



GS 75 & 100

Radial Heat Shrink Tunnel

User Guide



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Radial Heat Shrink Tunnel Model

User Guide

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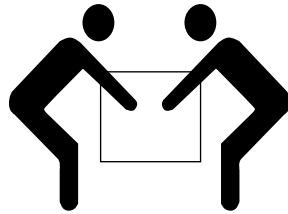
Safety

The GS Heat Shrink Tunnel is easy to install, operate and maintain. Please follow these safety steps to insure smooth and safe operation:

All operators should study this manual thoroughly before operating the machine.

- Always follow GMP (Good Manufacturing Practices) when operating this machinery.
- The machine is heavy. While unpacking and setting up the unit, always take care to use proper lifting techniques. Avoid over-reaching and leaning over while handling the machine and accessories. Use more than one person to lift and move the tunnel.

CAUTION



TEAM LIFT

- Wear safety shoes and work gloves when moving the machine.
- Beware of uneven spots on the factory floor when moving the unit.
- Make sure the electrical power source is properly wired and grounded. The power source should comply with all safety regulations and codes applicable to the installation location.
- Before attempting any service or repair, make sure that the power is turned off and power cable is disconnected from the power source.
- Before connecting the air supply, make sure that the pressure gauge is closed and that the pressure indicator reads zero.
- The equipment generates heat, so make sure the area is properly ventilated.
- Do not place any body parts or tools into a running machine!
- Turn off and unplug the machine while servicing and performing maintenance procedures.

WARNINGS

Every effort has been taken to insure safety while operating this machine, however, there are certain risks remaining. Do not allow this machine to be operated before informing all personnel of the attached warnings:

- Do not tamper with electrical wiring. Use only licensed electricians for maintenance. Always disconnect electrical power before attempting maintenance to any electrical or moving parts.
- To prevent injury to machinery and/or personnel, **DO NOT INCREASE SETTINGS ON EITHER ELECTRICAL OR MECHANICAL OVERLOAD SAFETY DEVICES.**
- **KEEP HANDS AWAY FROM MOVING CONVEYORS AND ASSEMBLIES.** Conveyor belts that have become worn or frayed can be hazardous and should be replaced promptly.
- **NEVER OPERATE THIS OR ANY MOVING EQUIPMENT WITHOUT ALL COVERS AND GUARDS IN PLACE.** The internal mechanism of most packaging machinery contains numerous shear, pinch, and in-running nip points, many of which are capable of causing severe injury and permanent disfiguration.
- To minimize potential for personal injury, always be sure that machine operators and others working on machinery are properly trained in the correct usage of the equipment and properly instructed regarding the safety procedures for operation.
- **DO NOT MAKE ANY MODIFICATIONS TO EITHER THE ELECTRICAL CIRCUITRY OR THE MECHANICAL ASSEMBLIES OF THIS MACHINERY.** Such modifications may introduce hazards that would not otherwise be associated with this machinery. American Film & Machinery will not be responsible for any consequence resulting from such unauthorized modification.
- The use of certain types of plastic films in sealing and/or shrinking equipment may result in the release of **HAZARDOUS FUMES** due to the degradation of the film at high temperatures. Before using any plastic film in this equipment, the manufacturer or supplier of the film should be contacted for specific information concerning the potential release of hazardous fumes. **ADEQUATE VENTILATION SHOULD BE PROVIDED AT ALL TIMES.**
- Keep combustible and explosive materials away from this equipment. The equipment may be a source of ignition.

- Do not use with pressurized containers. Exposure to high temperatures can cause pressurized containers to burst, and could cause injury to operators and other personnel nearby.
- Take care when clearing product jams inside the heat tunnel. Do not use anything that could potentially puncture a container. Use the hand crank to raise the tunnel from the conveyor before clearing product from inside the heat tunnel. If containers remain in the heat chamber, turn off power and allow the temperature to drop below 100°F before clearing. Temperature inside the tunnel can easily cause burns.

Safety Notes:



Electrical Hazard-do not open cover. No user-serviceable parts inside.



Ensure that unit is properly grounded.



Fumes may be harmful to the environment.



Do not tamper with electrical equipment.



Keep the equipment dry and indoors.



Some fumes may be a health hazard if exposed to for too long.
Insure the area has adequate ventilation.

Introduction

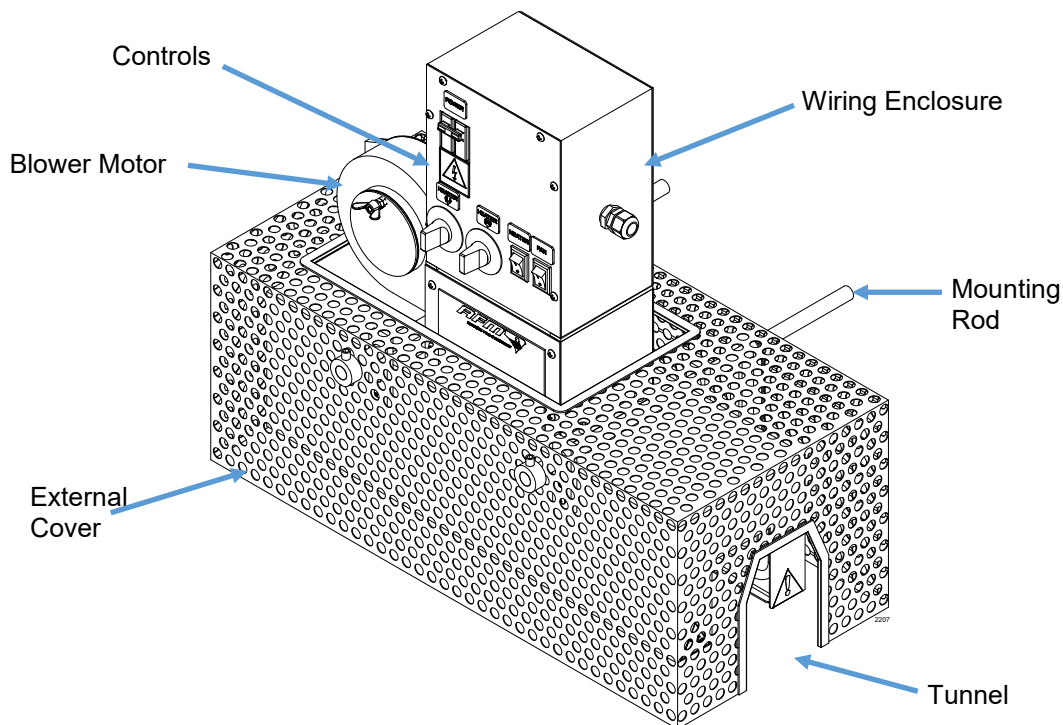
General System Description

The intended use of AFM heat shrink tunnels, is for the shrinking of heat shrink film (labels, tamper bands, multi-pack), on containers over which they have been applied. Containers with labels are to enter the tunnel, on a conveyor, for a duration of between a minimum of 3 seconds, to a maximum of 6 seconds. This dwell time of 3-6 seconds is necessary to achieve proper coverage without overheating the containers. Operators must make sure that every container that enters the AFM tunnel exits within this maximum time of 6 seconds.

AFM shrink tunnels are intended for industrial use only.

System Components

- Stainless Steel Brackets with Height Control
- IR Heat Tunnel
- Operator Controls



System Specifications

Power: A.C. 1-Phase, 220 Volt, 50/60Hz

Machine Dimensions : 75-185mm W (7.28") x 565mm L (22.24") x 530mm H (20.86")
100-185mm W (7.28") x 565mm L (22.24") x 530mm H (20.86")

Tunnel Dimensions : 75mm W (2.95") x 565mm L (22.24") x 95mm H (3.75")
100mm W (3.94") x 565mm L (22.24") x 95mm H (5.90")

Temperature: 250°C

Heater: 2.5KW x 2

Options

Conveyor	Conveyor is supplied by customer. For conveyor options, please consider an AFM conveyor system.
Accumulator	Accumulator is supplied by customer. For Accumulator options, please consider an Eastey Accumulator system.
Feed Screw	Feed Screw is supplied by customer. For Feed Screw options, please call the AFM Customer Service department for details.
Unwind	Unwind is supplied by customer. For Unwind options, please call the AFM Customer Service department for details
Sleever	Sleever is supplied by customer. For Sleever options, please consider one of our many quality AFM Sleever systems.
Brushdown	Brushdown unit is supplied by customer. For Brushdown options, please call the AFM Customer Service department for details.
Tamp down	Tamp down unit is supplied by customer. For Tamp down options, please call the AFM Customer Service department for details.
External Controls	Call the AFM Customer Service department for details.

For any Sales-related questions, please call us at 763-398-1743.
We would be happy to assist in any way possible!

Installation and Setup

General Recommendations

Material Handling

The most critical item for consistently achieving superior quality shrink applying is material handling. This is an area controlled by the customer and the installer. It is imperative that adequate conveyor product guides be provided, and that they are installed and maintained properly. Incorrect or inconsistent product handling will cause quality problems, maintenance issues, and could lead to product damage. The customer is responsible for maintaining proper material handling equipment.

Work Area

The GS may require cleaning from time-to-time due to environmental contaminants.

Maintenance Access

When planning the installation, allow for easy access to the tunnel so that cleanup can be done conveniently.

Important! Turn off power and allow tunnel to cool before doing any cleaning/maintenance.

Unpacking and Placement

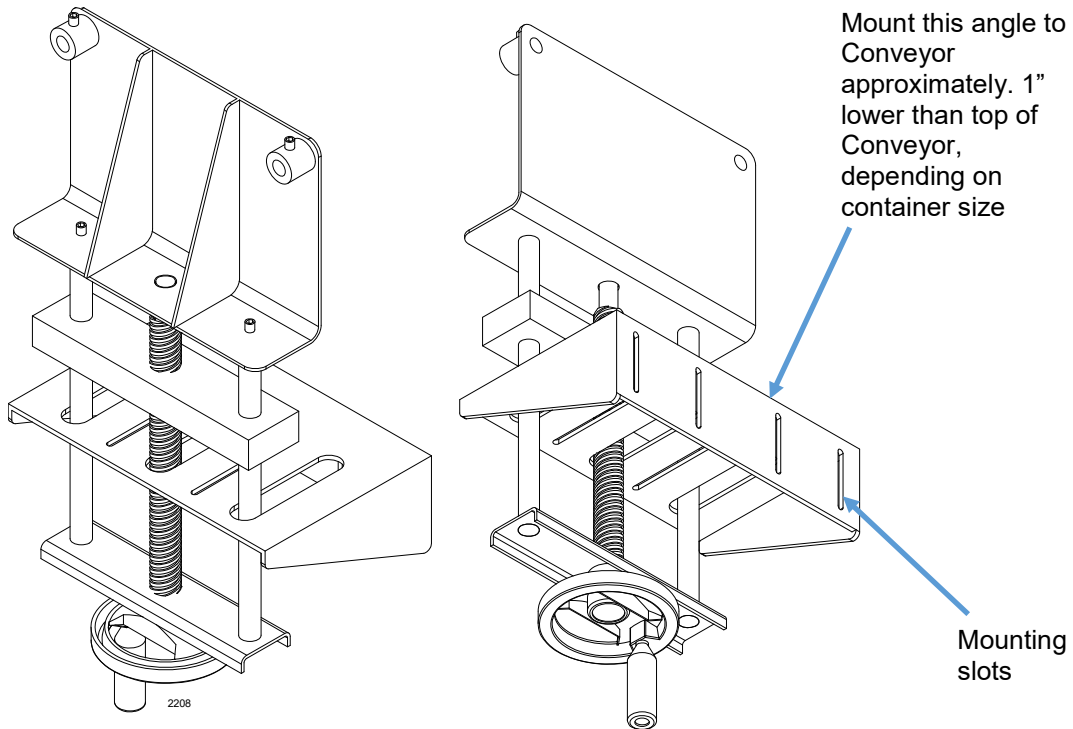
Open the box and lift out the tunnel assembly by its cage. BE CAREFUL-UNIT IS HEAVY.

Attention! Use only the supplied mounting hardware to attach the tunnel to the Bracket assembly. Using hardware other than that supplied by AFM can result in damage to the assembly.

