
6. When there is a continuous Ventilator made up of two or more sections it is recommended that each Ventilator section is hung individually. Angles are provided at the top of the sections for bolting together. The bolts are provided by Gaylord. Hem strips and bolts are provided by Gaylord for joining the Ventilators on the underside where visible.

Installation Requirements – Cont.

1. **Caution:** When installing Ventilators incorporating a UV system, ELX-UV Series, do not cover the UV Ballast Box, mounted on top of the Ventilator, with building insulation. Covering the Ballast Box inlet and outlet ventilation openings will cause the box to overheat which could result in failure of electrical components. Covering the Ballast Box with insulation will void the Ventilator and the Warranty.

Table T-A-2-1

Recommend Minimum Mounting Devices					
Rear Mounting Bracket, Bolting to Wall or Hanging With Rods		Middle Mounting Bracket Hanging Rods		Front Mounting Bracket Hanging Rods	
Max. Distance From End of Ventilator Section	Max. Spacing Between Supports	Max. Distance From End of Ventilator Section	Max. Spacing Between Supports	Max. Distance From End of Ventilator Section	Max. Spacing Between Supports
12"	72"	36"	72"	12"	72"

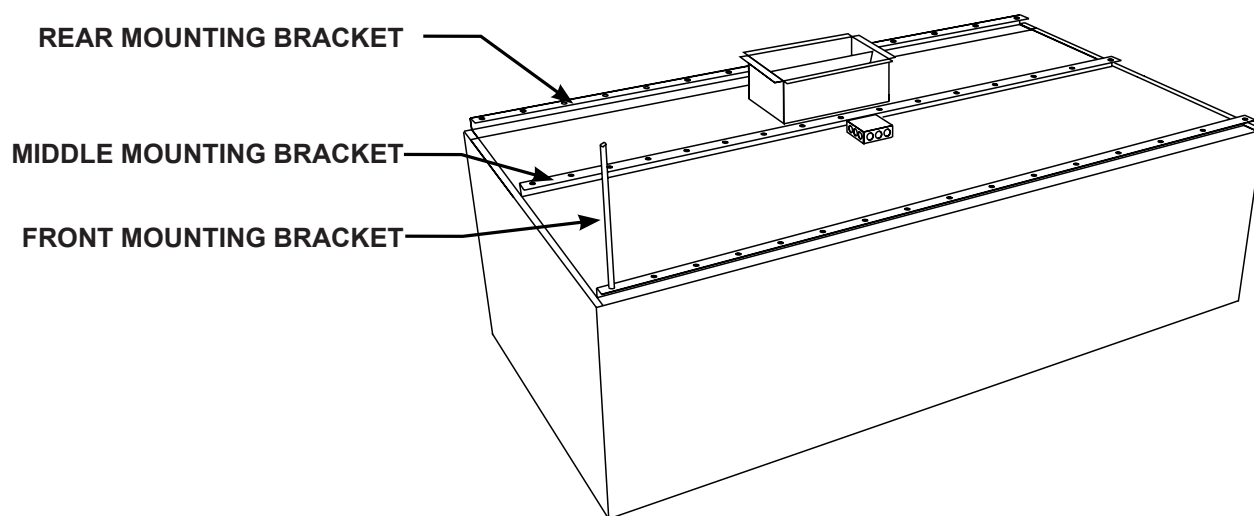


Figure A-2-1
Ventilator Hanging Point

Installation Requirements – Cont.

Ductwork

Grease exhaust ducts must be installed in compliance with NFPA-96, IMC and other applicable codes. Use the following guidelines when installing the exhaust ducts:

1. Exhaust ducts must be constructed of 16 gauge steel or 18 gauge stainless steel.
2. Exhaust ducts must be constructed with continuous external welds and be grease and water tight.
3. Exhaust duct must be continuously welded to the Ventilator duct collar.
4. All elbows should be sweeping 90's. Right angle turns or elbows less than sweeping may negatively impact the operation of the Ventilator.
5. All horizontal ducts should slope towards the Ventilator and/or towards an approved sump. Amount of slope must be in accordance with the IMC.

