



**MODEL G0953**  
**HEPA FUME EXTRACTOR**  
**FOR LASERS**  
**OWNER'S MANUAL**  
*(For models manufactured since 8/22)*



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#MN22112 PRINTED IN TAIWAN

V2.08.22

**\*\*\*Keep for Future Reference\*\*\***



# **WARNING!**

**This manual provides critical safety instructions on the proper setup, operation, maintenance, and service of this machine/tool. Save this document, refer to it often, and use it to instruct other operators.**

**Failure to read, understand and follow the instructions in this manual may result in fire or serious personal injury—including amputation, electrocution, or death.**

**The owner of this machine/tool is solely responsible for its safe use. This responsibility includes but is not limited to proper installation in a safe environment, personnel training and usage authorization, proper inspection and maintenance, manual availability and comprehension, application of safety devices, cutting/sanding/grinding tool integrity, and the usage of personal protective equipment.**

**The manufacturer will not be held liable for injury or property damage from negligence, improper training, machine modifications or misuse.**



# **WARNING!**

**Some dust created by power sanding, sawing, grinding, drilling, and other construction activities contains chemicals known to the State of California to cause cancer, birth defects or other reproductive harm. Some examples of these chemicals are:**

- **Lead from lead-based paints.**
- **Crystalline silica from bricks, cement and other masonry products.**
- **Arsenic and chromium from chemically-treated lumber.**

**Your risk from these exposures varies, depending on how often you do this type of work. To reduce your exposure to these chemicals: Work in a well ventilated area, and work with approved safety equipment, such as those dust masks that are specially designed to filter out microscopic particles.**

# Table of Contents

<b>INTRODUCTION</b> .....	<b>2</b>
Contact Info.....	2
Manual Accuracy.....	2
Identification.....	3
Controls & Components.....	4
Machine Data Sheet.....	6
<b>SECTION 1: SAFETY</b> .....	<b>8</b>
Safety Instructions for Machinery.....	8
Additional Safety for Fume Extractors.....	10
<b>SECTION 2: POWER SUPPLY</b> .....	<b>11</b>
Converting Voltage to 220V.....	13
<b>SECTION 3: SETUP</b> .....	<b>15</b>
Needed for Setup.....	15
Unpacking.....	15
Inventory.....	16
Hardware Recognition Chart.....	17
Site Considerations.....	18
Assembly.....	19
Ducting System.....	22
System Grounding.....	23
Test Run.....	24
<b>SECTION 4: OPERATIONS</b> .....	<b>25</b>
Operation.....	25
<b>SECTION 5: ACCESSORIES</b> .....	<b>26</b>
<b>SECTION 6: MAINTENANCE</b> .....	<b>28</b>
Schedule.....	28
Cleaning/Replacing Filters.....	28
Pairing Remote Control.....	30
Replacing Remote Control Battery.....	30
<b>SECTION 7: SERVICE</b> .....	<b>31</b>
Troubleshooting.....	31
<b>SECTION 8: WIRING</b> .....	<b>33</b>
Wiring Safety Instructions.....	33
Wiring Diagram (110V).....	34
Wiring Diagram (220V).....	35
Electrical Components.....	36
<b>SECTION 9: PARTS</b> .....	<b>37</b>
Main.....	37
Labels & Cosmetics.....	39
<b>WARRANTY &amp; RETURNS</b> .....	<b>41</b>

# INTRODUCTION

## Contact Info

We stand behind our machines! If you have questions or need help, contact us with the information below. Before contacting, make sure you get the **serial number** and **manufacture date** from the machine ID label. This will help us help you faster.

Grizzly Technical Support  
1815 W. Battlefield  
Springfield, MO 65807  
Phone: (570) 546-9663  
Email: techsupport@grizzly.com

We want your feedback on this manual. What did you like about it? Where could it be improved? Please take a few minutes to give us feedback.