Check for shipping damage

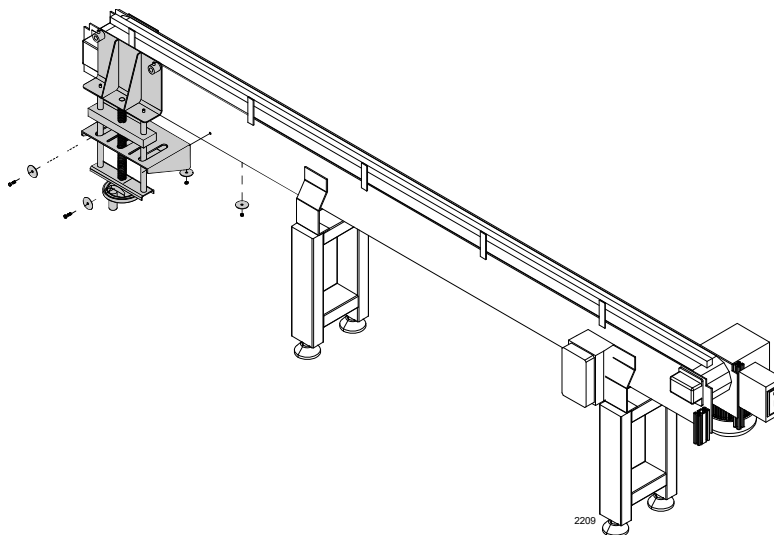
Mounting

After unpacking the Bracket Assembly, assemble it per the illustration, if required. Find a spot to mount to Conveyor approximately 1" down from top of Conveyor.

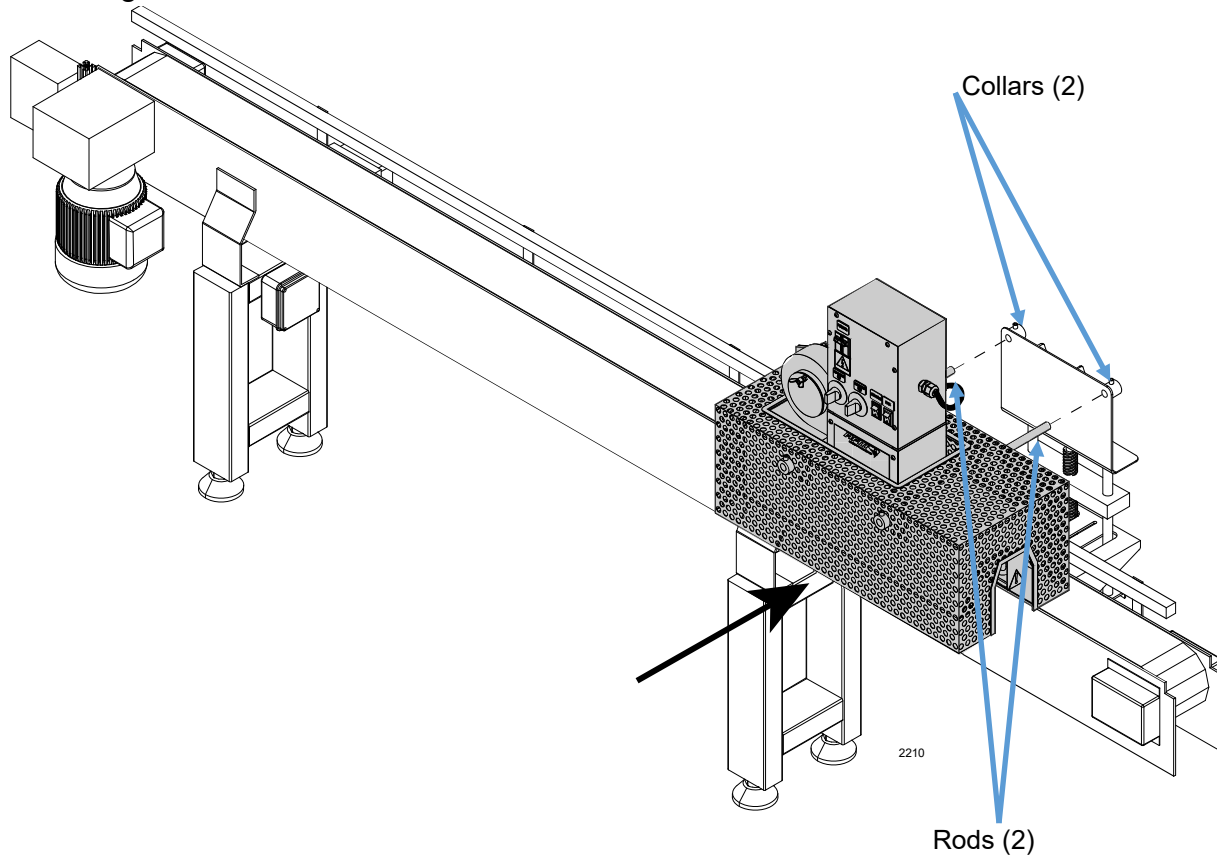


Measure the distance to the Sleever (if used), and drill through one side of Conveyor.

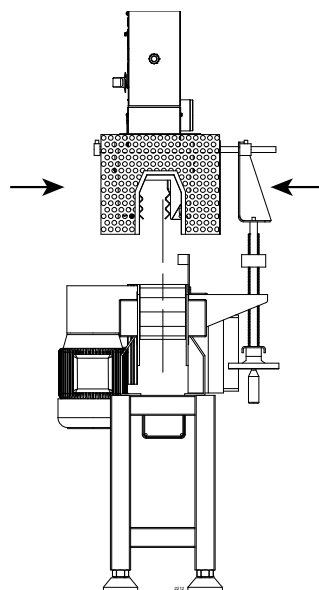
Mount the Bracket to the Conveyor using the enclosed 1/4-20 hex bolts. Tighten bolts and nuts until snug. Fender washers may be used.



After Bracket has been mounted and tightened, use two (2) people to lift and attach the Tunnel to the Bracket. Aim the two Mounting Rods on the Tunnel Assembly toward the Mounting Collars on the Bracket. Slide Tunnel into the Collars. Slide Tunnel into the Collars.

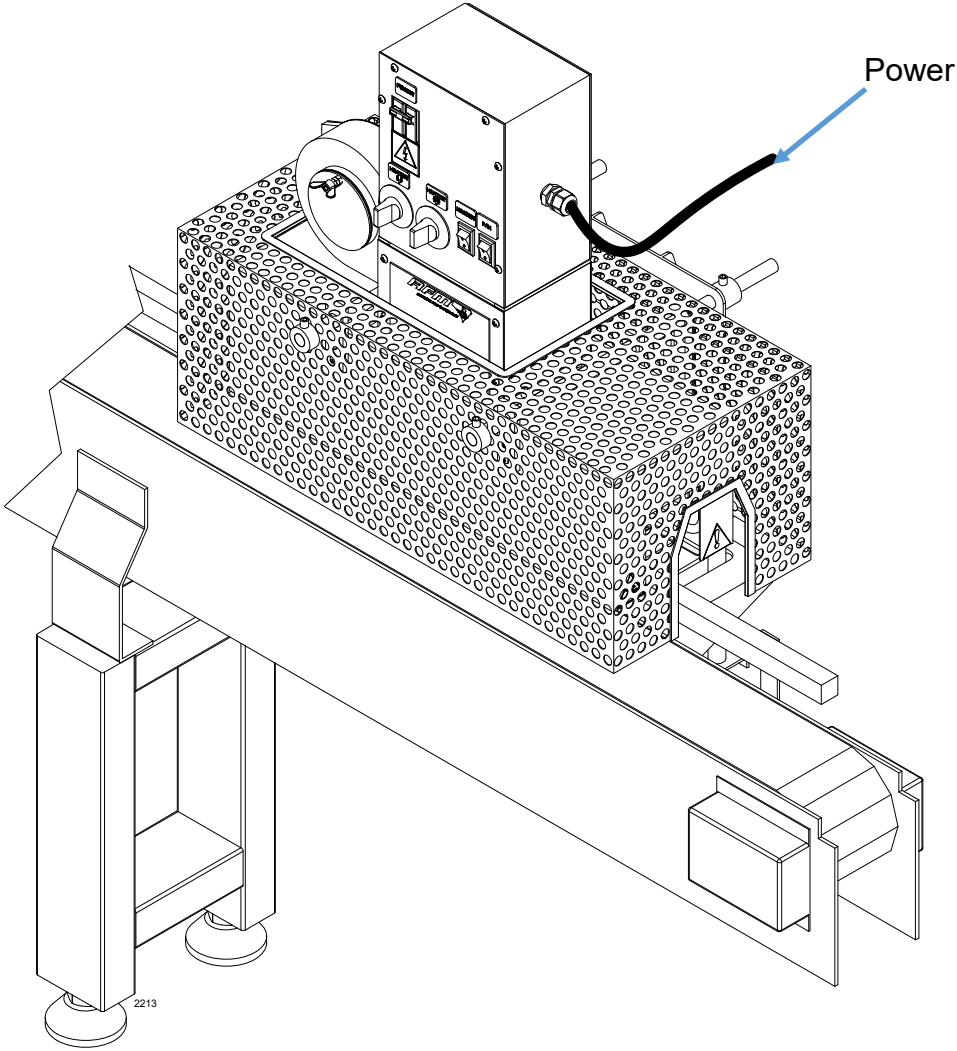


Center the Tunnel parallel to the Conveyor and tighten the collars with an Allen wrench.



Electrical Connection

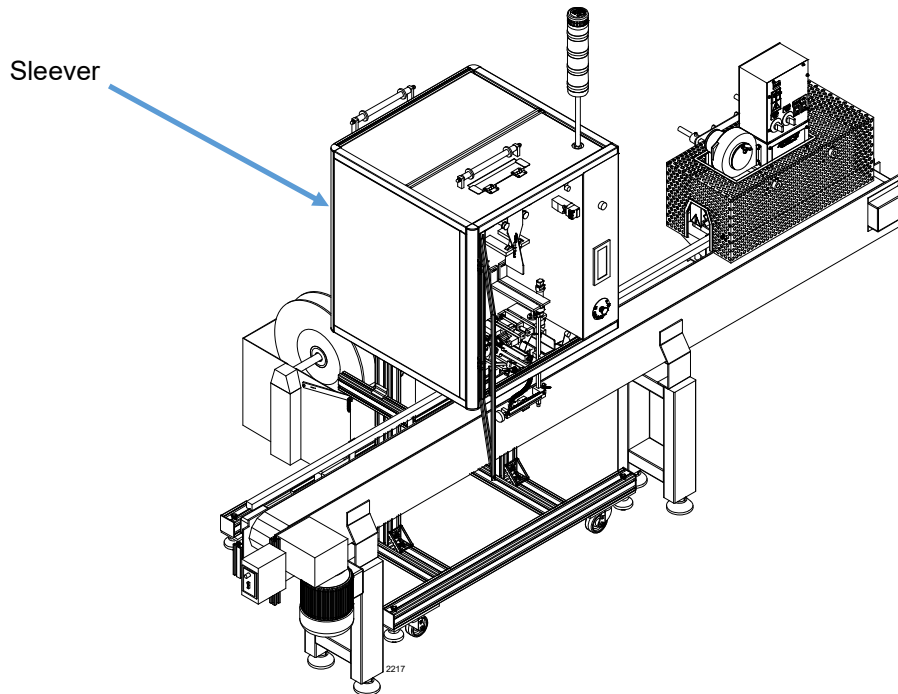
There is a power cord connected to the GS Tunnel. Plug this into a clean 220Volt AC power source. DO NOT HOT-PLUG. Ensure that Tunnel has all switches turned to "OFF" before plugging into any power source.