Electrical

Refer to the wiring diagrams on the Gaylord Submittal Drawings for specific wiring interconnections.

1. If Ventilator is provided with a built-in fan switch, provide a separate 120 volt or 220 volt circuit to the fan switch J-box mounted on top of the Ventilator. The fan switch is rated for 20 amps, 277 volts, 1 h.p. at 120 volts, 2 h.p. at 220 volts, 16 amps max.
2. If the Ventilator is provided with a Gaylord Command Center, provide a 120 volt 20 amp service to the control. Optional voltage, when specified, 220 volt 50/60 Hz.
3. If the Ventilator is built in multiple sections, and if they contain electric dampers, or thermostats, reconnect the flex conduit provided at the section breaks. The electrical contractor is responsible for making these connections.
4. If the Ventilator is provided with light fixtures, provide a separate 120 volt lighting circuit to one of the light J-box on the top of the Ventilator. Ventilator may be equipped with built-in light switch.
5. Ventilators built in multiple sections have a flex conduit at the section breaks for interconnecting the light fixture J-boxes. The electrical contractor is responsible for making these connections.

Additional Electrical for Ventilators with a UV System

Refer to the wiring diagrams on the Gaylord Submittal Drawings for specific wiring interconnections.

1. The UV Lamp Modules are shipped with the Ventilator. They are installed and tested by a Gaylord Certified Representative at the time of initial Start Up and Demonstration. They must be stored in a clean, dry environment where they will not be damaged by lift trucks, falling objects, etc.
2. Provide 208–250 VAC, 50/60HZ, Single Phase, 20AMP service to the marked j-box on the top of each Ventilator section to power the UV Lamp Modules.
3. Ventilators built in no more than two sections have a flex conduit to interconnect the two UV Ballast Boxes. The electrical contractor is responsible for making this reconnection.
4. A Gaylord Command Center is provided for all Ventilators with a UV System. Install and wire to the Ventilator(s) as shown on the Gaylord Submittal Drawings.

Airflow Rates

The exhaust air flow rate (and supply if part of the Ventilator) must be set at the rate stamped on the Ventilator nameplate. The exhaust volumes (and supply when provided) were established under controlled laboratory conditions and greater exhaust and/or lesser supply may be required for complete grease, smoke and vapor removal in specific situations.

Installation Requirements – Cont.

Fire Extinguishing System

NFPA-96 requires a Fire Extinguishing System in all Ventilators that cover grease producing cooking equipment. In many cases the Fire Extinguishing System is pre-piped by Gaylord Industries in the factory with completion of the system by a local Fire System contractor. If not pre-piped then the entire system would be installed by a local Fire System contractor. Use the following guidelines:

1. Fire Extinguishing System furnished must be in accordance with the terms of its listing and the applicable NFPA or IFC codes and standards.
2. Caution: Fire extinguishing system piping installed on the Ventilator at job site should be coordinated with the Gaylord Industries to ensure piping does not interfere with the Ventilator's operation and performance. Improper installation may void Listings of the Ventilator.
3. IMPORTANT NOTE: NFPA-96 requires that all gas cooking equipment, and electric cooking equipment that is protected by a Surface Fire Extinguishing System must automatically shut off upon activation of the system.
4. Most building departments require a separate Fire Extinguishing System permit from any other general building or Ventilator permit. Installing contractor to check with local building departments for their requirements, and to obtain necessary permits.