Grizzly Documentation Manager  
P.O. Box 2069  
Bellingham, WA 98227-2069  
Email: manuals@grizzly.com

### **WARNING**

Like all machinery there is potential danger when operating this machine. Accidents are frequently caused by lack of familiarity or failure to pay attention. Use this machine with respect and caution to decrease the risk of operator injury. If normal safety precautions are overlooked or ignored, serious personal injury may occur.

### **CAUTION**

No list of safety guidelines can be complete. Every shop environment is different. Always consider safety first, as it applies to your individual working conditions. Use this and other machinery with caution and respect. Failure to do so could result in serious personal injury, damage to equipment, or poor work results.

## Manual Accuracy

We are proud to provide a high-quality owner's manual with your new machine!

We made every effort to be exact with the instructions, specifications, drawings, and photographs in this manual. Sometimes we make mistakes, but our policy of continuous improvement also means that **sometimes the machine you receive is slightly different than shown in the manual.**

If you find this to be the case, and the difference between the manual and machine leaves you confused or unsure about something, check our website for an updated version. We post current manuals and manual updates for free on our website at [www.grizzly.com](http://www.grizzly.com).

Alternatively, you can call our Technical Support for help. Before calling, make sure you write down the **manufacture date** and **serial number** from the machine ID label (see below). This information is required for us to provide proper tech support, and it helps us determine if updated documentation is available for your machine.

		MODEL GXXXX MACHINE NAME	
SPECIFICATIONS		 <b>WARNING!</b>	
Motor:		To reduce risk of serious injury when using this machine:	
Specification:		1. Read manual before operation.	
Specification:		2. Wear safety glasses and respirator.	
Specification:		3. Make sure power is connected to grounded circuit before starting.	
Specification:		4. Make sure the motor has stopped and disconnect power before adjustments, maintenance, or service.	
Weight:		5. DO NOT expose to rain or dampness.	
		6. DO NOT modify this machine in any way.	
		7.	
		8.	
		9. Do not drink or use alcohol while operating.	
		10. Maintain machine carefully to prevent accidents.	