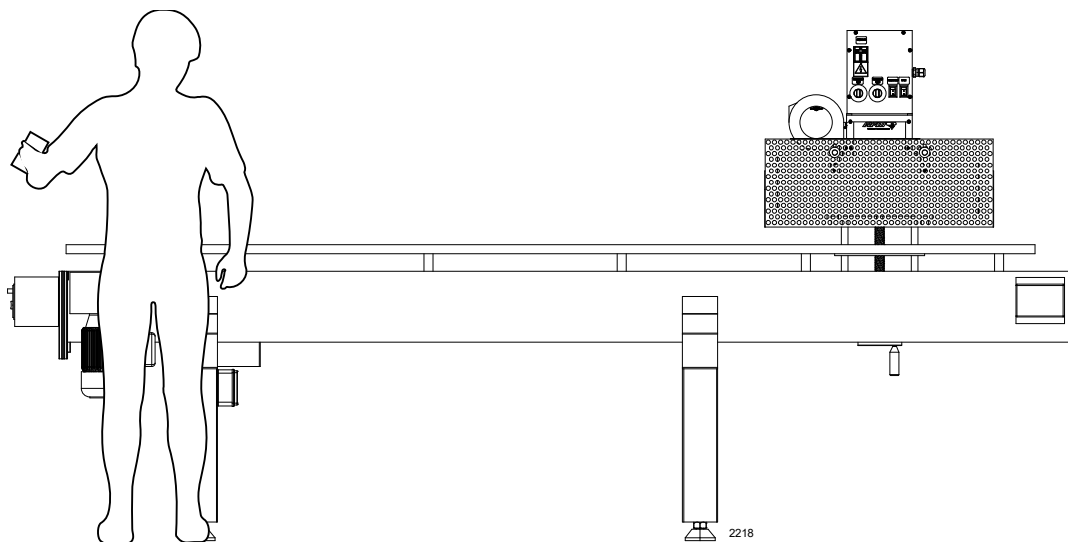
Place the correct male AC plug onto the end of the power wire. Check the connections, and plug the male cord end into AC power.

Sleever Placement

Line up the Sleever to the existing Tunnel (if applicable). Insure that all controls on the unit are easily accessible. Hook up the ventilation equipment, if required (It is a good idea to have the exhaust ports vented outside of the building).



If not using a Sleever, make sure that the operator has enough room to move and is not in danger of getting caught in moving mechanisms. Ensure availability of a trip cord or other safety shutoff mechanisms.

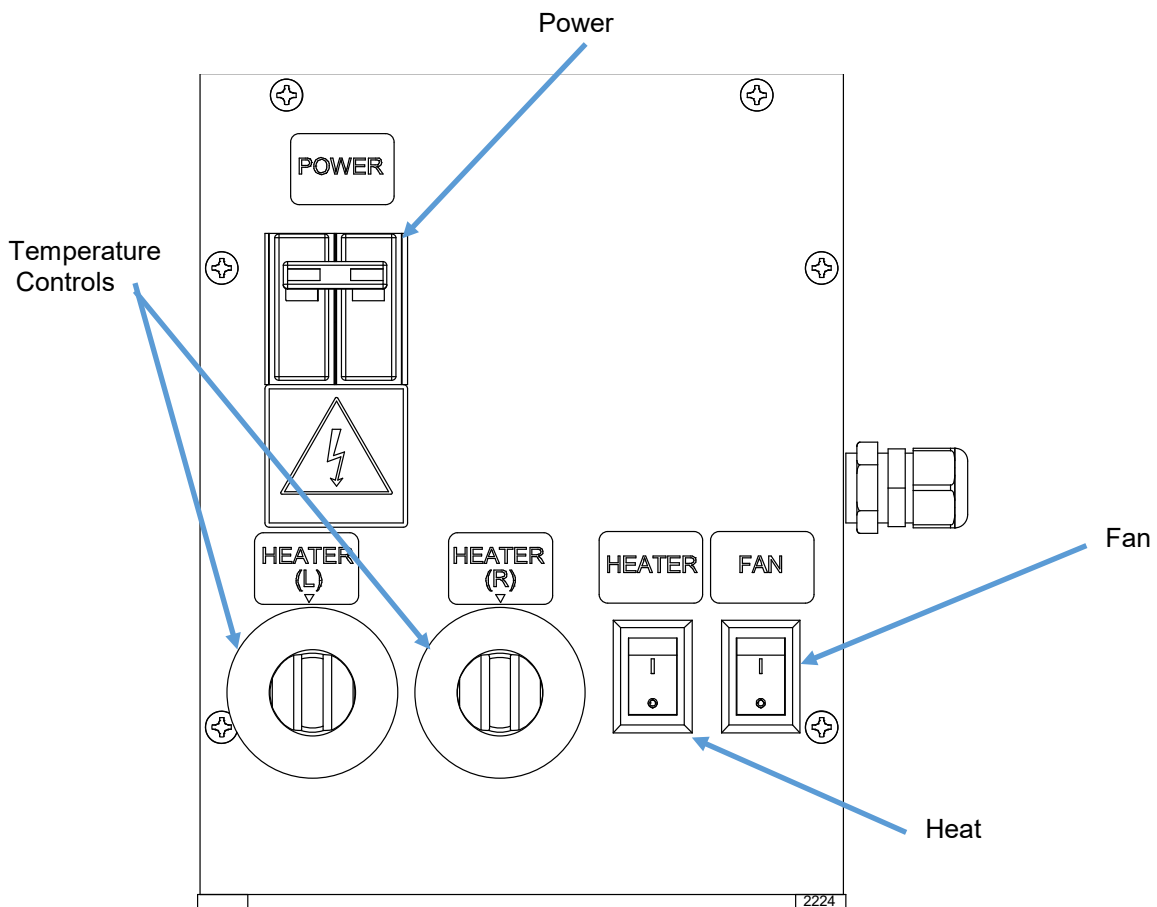


Control Cabinet Overview

Important! The control cabinet is not a watertight enclosure- do not splash the cabinet with liquid.

The front face of the Control Cabinet has the following:

1. Power
2. "HEATER" switch
3. "FAN" switch
4. Left-and-Right Temperature Controls.



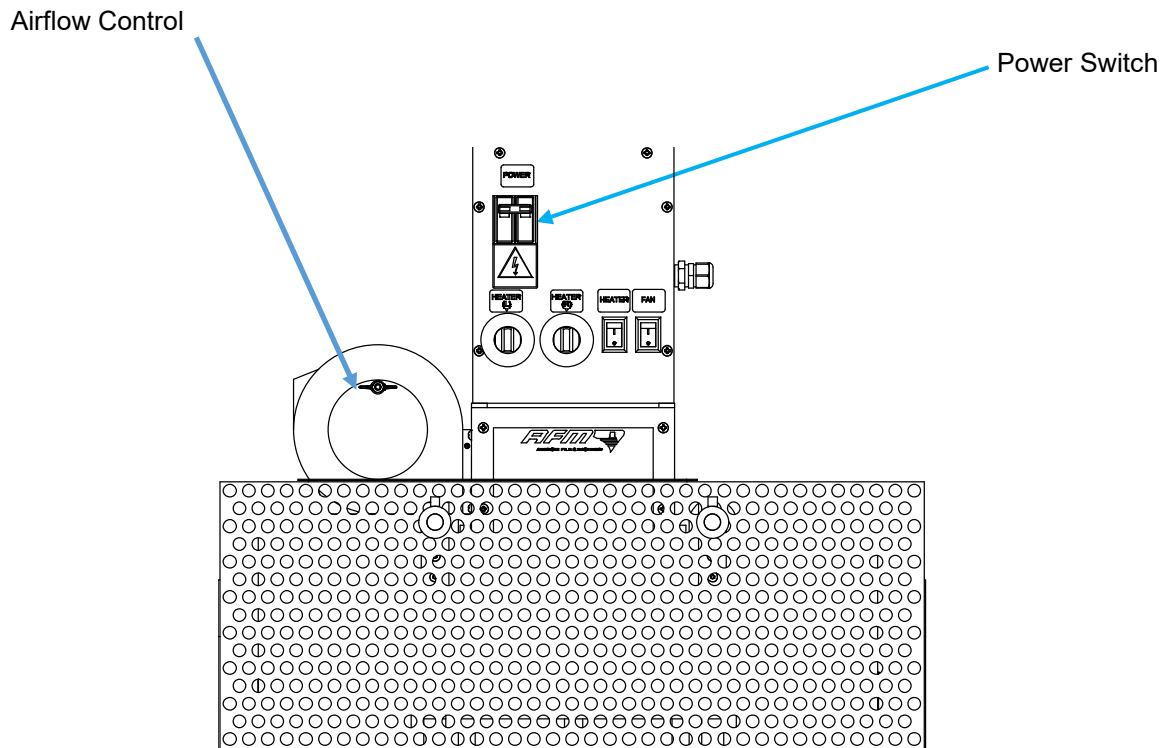
Operation

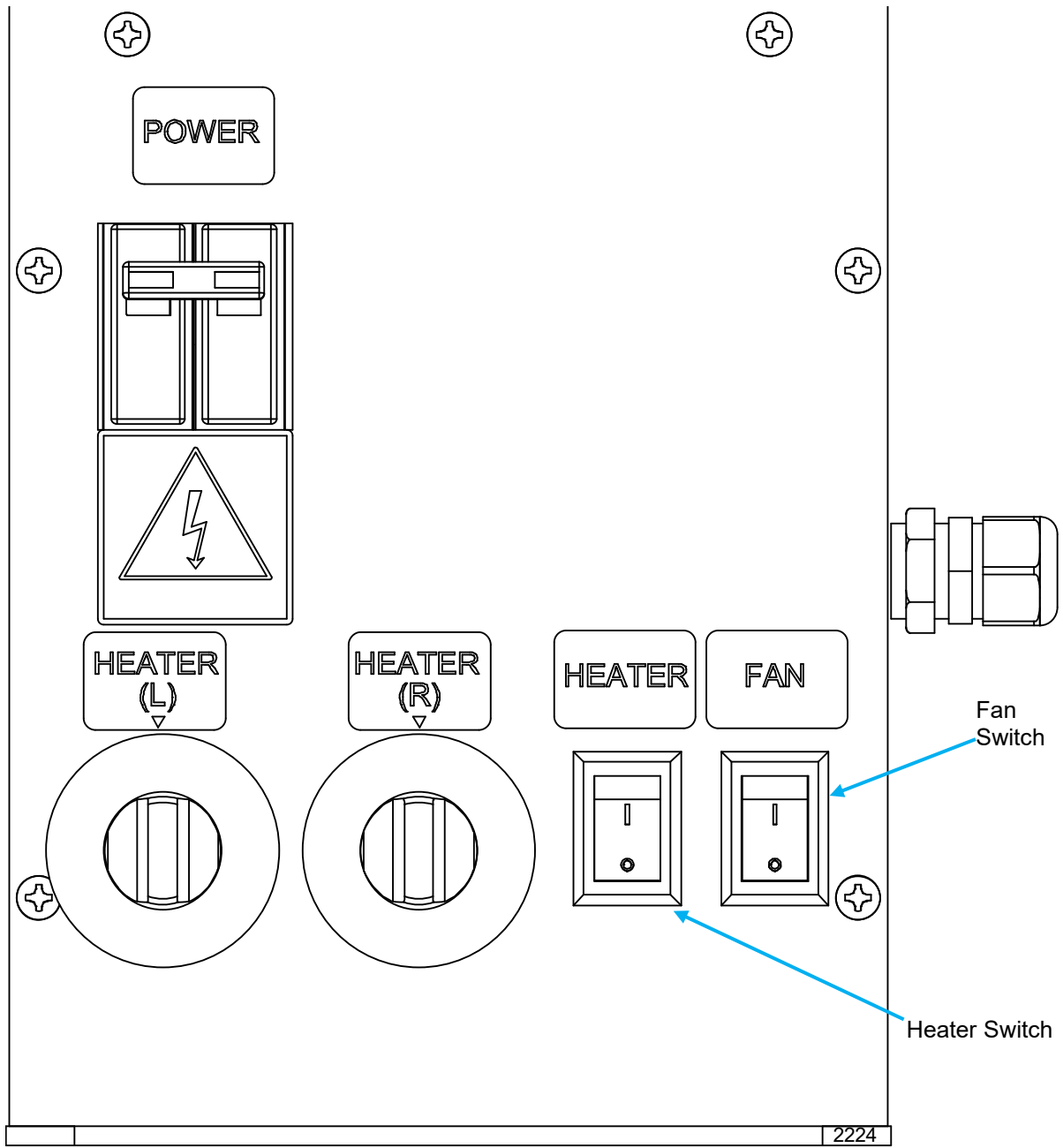
Power Up

When all the components have been properly mounted and connected, the GS tunnel is ready to power up and begin production.