Ventilator Start-Up Inspection and Tests

Overview

As one of the benefits of purchasing a Gaylord ELX or ELX-UV Series Ventilator is a complete Start-Up Inspection is performed by a Gaylord Authorized Representative or a Gaylord Authorized Service Agency. These tests must be conducted prior to use by the operator. Typically at the time the Start-Up Inspection is performed, the operation and general operator maintenance of the Gaylord equipment is demonstrated and described to the operating personnel. It is the responsibility of the Gaylord Authorized Representative or Agency to coordinate the date of Start-Up with any personnel such as the GC, owner, owner's rep, Fire Marshall, fire protection contractor, air balancer etc. required to witness the Start-Up.

For the ELX Series Ventilator (without UV Lamps) the Authorized Representative or Agency uses the form titled Ventilator Start-Up Inspection and Test Report, as shown on page B-2 of this manual. For ELX-UV Series Ventilator (with UV Lamps) both forms Ventilator Start-Up Inspection and Test Report and UV Start-Up and Test Report, page B-3, are used.

The UV Lamp Modules for ELX-UV Series are shipped by Gaylord Industries directly to the jobsite. A Gaylord Authorized Representative or Agency will install the modules at the time of Start-Up.

Pre Start-Up Requirements

Before a Gaylord Start-Up can be performed the responsible contractor or dealer must have the Ventilator installed and operating. The following is a check list of items that must be completed prior to a Start-Up being conducted.

Pre Start-Up Check List

- ___ Ventilator is installed above cooking equipment as per plans.
- ___ The exhaust ductwork is connected to the Ventilator and the exhaust fan.
- ___ The supply ductwork is connected to the ceiling diffusers and the makeup air fan (system).
- ___ The exhaust fan is operational and is running in the correct direction.
- ___ The makeup air system is operational.
- ___ The exhaust fan on/off switch or the Gaylord Command Center is wired and operational.
- ___ The Ventilator lights are wired and operational.
- ___ All required electrical connections between the fan circuit or the Gaylord Command Center and the Ventilator, Building Management Systems, Remote Monitoring Systems, and the Fire Extinguishing Systems are completed per plans, and are operational.
- ___ Ventilators built in multiple sections are inter-wired.

Ventilator Start-Up Inspection and Tests – Cont.

Pre Start-Up Check List – Cont.

_____ Fire Extinguishing System installed and certified.

_____ The Gaylord XGS Extractors are installed in the Ventilator.

For ELX-UV Series Ventilators

_____ All required electrical connections between the Gaylord Command Center and the Ventilator, Building Management Systems, Remote Monitoring Systems, and Fire Extinguishing Systems are complete.

_____ There is a 200 VAC, 10 Amp power circuit going to each individual Ventilator section.

Ventilator Start-Up Inspection and Test Report

For Gaylord Model ELX and ELX-UV Series Ventilators

Facility Name _____ Gaylord Representative Company Name _____
 Address _____
 City _____ State _____ Zip _____ Gaylord Rep Name _____
 Facility Contact Name _____ Signature _____
 Facility Contact Phone # _____ Date of Start-Up _____
 Facility E-Mail _____ Gaylord File Number _____
 This Report is for Ventilator: _____

Exhaust Volume Readings

1. Start the exhaust fan. Note; if the Ventilator includes an electric damper it will take up to 45 seconds for the exhaust to come up to 100%. Did the exhaust fan come on ____ Yes ____ No
2. Determine the exhaust volume for each Ventilator section by either the Static Pressure Method or the Velocity Method as detailed in the ELX Series Operation, Maintenance and Installation Manual. Record all readings in the chart below. Record the Design CFM from the Gaylord Drawings or the Ventilator Nameplate. If the installation includes a Plenum Box make up air system, take velocity readings and record on the chart.