Manufactured for Grizzly in Taiwan

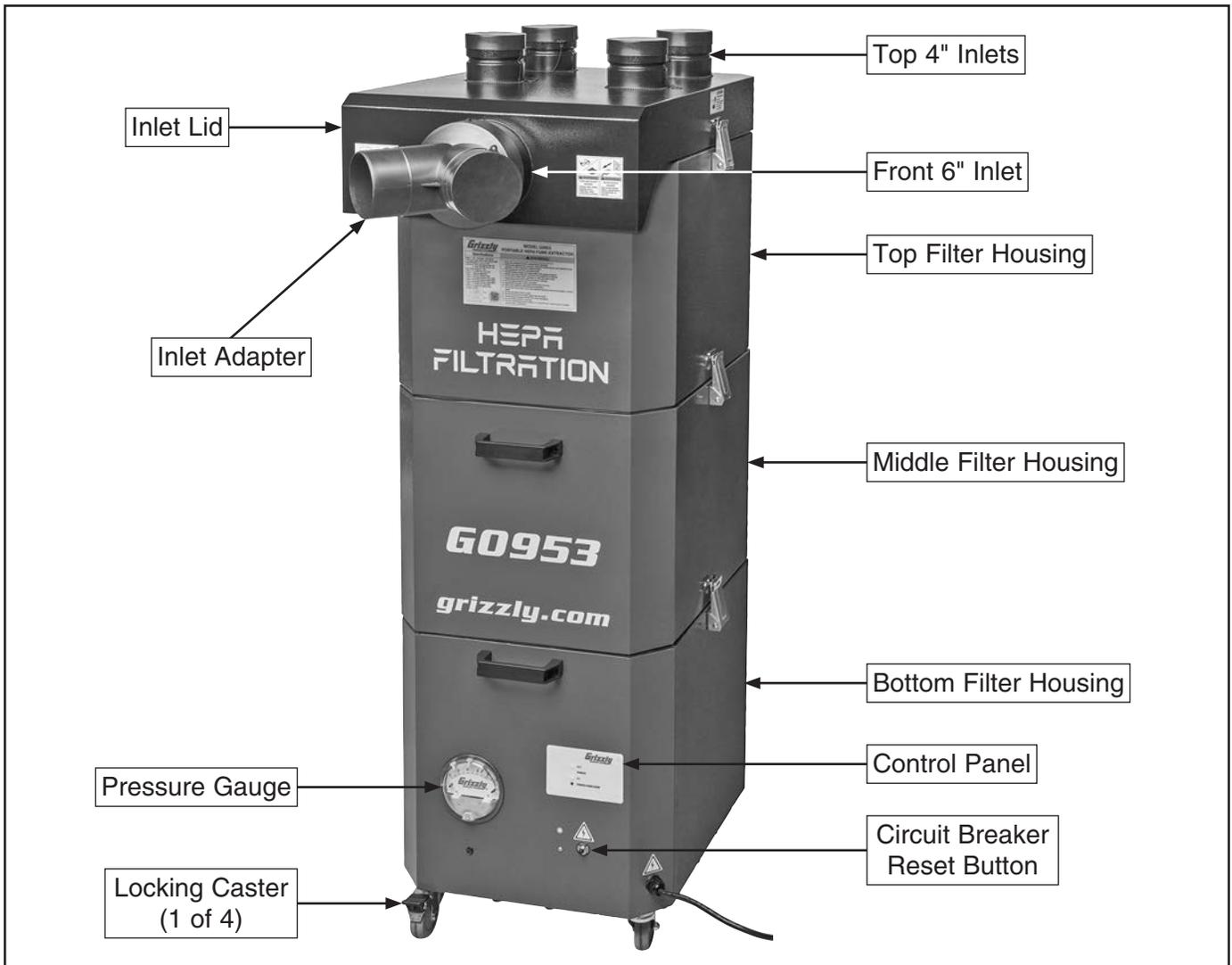
**Manufacture Date** [ ]

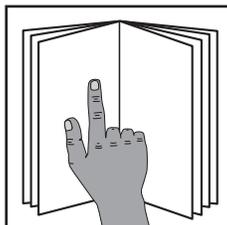
**Serial Number** [ ]



# Identification

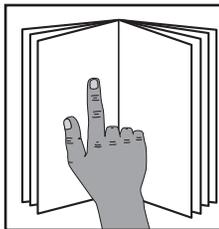
Become familiar with the names and locations of the controls and features shown below to better understand the instructions in this manual.



	<p><b>⚠ WARNING</b> To reduce your risk of serious injury, read this entire manual <b>BEFORE</b> using machine.</p>
---	---



# Controls & Components



## **! WARNING**

To reduce your risk of serious injury, read this entire manual **BEFORE** using machine.

Refer to the following figures and descriptions to become familiar with the basic controls and components of this machine. Understanding these items and how they work will help you understand the rest of the manual and minimize your risk of injury when operating this machine.

## Electronic Controls



Figure 1. Control panel and reset button.

- A. **OFF Button:** Turns power to motor **OFF**.
- B. **ON Button:** Turns power to motor **ON**.
- C. **Power Indicator Light:** Illuminates when machine is turned **ON**.
- D. **Circuit Breaker Reset Button:** Allows machine to be restarted after thermal overload protection has tripped. To reset, turn machine **OFF**, wait a few minutes for motor to cool, then press reset button. If button does not *stay* depressed, allow motor to cool longer, then try again.

## Pressure Gauge



Figure 2. Pressure gauge.

- E. **Pressure Gauge:** Displays vacuum pressure, indicating when filters need to be cleaned or replaced. Clean filters when operating pressure exceeds 4 inches of water (inAq). Replace filters when operating pressure exceeds 7 inches of water (inAq) and cleaning does not improve performance.

## Inlet Lid



Figure 3. Inlet lid components.