Tip! Before powering up, double-check your installation. Make a quick inspection to ensure all the components have been securely mounted and all data and power cables are properly seated and connected.

To power up the GS Tunnel, plug into power outlet. Push the power switch located on the front of the controller to the ON (I) position.

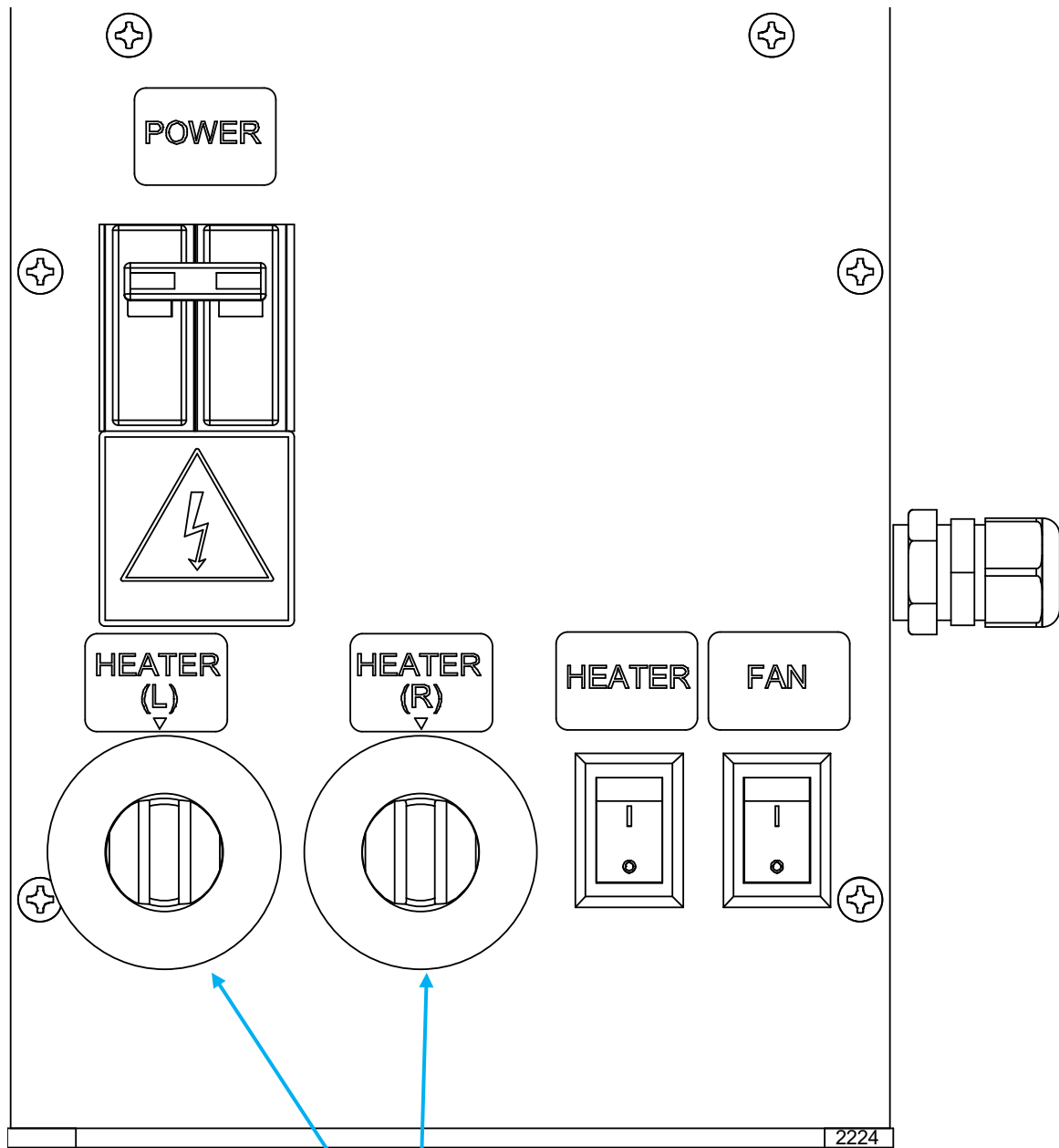




Turn on FAN Switch

Turn on HEATER Switch

Run a few parts at the correct Conveyor speed and adjust Temperature Controls (HEATER's L & R) and Airflow Control accordingly.



Temperature Control Adjust

Shutdown

Turn off HEATER Switch.

Wait fifteen (15) minutes.

Turn off FAN switch.

Turn off Power switch.

Part Replacement

Electrical box parts

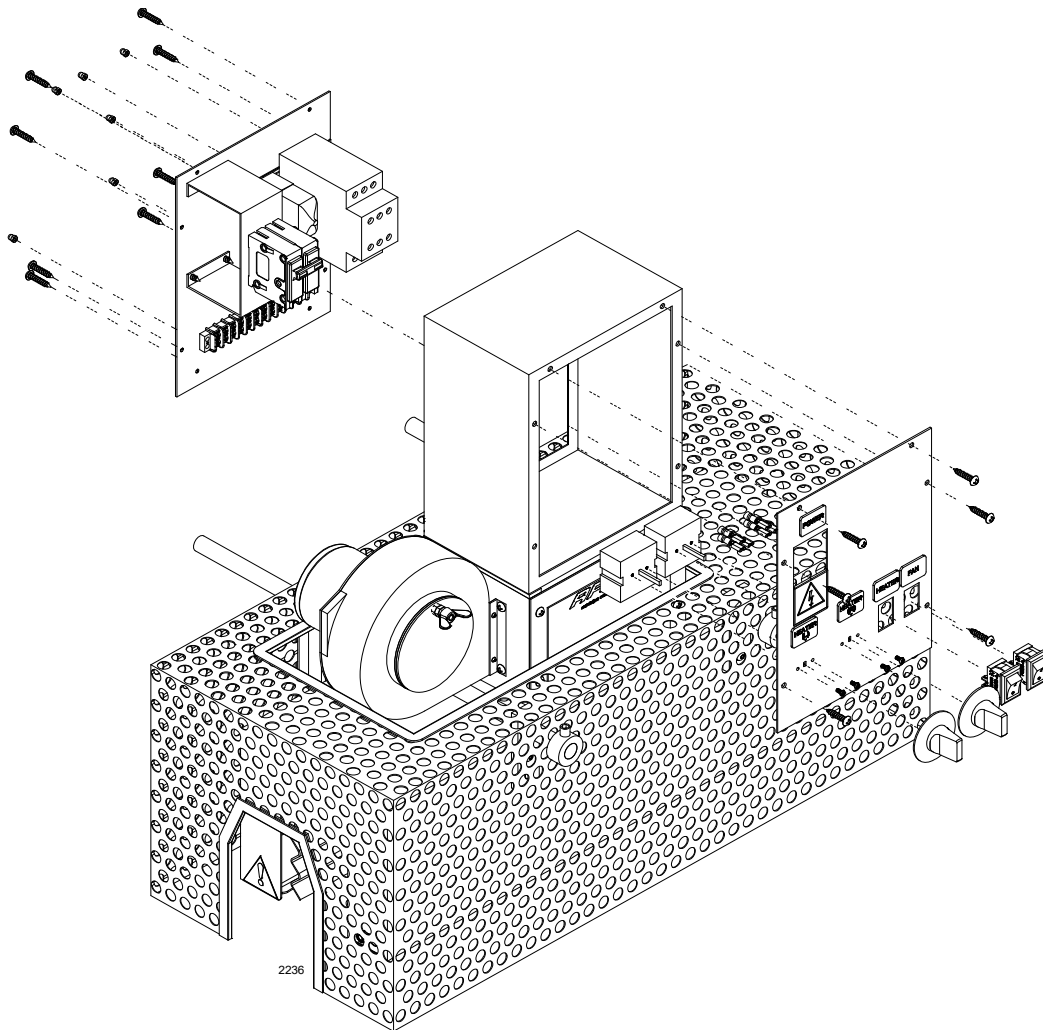
Some parts are replaceable—refer to Replacement Parts list to order.

Turn off and unplug power to unit.

Depending upon which part needs replacement, remove screws from Steel Plate,

Remove Steel Front Plate

Remove part needing replacement taking care to replace wiring in the same positions as removed (see schematic). Button up when done.



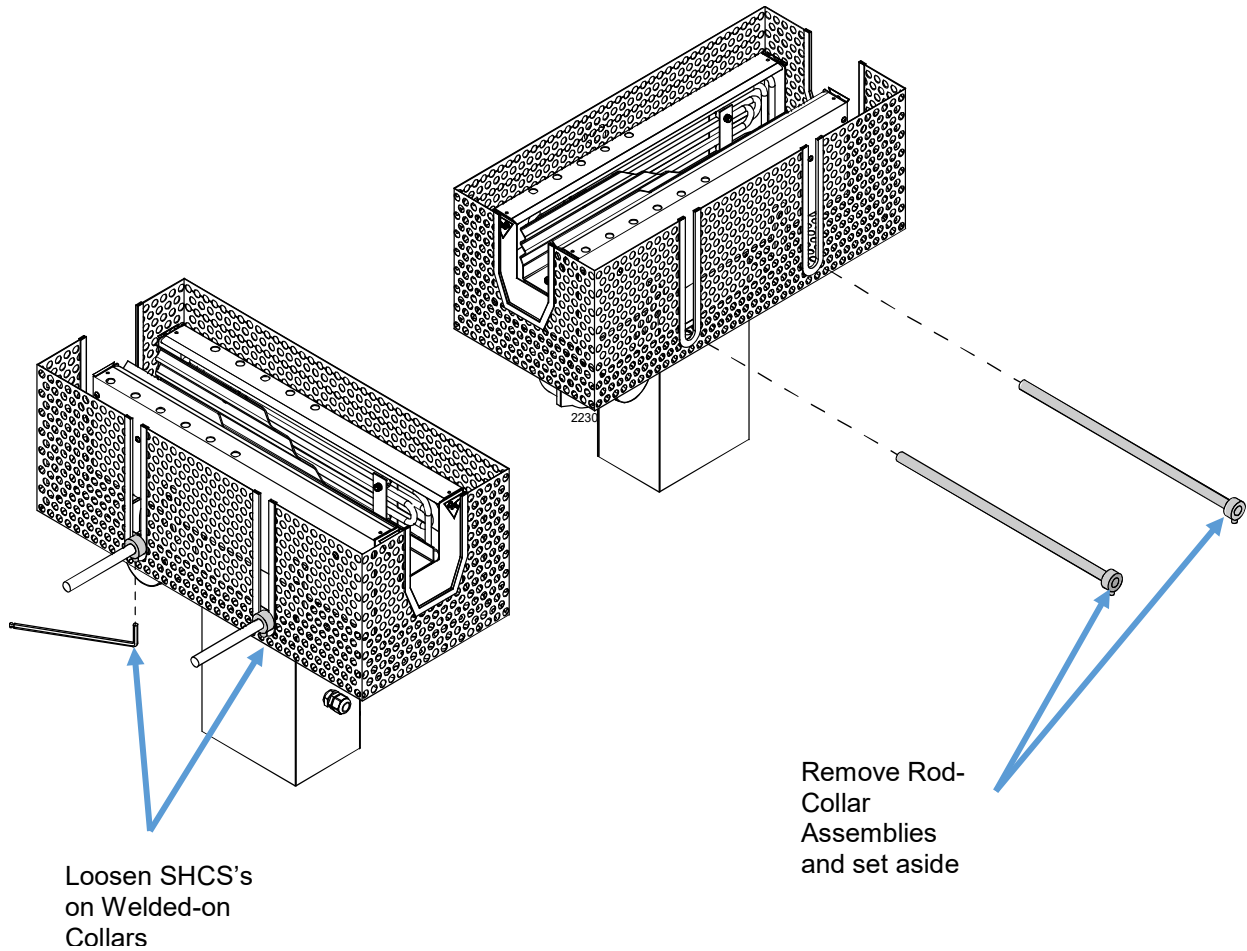
Replacing Sheaf Heaters

If there is no heat at one or both Sheaf Heater Tubes, and Switches appear to be functioning, Perform the following:

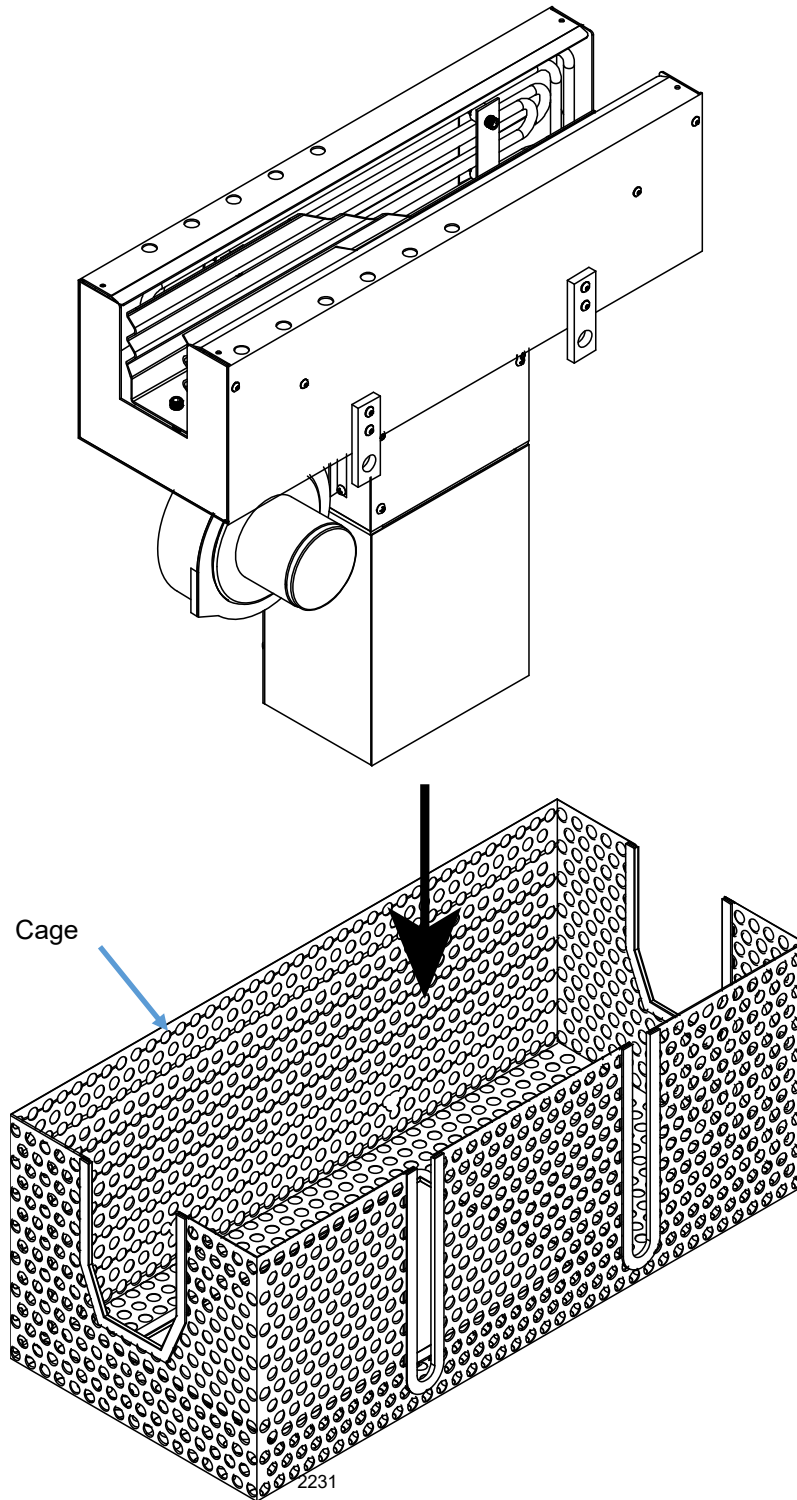
Unplug and turn off unit.

Turn unit upside-down and set the Electrical Box on a flat surface.

Using a 5mm Allen Wrench, loosen the Socket head cap screws on the Collars holding the Rods and pull the Rods out from the Cage. Set aside Rod-Collar Assemblies.

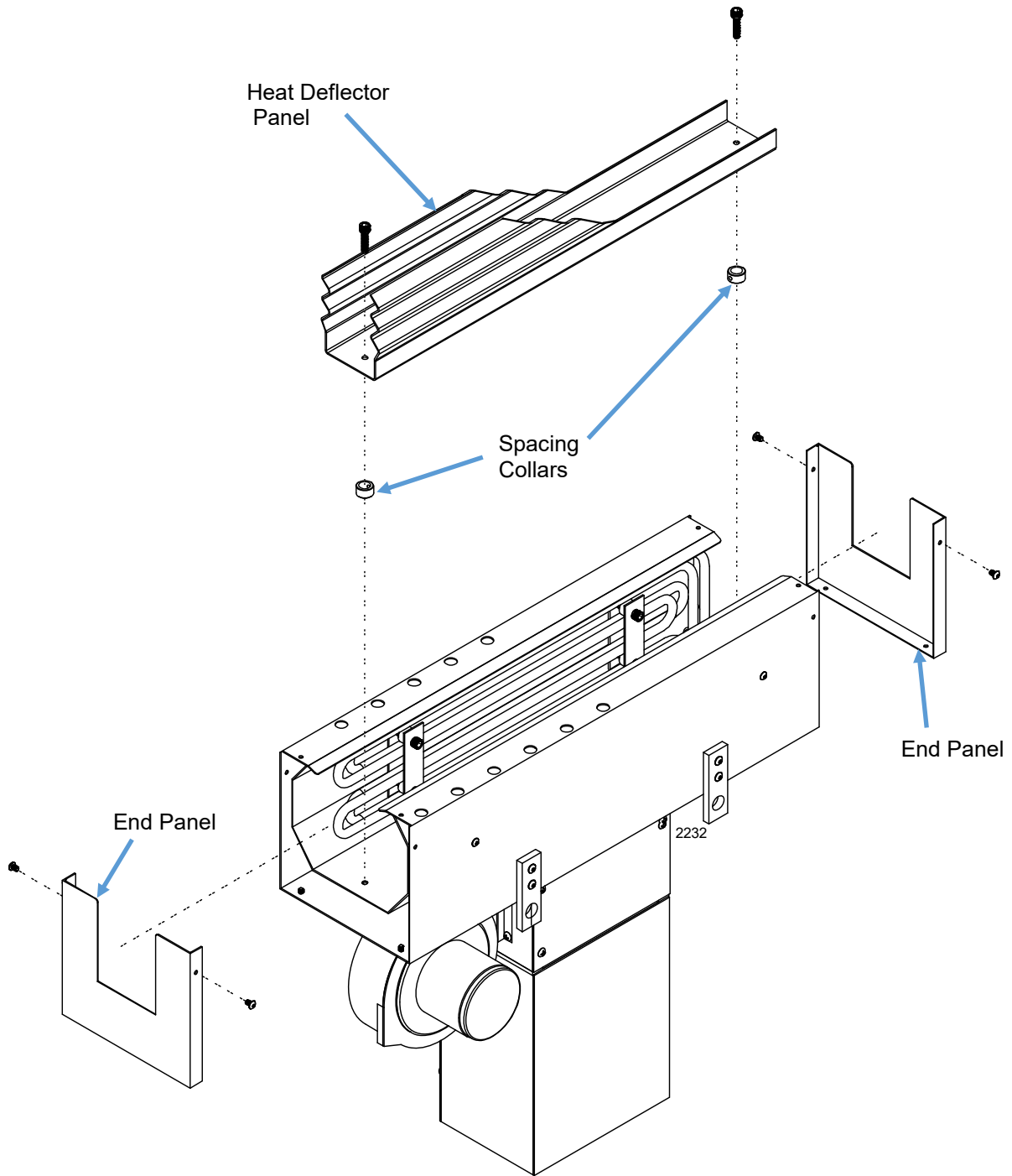


Lift unit and remove Metal Cage covering the assembly. Set aside.



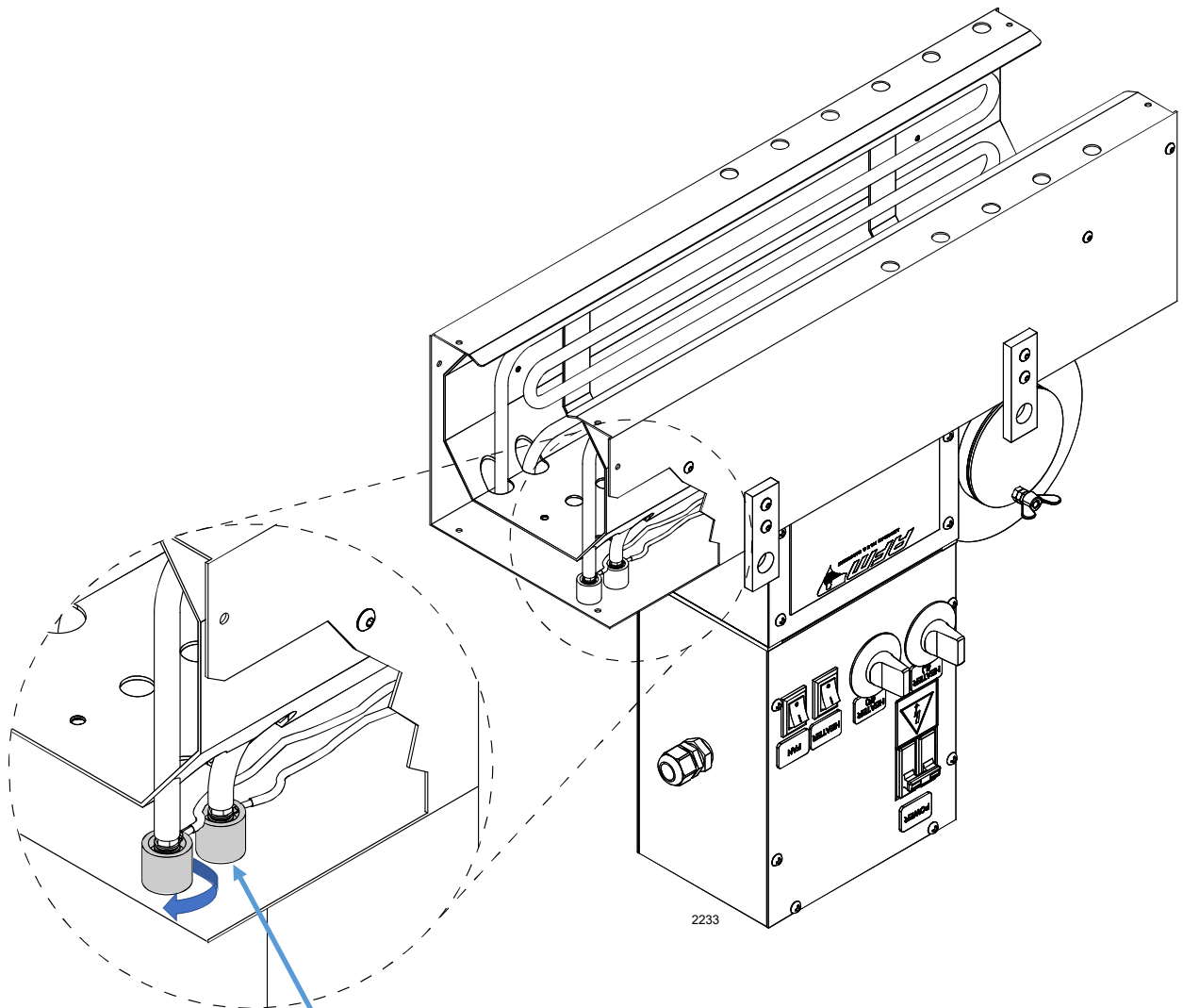
Remove End Panels and Heat Deflector Panel. Set aside with Hardware.

Note: Spacing Collars may shift during Removal Process.