Exhaust Volume Test Chart - Example											
Item No.	Ventilator Description	Length	Ventilator Serial #	Plenum Box FPM	Plenum Static		Inlet Velocity		Total CFM		% + or -
					Design	Actual	Design	Actual	Design	Actual	
K-112	Griddle Fryer Line	10'-0"		125			664	610	1440	1325	-8%
K-114	Oven Kettle Line	16'-0"		110	0.22	0.28			2512	3039	21%
Exhaust Volume Test Chart											
Item No.	Ventilator Description	Length	Ventilator Serial #	Plenum Box FPM	Plenum Static		Inlet Velocity		Total CFM		% + or -
					Design	Actual	Design	Actual	Design	Actual	

For Gaylord Model ELX and ELX-UV Series Ventilators

Makeup Air

2. When the Exhaust Fan is on the Makeup Air should be on. Is the Makeup air on. ☐ Yes ☐ No
3. Type of Makeup Air discharge.
 - ☐ Ceiling Registers located approximately ft. in front of Ventilator.
 - ☐ Ceiling Plenum Box located immediately in front of Ventilator. Dimension from bottom of Ventilator to discharge screen of Plenum Box.
 - ☐ Ceiling Plenum Box located approximately ft. in front of Ventilator.
 - ☐ Linear Diffusers or registers located approximately ft. in front of Ventilator.
 - ☐ Other

Damper Test

1. Model of Damper.
 - ☐ No Damper. No test required, proceed to next test.
 - ☐ Model GBD manual Gaylord Balancing Damper. No test required, proceed to next damper.
 - ☐ Model GEBD Gaylord Electric Balancing Damper. Proceed to Electric Balancing Damper Test.
 - ☐ Model GFBD Gaylord Fire Balancing Damper. Proceed to Gaylord Fire Balancing Damper Test.

Gaylord Electric Balancing Damper Test (Damper Model GEBD)

1. Ventilators with this model damper, the damper opens every time the exhaust fan is turned on and closes every time it is shut off. To test proceed as follows:
 - a) With the exhaust fan off, remove the Extractor under the exhaust duct. To test, proceed as follows:
 - 1) With the fan off, the damper should be closed. ☐ Closed ☐ Open
 - 2) Start the fan. The damper should move to the open position ☐ Yes ☐ No
 - b) Replace the Extractor

Gaylord Electric Fire Balancing Damper Test (Damper Model GFBD)

3. **Caution:** Performing this test may set off the building fire alarm system and may notify the fire department. Notify building management/maintenance and disable the building alarm system is necessary.
4. Ventilators with this model damper including a thermostat, that when activated by high heat or fire, closes the damper. This test is also called an Internal Fire Mode Test. To test proceed as follows:
 - a) Push the Internal Fire Mode Test button on the Gaylord Command Center. The following should occur:
 - 1) The exhaust fan should be off. ☐ Off ☐ On
 - 2) The makeup air should be off. ☐ Off ☐ On
 - 3) If Ventilator includes UV, it should have shut off. ☐ Off ☐ On
 - 4) If there is a Gaylord Command Center the display should read Fire In Hood. ☐ Yes ☐ No
 - b) With the exhaust fan off, open remove the Extractor under the exhaust duct. Fire Damper should have closed. ☐ Yes ☐ No
 - c) Replace the Extractor and start fan.

Ventilator Start-Up Inspection and Test Report

For Gaylord Model ELX and ELX-UV Series Ventilators

Installation Includes the Following Equipment

- ☐ Gaylord Autostart Control.
☐ Gaylord ClearAir Pollution Control Unit. (RSPC)
☐ Gaylord Distributor. (UDS)
☐ Fire Extinguishing System. Manufacturer _____

Gaylord Representative

1. Fully explained the operation and maintenance of the Gaylord Ventilator. _____ (Rep initial)
2. Provided one copy of the Gaylord Installation, Operation, and Maintenance Manual.
_____ (Rep Initial)
3. If Installation includes a Gaylord Command Center, provide a copy of the Gaylord Command Center Technical Manual. _____ (Rep initial)

Note to Operator: You may obtain a free copy of the Gaylord Installation, Operation, and Maintenance Manual and the Gaylord Command Center Technical Manual by visiting www.gaylordventilation.com.