- F. **Top 4" Inlets:** Use when operating machine as area air filter.
- G. **Front 6" Inlet:** Use when connecting machine to laser cutter.
- H. **Inlet Adapter:** Connects two 4" ducts to 6" inlet.



## Filter Housings



Figure 4. Top filter housing.

- I. **Top Filter Housing:** Houses spark arrestor, 2–10 micron pleated pre-filter, 1-micron bag filter, and 1-micron pleated polyester filter.

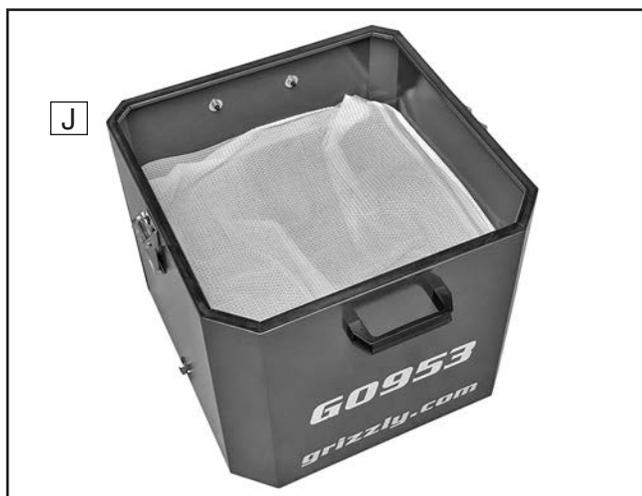


Figure 5. Middle filter housing.

- J. **Middle Filter Housing:** Houses type-1000, -3,000, and -9000 activated carbon bags, each separated by woven mesh screens.



Figure 6. Bottom filter housing.

- K. **Bottom Filter Housing:** Houses 2–10 micron pleated pre-filter, 0.3-micron HEPA filter, and motor.

## Remote Control



Figure 7. Remote control.

- L. **Remote Control:** Button A turns motor **ON**. Button B turns motor **OFF**. Button D pairs remote control with RF receiver. Requires a 12V, type A27 battery.

**Note:** *Button C is not functional for this machine.*





# MACHINE DATA SHEET

Customer Service #: (570) 546-9663 · To Order Call: (800) 523-4777 · Fax #: (800) 438-5901

## MODEL G0953 HEPA FUME EXTRACTOR FOR LASERS

### Product Dimensions:

Weight ..... 220 lbs.  
Width (side-to-side) x Depth (front-to-back) x Height ..... 21-1/2 x 29 x 61-1/2 in.  
Footprint (Length/Width) ..... 18 x 18 in.

### Shipping Dimensions:

Type ..... Cardboard Box on Wood Pallet  
Content..... Machine  
Weight..... 252 lbs.  
Length x Width x Height..... 61 x 22 x 29 in.  
Must Ship Upright ..... Yes

### Electrical:

Power Requirement ..... 110V or 220V, Single-Phase, 60 Hz  
Prewired Voltage..... 110V  
Full-Load Current Rating..... 9A at 110V, 4.5A at 220V  
Minimum Circuit Size ..... 15A at 110V, 15A at 220V  
Connection Type..... Cord & Plug  
Power Cord Included ..... Yes  
Power Cord Length ..... 118 in.  
Power Cord Gauge ..... 14 AWG  
Plug Included ..... Yes  
Included Plug Type ..... 5-15 for 110V  
Recommended Plug Type ..... 6-15 for 220V  
Switch Type ..... Circuit Board with ON/OFF Buttons and Remote Receiver

### Motor:

#### Main

Horsepower ..... 1 HP  
Phase ..... Single-Phase  
Amps ..... 9A/4.5A  
Speed ..... 3450 RPM  
Type..... TEFC Capacitor-Start Induction  
Power Transfer..... Direct  
Bearings ..... Shielded and Permanently Sealed  
Centrifugal Switch/Contacts Type ..... Internal