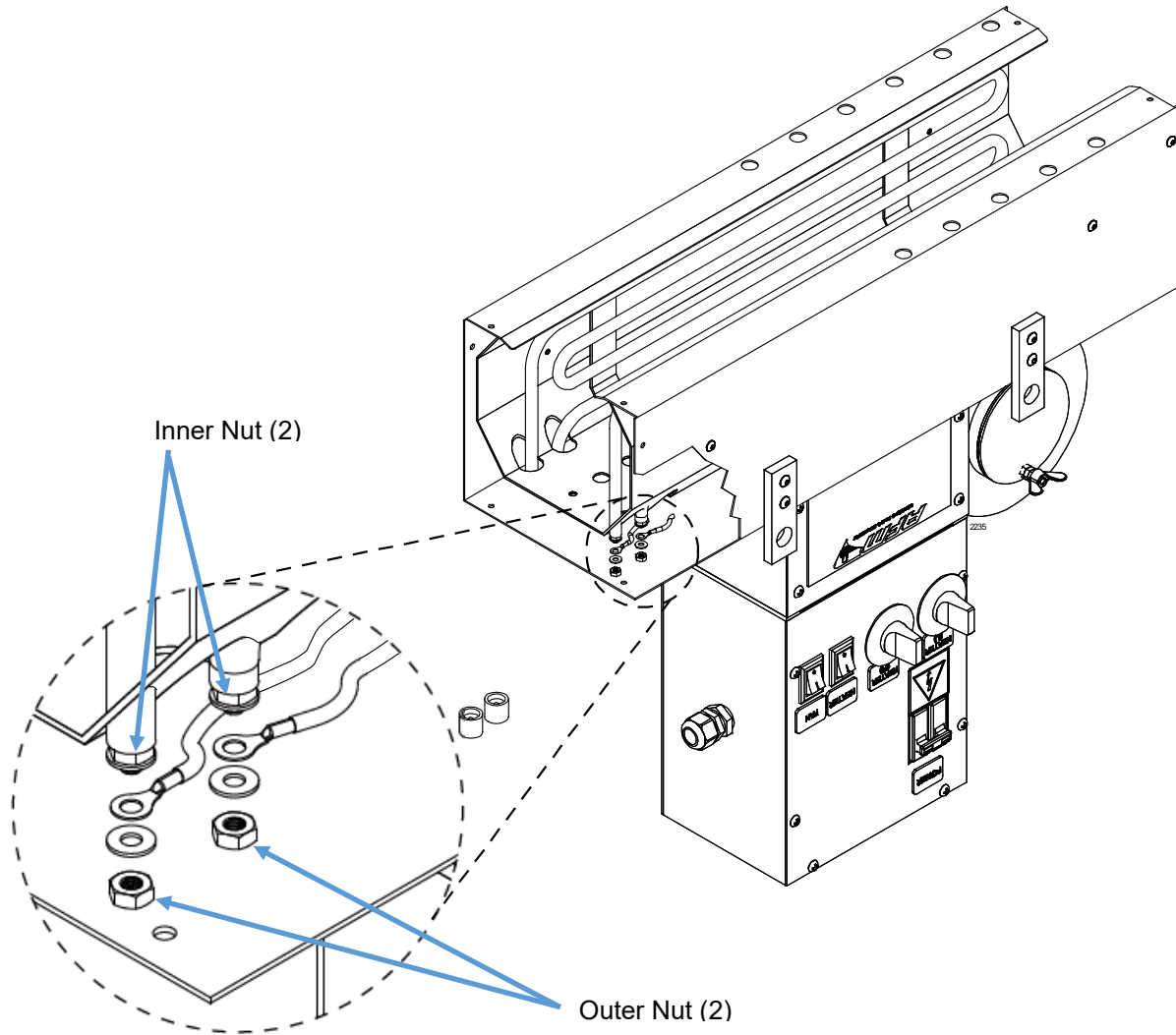
It may be easier to remove the End Panels first in order to find the Spacing Collars.

Unscrew the two (2) Ceramic Caps **BY HAND** -using a pliers or vice grip wrench may damage cap.



Ceramic End Caps (2)

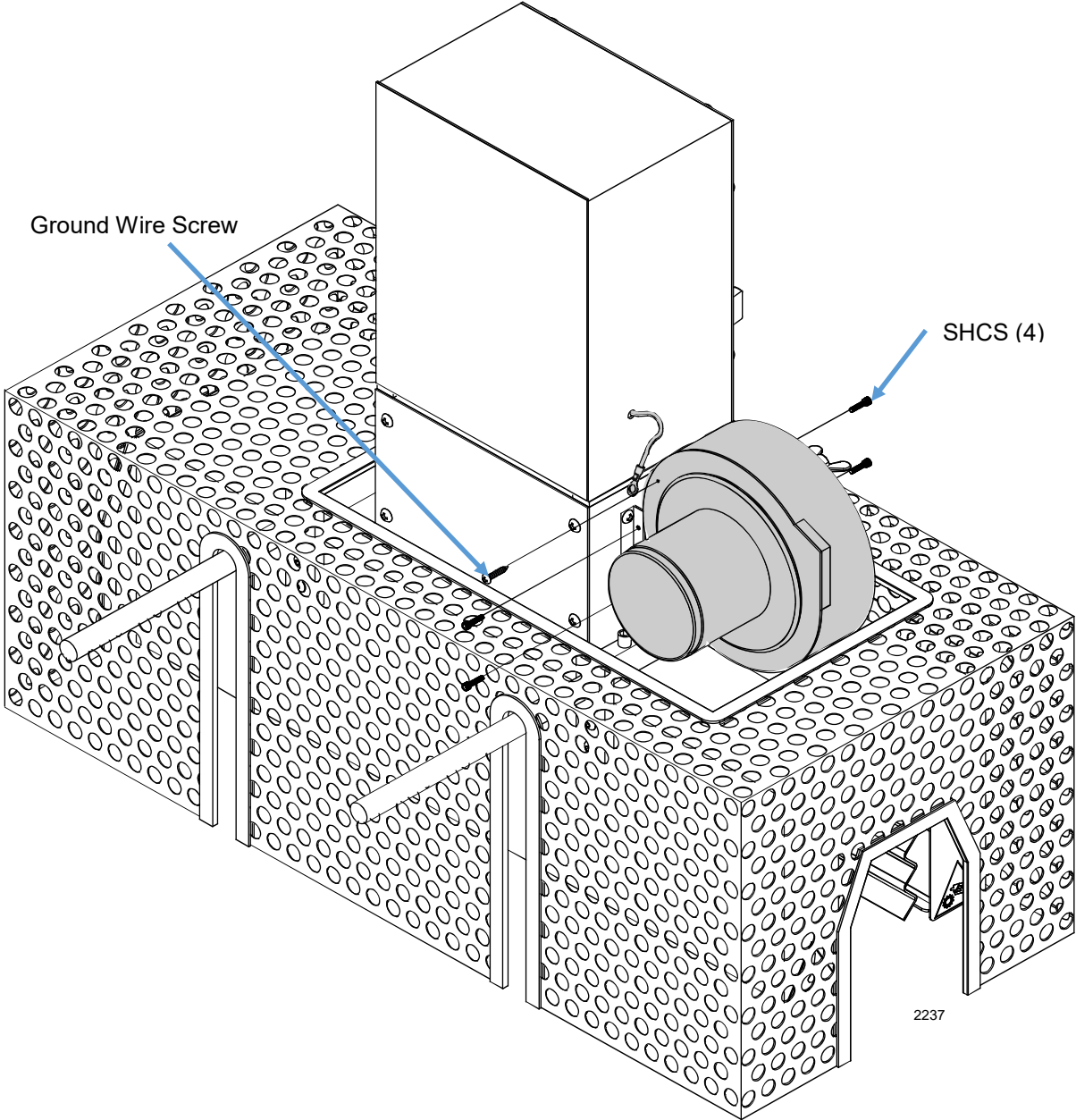
With Ceramic Caps removed, unscrew outer nut from end of Tube using an open-end wrench. If needed, hold inner nut with another open-end wrench. Check for dead short across ends with a DVM. If open, replace tube.



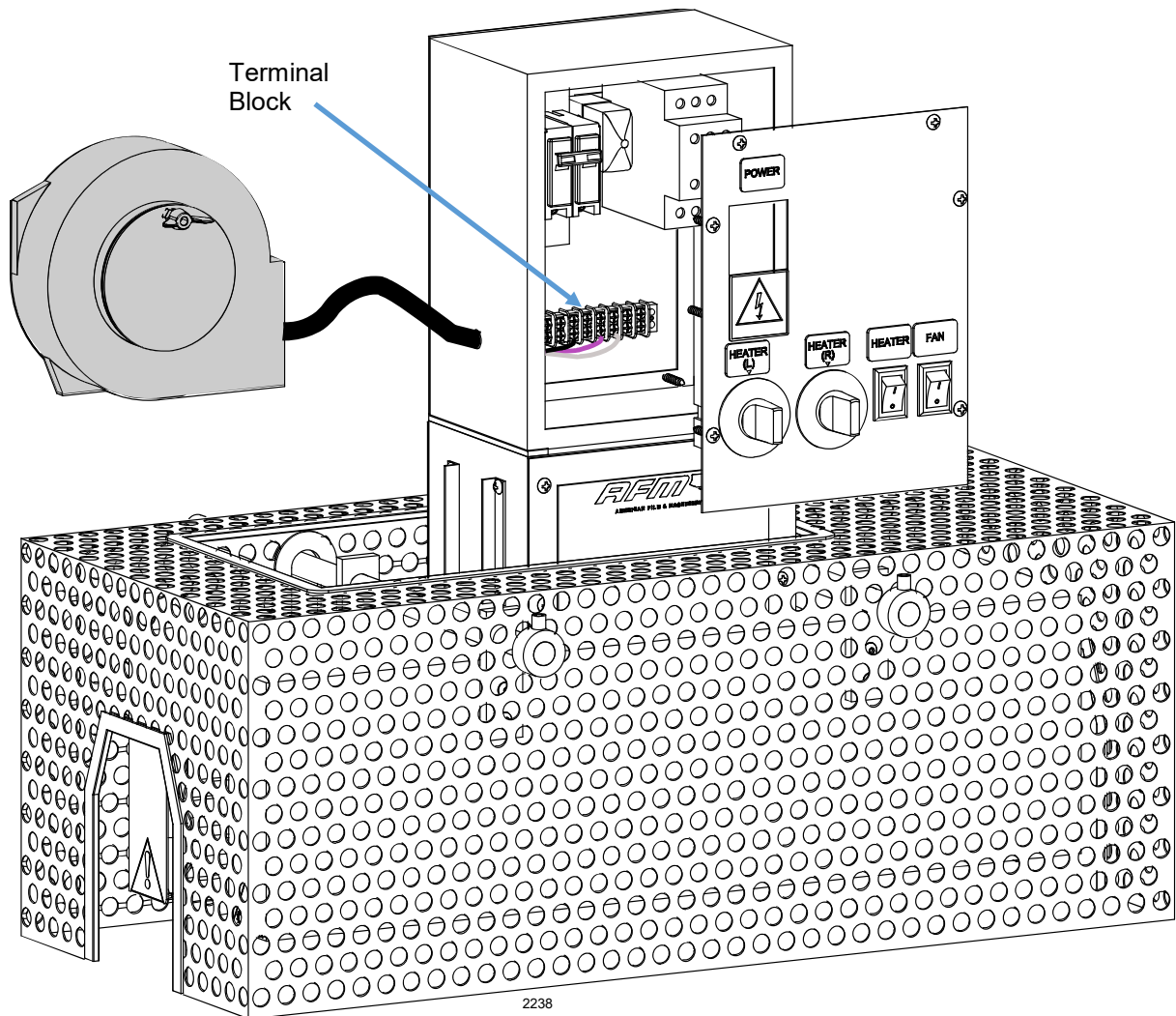
To re-assemble, follow previous steps in reverse order.

Replacing Fan Assembly

To replace the Fan Assembly
Remove four (4) Socket Head Cap Screws and Ground Wire Screw. Save.



Place Fan Assembly on flat surface. Remove Front Faceplate of Power Box and locate position of screws on Wiring Terminal Block. (may want to write down which color wire goes to which number on Terminal Block). Unscrew lugs at Terminal Block with a Phillips screwdriver. Exchange with replacement Fan Assembly.