Owner/Operator/End User Acknowledgement

Please sign this form to acknowledge that the Gaylord Representative has thoroughly explained operation and maintenance of the Gaylord Ventilator.

Signature _____

Print Name _____

Company Name _____

Title _____ Date _____

Comments _____

Gaylord Industries – 10900 SW Avery Street – Tualatin, OR 97062 USA

Web site: www.gaylordventilation.com – email: info@gaylordventilation.com – Phone: 503-691-2010

UV Start-Up Inspection and Test Report

For Gaylord Model ELX-UV Series Ventilators

Facility Name _____ Certified Service Agency Name _____
 Address _____
 City _____ State _____ Zip _____ CSA Print Name _____
 Facility Contact Name _____ Signature _____
 Facility Contact Phone # _____ Date of Start-Up _____
 Facility E-Mail _____ Gaylord File Number _____
 This Report is for Ventilator: _____

Overview

This UV Start Up Inspection and Test Report must be performed by a Gaylord Certified Service Agency (CSA). UV Lamp Modules are shipped separate from the Ventilator to a CSA for installation, and to perform this UV Start-Up Inspection and Test. CSA, complete this form for each Ventilator section. Allow about one hour for each Ventilator section.

Important Note: Before this UV Start-Up Inspection and Test can be performed, the Ventilator Start-Up Inspection Report must be completed, and all Fire Protection Systems installed, certified and signed off by the Fire Marshall.

Installation of UV Lamp Modules

1. Check that all XGS Extractors are properly installed. Yes ____ No ____
2. Open the UV Module Access Doors and slide in the UV Lamp Modules.
3. Once installed, connect the Lamp Ballast Connectors to the UV Lamp Modules.
4. Close the UV Module Access Doors and latch.

UV Safety Interlock Test for Extractors

1. Set the Safety Interlock Pressure Switches in accordance with the Gaylord Installation, Operation, and Maintenance Manual. Once the Pressure Switches have been set proceed to step 2.
 Pressure Switches have been set. Yes ____ No ____
2. Double check to make sure all XGS Extractors are in place. Start the exhaust fan. The green UV System Status light should come on. On ____ Off ____
 If the system fails to come on refer to the UV System Troubleshooting section of the Gaylord Installation, Operation, and Maintenance Manual for ELX and ELX-UV Series Ventilators.
3. With the exhaust fan on, remove the left end Extractor, observe the Status Light, and replace the extractor. Continue the test by removing the middle and then the right end Extractor. With any one of the three Extractors removed the system should de-activate immediately and the Blue UV System Standby light should come on.
 - a) Left end Extractor removed, UV System Standby light should be on. On ____ Off ____
 - b) Middle Extractor removed, UV System Standby light should be on. On ____ Off ____
 - c) Right end Extractor removed, UV System Standby light should be on. On ____ Off ____
 If the light does not come on refer to the UV System Troubleshooting section of the Gaylord Installation, Operation, and Maintenance Manual for ELX and ELX-UV Series Ventilators.
 - d) Replace all Extractors. Yes ____ No ____

UV Start-Up Inspection and Test Report

For ELX-UV Series Ventilators

UV Safety Interlock Test for Open UV Module Access Door

1. **Caution: For this test eye protection must be worn.** With the fan on open one UV Module Access Door. Note: If there are two different sizes of doors, open the shortest one. The system should deactivate immediately and the Blue UV System Standby light should come on. On Off
If it does not come on refer to the UV System Troubleshooting section of the Gaylord Installation, Operation, and Maintenance Manual for ELX and ELX-UV Series Ventilators.
2. Close the UV Module Access Door. The green UV System On status light should come back on.
..... On Off

Instructions from the Gaylord Certified Service Agency to the Owner/Operator/End User

After the Inspection and Tests has been successfully completed, demonstrate and review the following with the Owner/Operator/End User.