Troubleshooting

Problem	Check	Try
Power is off	Circuit breaker switch is off either at the machine or plant main panel	<ol style="list-style-type: none">1. Switch circuit breaker to off, then on.2. If breaker keeps tripping, check the fuse.3. Check circuit breaker switch.
Heater is not running	<ol style="list-style-type: none">1. Heating coils are open.2. Thermostat failure.3. Heater sensor broken.	<ol style="list-style-type: none">1. Replace heater coil.2. Replace thermostat.3. Replace heater sensor.
Fan is not running	<ol style="list-style-type: none">1. Overload fuse is blown.2. Motor has failed.	<ol style="list-style-type: none">1. Check fuse and switch.2. Replace the motor.

If unit is still malfunctioning, please call our Technical Support number listed in this manual.

Maintenance

The AFM GS tunnel requires very little maintenance during normal operation.

Mounting Hardware and Connections

Occasionally check the mounting hardware and retighten any mounting brackets or screws that may have vibrated loose during operation.

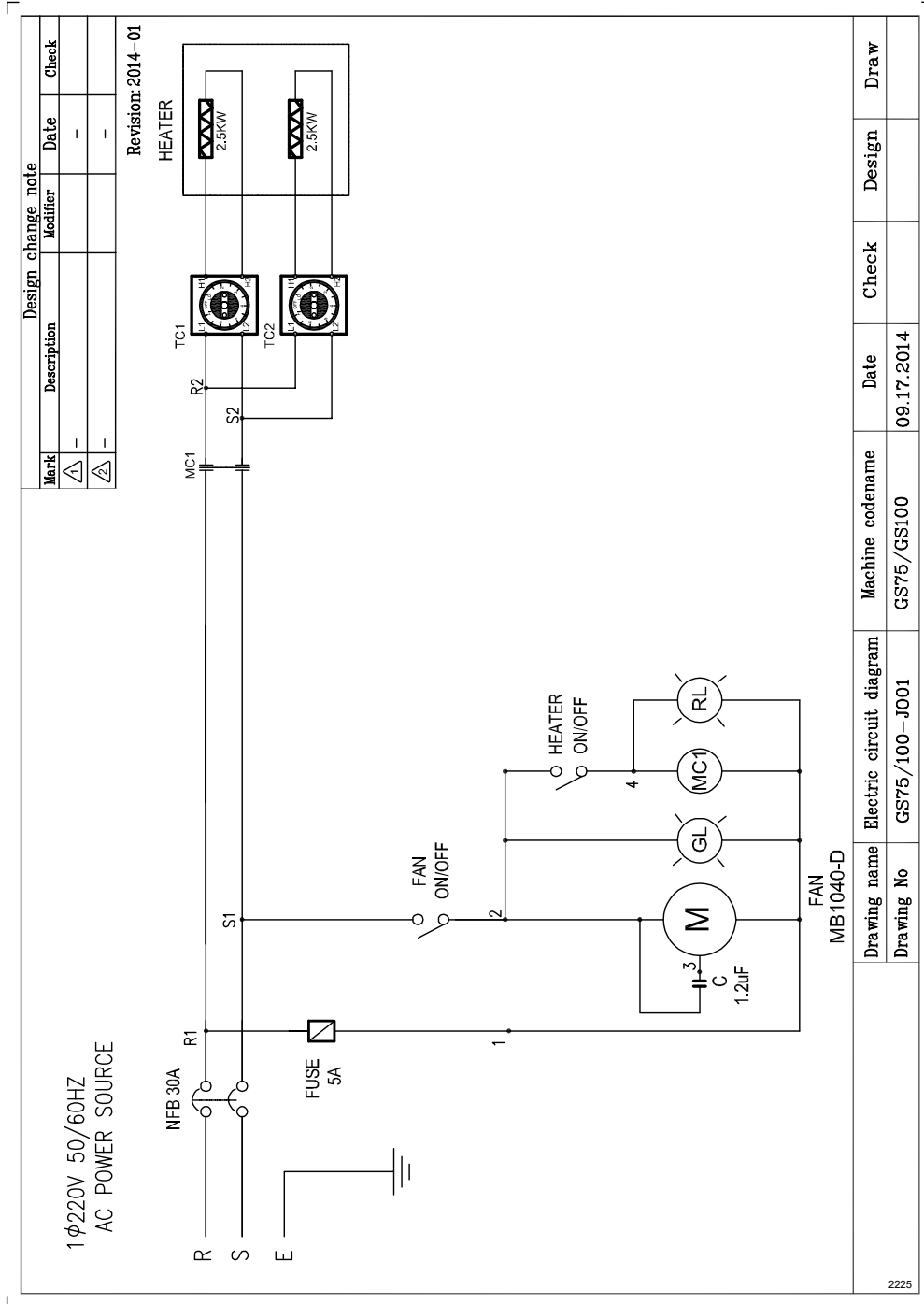
Cleaning External

Wait until unit has cooled down.

Externally the GS tunnel can be wiped clean with a fresh cloth and cleaning spray. Gently wipe the components off.

Schematics

Wiring Diagram



Exploded Diagram

Mark	Description	Date	Check
△		-	

Design change note

Revision: 2015-01

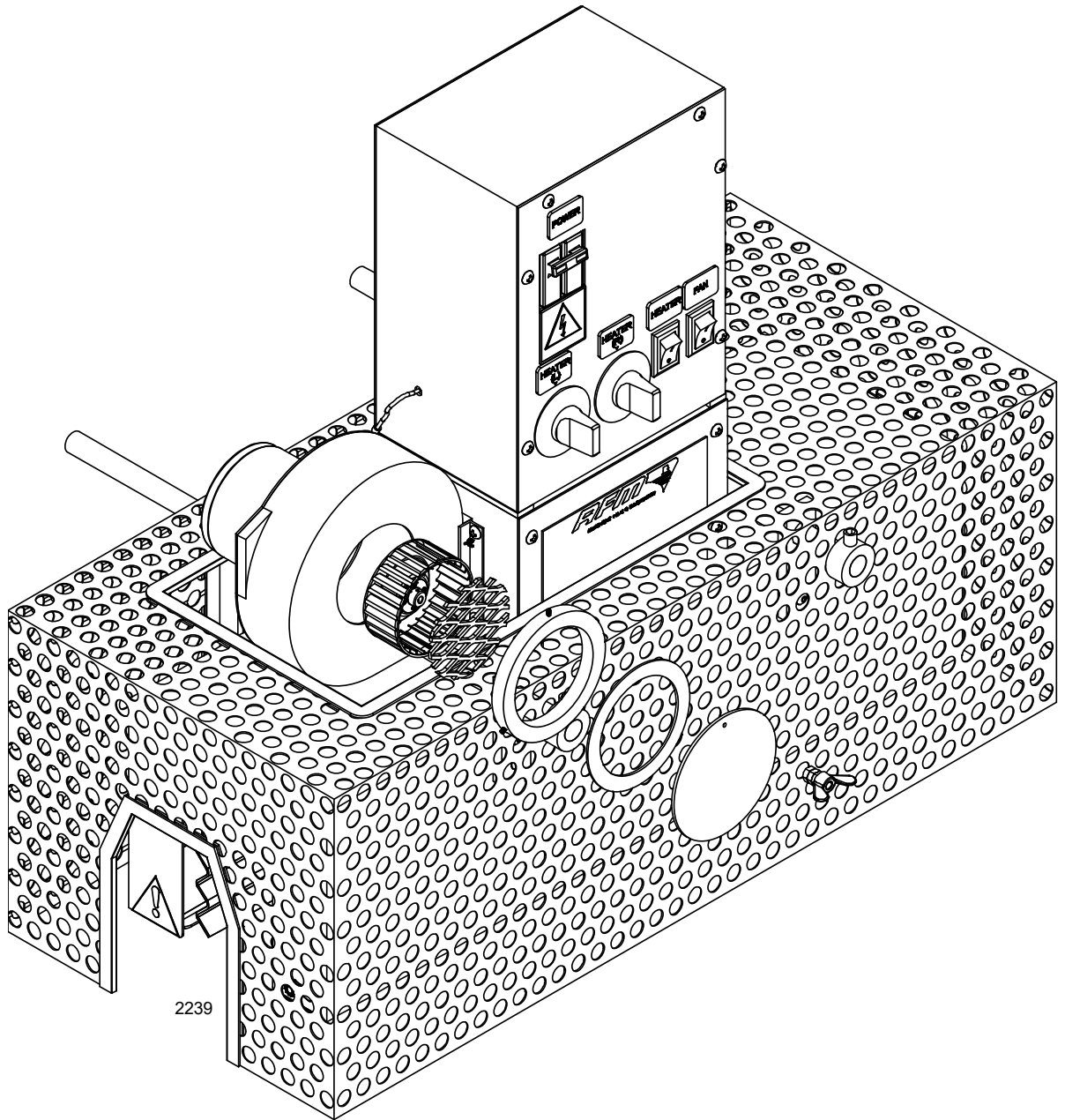
ITEM	PARTS NO.	PARTS NO.	PARTS NO.	QTY
G14	SHHGS75DP12	panels	GS75-DP12	1
G13	SHHGS75DP11	door	GS75-DP11	1
G12	SHHGS75DP10	housing	GS75-DP10	1
G11	SHHGS75DP09	housing	GS75-DP09	1
G10	SHHGS75DP08	clamps	GS75-DP08	1
G9	SHHGS75DP07	housing	GS75-DP07	1
G8	SHHGS75DP05	panels	GS75-DP05	1
G7	SHHGS75DP22	panels	GS75-DP22	1
G6	SHHGS75DP21	panels	GS75-DP21	1
G5	SHHGS75DP20	box	GS75-DP20	1
G4	SHHGS75DP02	panels	GS75-DP02	2
G3	SHHGS75DP01	housing	GS75-DP01	1
G2	SHHGS75DM1	clamps	GS75-DM01	4
G1	SAF03B0495X225	sheath heaters	GS75-DC01	2

ITEM	PARTS NO.	PARTS NO.	PARTS NO.	QTY
1	SCB64MB1040D	fan	MB1040D	1
2	SAB03BH2P30A	switch	BH-2P30A	1
3	SAB10TL6094PG	switch	TL6094P	1
4	SAB10TL6094PR	switch	TL6094P	1
5	SAB01INF240X577	switch	INF-240-577	2

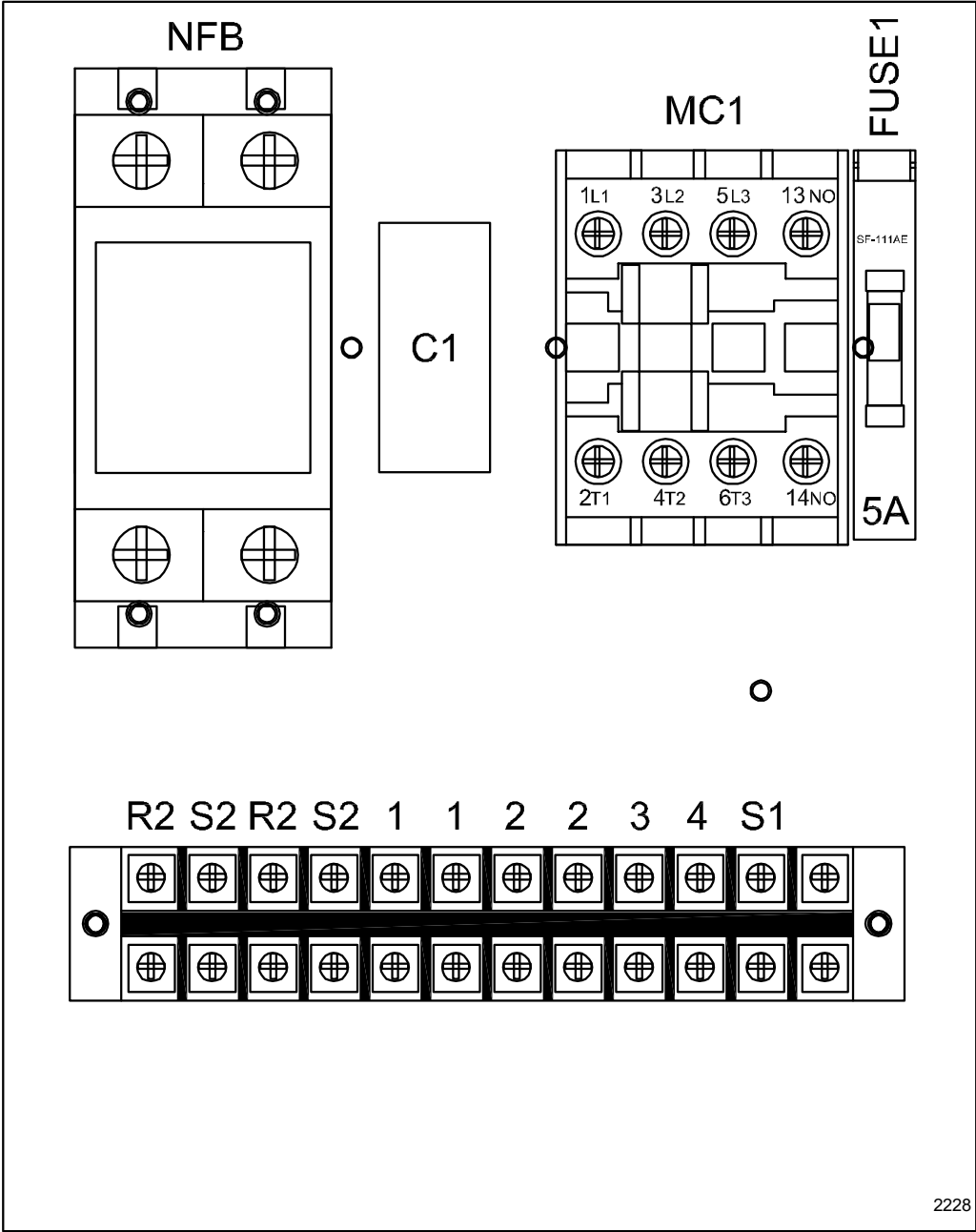
Drawing name	GS-75/100	Units	MM	Scale	2015021201	Date	2015.02.12	Check	Design	Draw
Drawing No										

2226

Exploded Diagram Fan



Inside of Power Box



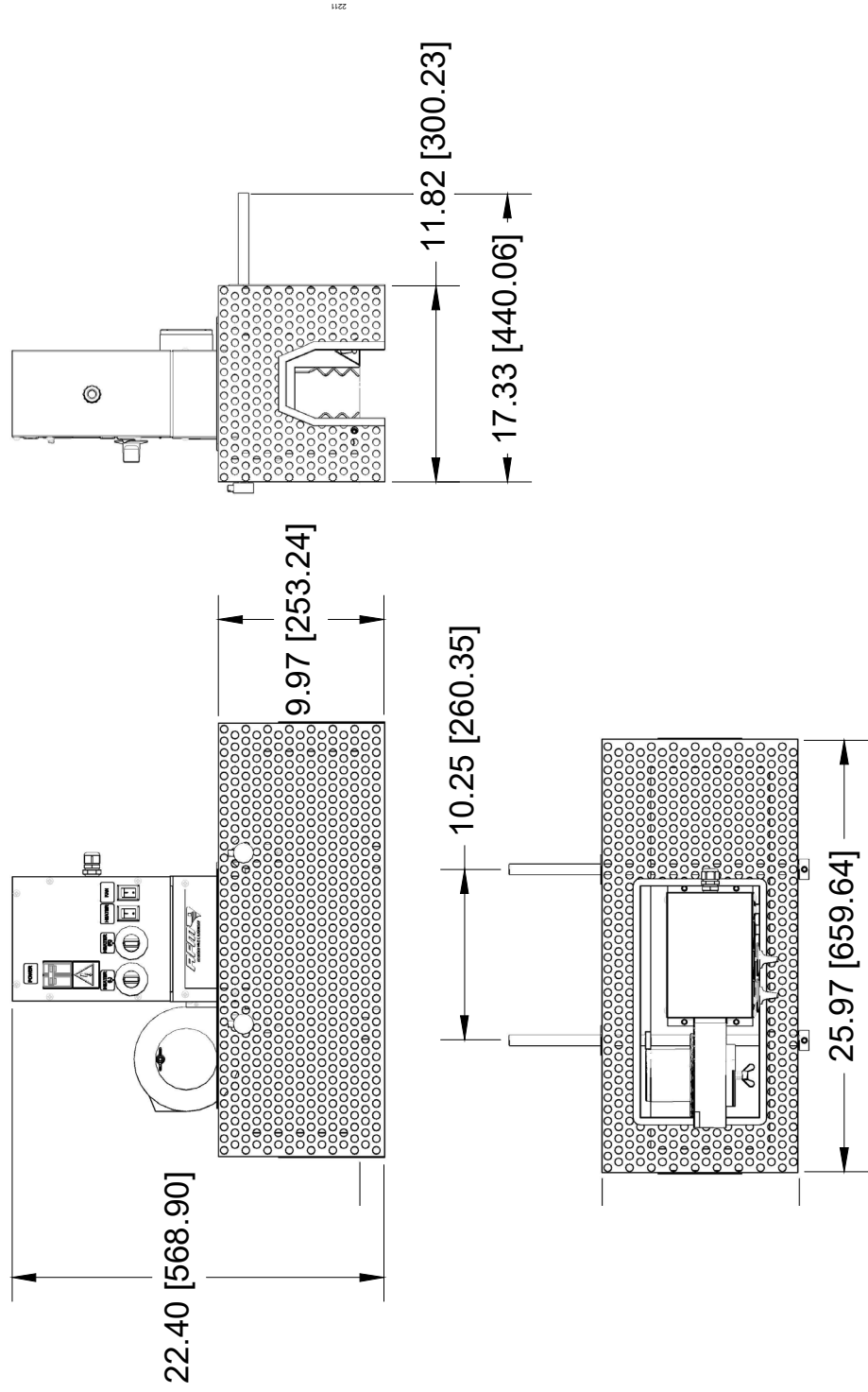
Parts List

PART NO.	PART DESCRIPTION	PART SPECIFICATION	QTY
5AA04C25D10G7	MAGNETIC CONTACTOR	C-25D10G7 AC220V 4A	1
5AB01INF240X577	Temperature switch	INF-240-577	2
5AB03BH2P30A	NFB	BH-2P30A	1
5AB10TL6094PG	Switch	TL6094P 0-1 30X22 Green	1
5AB10TL6094PR	Switch	TL6094P 0-1 30X22 Red	1
5AC01SF111AE	Fuse holder	SF-111AE 1P10A 250V	1
5AC0505AX30	Fuse	5AX30	1
5AC06TB12P25A	Terminal block	TB-12P25A	1
5AF038W0495X225	W-type Heater tube	8 φ X 495M/MX220VX2.5KW	2
5CB64MB1040D	fan motor	MB1040-D	1
5FD0101X30X20	Acrylic signs	2TX30X20 POWER	1
5FD0102X30X20	Acrylic signs	2TX30X20 HEATER	1
5FD0104X30X20	Acrylic signs	2TX30X20 FAN	1
5FD0165X30X20	Acrylic signs	2TX30X20 HEATER®▼	1
5FD0166X30X20	Acrylic signs	2TX30X20 HEATER(L)▼	1

Recommended Replacement Parts

PART NO.	PART DESCRIPTION	PART SPECIFICATION	QTY
5CB64MB1040D	Fan motor	MB1040-D	1
5AB03BH2P30A	Switch	BH-2P30A	1
5AB10TL6094PG	Switch	TL6094P 0-1 30X22 Green	1
5AB10TL6094PR	Switch	TL6094P 0-1 30X22 Red	1
5AB01INF240X577	Temperature switch	INF-240-577	2
5AF038W0495X225	W-type Heater tube	8 φ X 495M/MX220VX2.5KW	2

Component Dimensions



Warranty Statement

American Film & Machinery (AFM) warrants that all of the products it ships will be in good working order and free from defects in material and workmanship for a period of one year from the date of shipment by AFM and will conform to the published specifications for that product.

Limitations

The warranty of AFM is contingent upon installation, operation, and maintenance of equipment under normal operating conditions. The warranty is void on equipment or parts: damaged by corrosion, improper use, accident, negligence or not operating within the specifications provided; damaged by fire, flood, earthquake, or such other causes beyond the control of AFM; that have been altered or repaired in any way changing the original performance and; that are normally expendable in the usual course of operation. Expendable items include, but are not limited to, heater elements, cutter blades and belts. The warranty period on each replacement equipment or part in fulfillment of the warranty on new equipment or parts shall be for the unexpired portion of the original warranty.

Repairs

All in-house repairs are rigorously tested for optimum operation and performance and warranted to be, under normal and proper use, free from defects in material and workmanship for a period of 90 days from the date of service.

Shrinking Quality

Shrinking quality achieved in a given application is dependent on the film, product, installation, material handling, and the maintenance provided. AFM makes no warranty that the shrinking quality achieved in an application will be the same as that achieved on a test piece in our demo facility.

Shipping Policy

Customer pays all incoming shipping charges for replacement components. If the item is defective and under warranty, AFM will pay all return shipping charges via the least costly method. If expedited shipping is desired, the customer must furnish their shipping account number and shipping fees will be charged to that account.

Exclusions

Damage due to tampering, abuse, improper adjustment, electrical interference, or the use of non-approved components will void any and all warranties by AFM and its distributors.



Warranty Verification

If you believe that a product or component may be defective and may be covered by warranty, obtain a Return Material Authorization number by calling our technical support number (toll free at 1-800-835-9344, or 763-428-4846 or Fax: 763-795-8867) or e-mail: info@afmsleeves.com. Based on the recommendation from AFM technical support, replacement components may be shipped out via UPS Ground or similar method. If expedited shipping is desired, customer must furnish their shipping account and shipping fees will be charged to that account.

Customer is required to return the defective component to AFM. If, after 30 days, AFM hasn't received the defective component, the customer will be invoiced for the replacement component. If the returned component is found to not be eligible for warranty, AFM will contact the customer, and the customer will be invoiced for the replacement component.

Warranty Eligibility

The warranty provided by AFM is only to the original buyer.

Limited Warranty

THIS WARRANTY SHALL NOT APPLY IF ANY MODIFICATION, ALTERATION, OR ADDITION IS MADE TO THE PRODUCT WITHOUT AFM'S PRIOR WRITTEN APPROVAL. FURTHERMORE, THIS WARRANTY DOES NOT APPLY TO PRODUCT DEFECTS DUE TO MISUSE, ABUSE, NEGLIGENCE, OR FAILURE TO FOLLOW RECOMMENDED PROCEDURES. ANY PRODUCT REPAIRED OR ALTERED BY PERSONS OTHER THAN AUTHORIZED AFM REPRESENTATIVES WILL NOT BE COVERED BY THIS WARRANTY. THIS WARRANTY DOES NOT APPLY TO CONSUMABLE ITEMS.

EXCEPT AS EXPRESSLY PROVIDED IN THIS WARRANTY, AFM MAKES NO REPRESENTATION OR WARRANTY, EXPRESSED OR IMPLIED, WITH RESPECT TO THE PRODUCT, INCLUDING, WITHOUT LIMITATION, ANY WARRANTY AS TO MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE, NON-INFRINGEMENT OR ANY OTHER MATTER.

AFM SHALL HAVE NO LIABILITY TO ANY PERSON FOR INCIDENTAL, CONSEQUENTIAL, OR SPECIAL DAMAGES OF ANY DESCRIPTION WHETHER ARISING OUT OF WARRANTY OR INABILITY TO USE THESE PRODUCTS EVEN IF AFM HAS BEEN ADVISED OF THE POSSIBILITY OF SUCH DAMAGES.

Customer Support

AFM Technical Service

For help installing or operating the OAL 36 Shrink Tunnel, please contact your authorized AFM reseller or AFM Technical Service at one of the numbers listed below.

Toll-Free Phone	800-877-5658
Phone	763-795-8856
Fax	763-795-8867
E-mail	info@afmsleeves.com
Web	www.afmsleeves.com

Thank you for your purchase of AFM products. We are pleased to be a part of your shrink sleeve labeling requirements.