1. Explain the Principles of Operation as shown on pages 6 and 7. ____ (CSA Initial)
2. Thoroughly review the Operator Maintenance and Cleaning Instructions as described on page 8.
____ (CSA Initial)
3. Explain that the Ventilator and UV System must be on a scheduled maintenance program, in accordance with NFPA-96, and that it can only be performed by a Certified Service Agency.
____ (CSA Initial)
4. Explain the hazards of UV light if the Owner/Operator/End User services the UV System.
____ (CSA Initial)
5. Provide a copy of the Gaylord Installation, Operation, and Maintenance Manual for ELX and ELX-UV Series Ventilators. ____ (CSA Initial)
6. Provide a copy of the Gaylord Command Center Technical Manual. ____ (CSA Initial)
7. Provide a copy of this UV Start-Up Inspection and Test Report. ____ (CSA Initial)

Note to Operator: You may obtain a free copy of the Gaylord Installation, Operation, and Maintenance Manual and the Gaylord Command Center Technical Manual by visiting www.gaylordventilation.com.

Owner/Operator/End User Acknowledgement

Please sign this form to acknowledge that the Gaylord Certified Service Agent has thoroughly explained items 1 through 4 above, and provided documents listed in items 5 through 7 above.

Signature _____
 Print Name _____
 Company Name _____
 Title _____ Date _____

Comments _____

Gaylord Industries – 10900 SW Avery Street – Tualatin, OR 97062 USA

Web site: www.gaylordventilation.com – email: info@gaylordventilation.com – Phone: 503-691-2010

Notes

This image shows a single sheet of white paper with horizontal ruling lines. The lines are evenly spaced and run across the width of the page. There are no margins, text, or other markings on the paper.

Gaylord Industries Limited Warranty

For

Models ELX and ELX-UV Series Ventilators

Effective April 22, 2012

The Gaylord Ventilator and component parts furnished with the Gaylord Ventilator are warranted to be free from defects of material and workmanship under normal use when installed, operated and serviced in accordance with factory recommendation. Rubber and synthetic rubber parts such as "O" rings, diaphragms and poppet checks are perishable when caustic cleaning solutions are used and, therefore, are not covered by this warranty.

The Manufacturer's obligation under this warranty and any warranties implied by law shall be limited to repairing or replacing at its option any part of said equipment when either Gaylord Industries, or the Licensed Gaylord Manufacturer's examination shall disclose to its satisfaction to be thus defective, for a period of one (1) year from the date of beneficial use, or eighteen months from date of shipment, whichever occurs first, provided proper and acceptable evidence of such is recorded at the factory. GAYLORD INDUSTRIES AND THE LICENSED GAYLORD MANUFACTURER SHALL NOT BE RESPONSIBLE FOR INCIDENTAL OR CONSEQUENTIAL DAMAGES RESULTING FROM A BREACH OF THIS WARRANTY.

In the United States, the labor required to make repairs and replacements under this warranty shall be furnished by Gaylord Industries or the Licensed Gaylord Manufacturer or its authorized representative. Such labor shall only be provided Mondays through Fridays during the hours between 8 a.m. and 4 p.m. Requests for repairs or replacement parts should be made to GAYLORD INDUSTRIES, 10900 SW AVERY STREET, TUALATIN, OR 97062, USA.

Outside the United States, all replacement parts furnished under this warranty shall be F.O.B. Gaylord Industries, Tualatin, Oregon U.S.A. The owner shall pay the necessary freight delivery charges, and necessary labor for removal and installation of parts, and any tariffs, duties or all taxes.

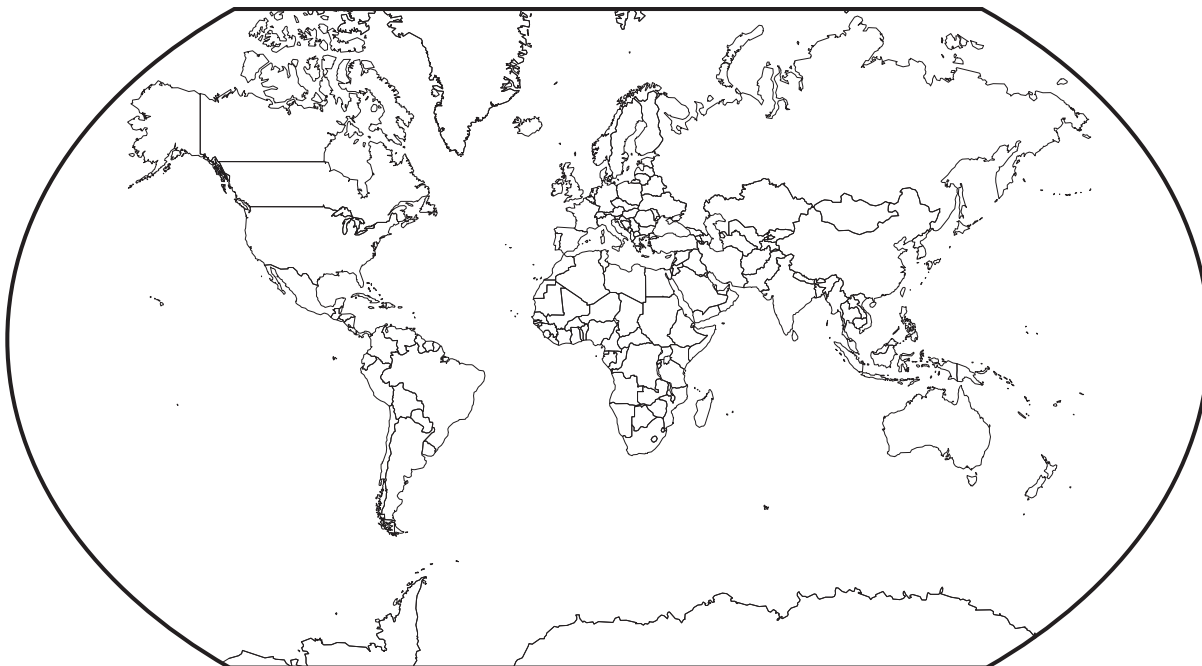
Component parts not manufactured by Gaylord Industries such as electrical switches, relays, solenoid coils, etc., shall be warranted under the terms and conditions of the warranty that is published by the manufacturer of said component parts.

This warranty does not cover routine maintenance such as detergent replacement and inspection of the cleaning system as spelled out in The Gaylord Ventilator Technical Manual. This warranty also does not cover malfunctions or improper operation caused by inadequate hot water, low water pressure, fluctuating electrical power or power surges, waste stoppages, and improper exhaust fan operation.

This is the sole warranty with respect to the aforesaid items. NEITHER GAYLORD INDUSTRIES OR THE GAYLORD LICENSED MANUFACTURER 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 EXCLUDED FROM THIS AGREEMENT.

Service and Warranty Policies

1. No warranty work shall be performed on the product without a Purchase Order from Gaylord Industries, if financial reimbursement is to be requested.
2. No warranty shall be provided on equipment that has been started up and in operation for more than 90 days unless, a product maintenance schedule has been created and performed per the requirements of this technical manual.
3. Any, and all, wearable parts are not to be considered warranty items, regardless of installation date, unless previously authorized by the factory.



**WORLDWIDE SALES, MANUFACTURING AND SERVICE
FOR THE NAME AND LOCATION OF THE NEAREST
CERTIFIED SERVICE AGENCY, VISIT OUR WEB SITE:**

WWW.GAYLORDVENTILATION.COM

OR CONTACT US AT:

GAYLORD INDUSTRIES

10900 SW AVERY STREET
TUALATIN, OREGON 97062 U.S.A

Phone: 503-691-2010

1-800-547-9696

Fax: 503-692-6048

email: info@gaylordventilation.com

LOCAL SERVICE AGENCY