**Main Specifications:**

**Operation Information**

Airflow Performance, 6-in. Inlet .....	423 CFM @ 0.38 in. SP
Airflow Performance, 4-in. Inlet .....	335 CFM @ 0.91 in. SP
Max. Static Pressure (at 0 CFM).....	7.84 in.
Front Inlet Size .....	6 in.
Top Inlet Size .....	4 in.
Inlet Adapter Included .....	Yes
Inlet Adapter Type .....	Y-Inlet
Number of Adapter Inlets .....	2
Adapter Inlet Size .....	4 in.
Machine Collection Capacity at One Time .....	2

**Filter Information**

Number of Filters.....	8
Total Filter Surface Area .....	88.5 sq. ft.
First-Stage Filter Type.....	Pleated Pre-Filter
First-Stage Filter Rating .....	2 - 10 Microns
First-Stage Filter Size.....	15 x 15 x 7/8 in.
Second-Stage Filter Type.....	Bag Filter
Second-Stage Filter Rating .....	1 Micron
Second-Stage Filter Size.....	15 x 15 x 9-7/8 in.
Third-Stage Filter Type.....	Pleated Polyester Filter
Third-Stage Filter Rating .....	1 Micron
Third-Stage Filter Size.....	15 x 15 x 1-3/4 in.
Fourth-Stage Filter Type .....	Activated Carbon Bag, Type 1000
Fifth-Stage Filter Type.....	Activated Carbon Bag, Type 3000
Sixth-Stage Filter Type.....	Activated Carbon Bag, Type 9000
Seventh-Stage Filter Type.....	Pleated Pre-Filter
Seventh-Stage Filter Rating .....	2 - 10 Microns
Seventh-Stage Filter Size.....	15 x 15 x 7/8 in.
Eighth-Stage Filter Type.....	HEPA Filter
Eighth-Stage Filter Rating .....	0.3 Microns
Eighth-Stage Filter Size.....	15 x 15 x 4 in.

**Impeller Information**

Impeller Type.....	Aluminum
Impeller Size.....	12 in.
Impeller Blade Thickness .....	.4mm

**Construction**

Base .....	Steel
Frame .....	Steel
Side Walls .....	Steel
Impeller.....	Aluminum
Paint Type/Finish.....	Powder Coated

**Other Specifications:**

Country of Origin.....	Taiwan
Warranty.....	1 Year
Approximate Assembly & Setup Time .....	30 Minutes
Serial Number Location .....	Machine ID Label
ISO 9001 Factory .....	Yes



# SECTION 1: SAFETY

## For Your Own Safety, Read Instruction Manual Before Operating This Machine

The purpose of safety symbols is to attract your attention to possible hazardous conditions. This manual uses a series of symbols and signal words intended to convey the level of importance of the safety messages. The progression of symbols is described below. Remember that safety messages by themselves do not eliminate danger and are not a substitute for proper accident prevention measures. Always use common sense and good judgment.

**⚠ DANGER** Indicates an imminently hazardous situation which, if not avoided, **WILL** result in death or serious injury.

**⚠ WARNING** Indicates a potentially hazardous situation which, if not avoided, **COULD** result in death or serious injury.

**⚠ CAUTION** Indicates a potentially hazardous situation which, if not avoided, **MAY** result in minor or moderate injury. It may also be used to alert against unsafe practices.

**NOTICE** Alerts the user to useful information about proper operation of the machine to avoid machine damage.

## Safety Instructions for Machinery

### ⚠ WARNING

**OWNER'S MANUAL.** Read and understand this owner's manual **BEFORE** using machine.

**TRAINED OPERATORS ONLY.** Untrained operators have a higher risk of being hurt or killed. Only allow trained/supervised people to use this machine. When machine is not being used, disconnect power, remove switch keys, or lock-out machine to prevent unauthorized use—especially around children. Make your workshop kid proof!

**DANGEROUS ENVIRONMENTS.** Do not use machinery in areas that are wet, cluttered, or have poor lighting. Operating machinery in these areas greatly increases the risk of accidents and injury.

**MENTAL ALERTNESS REQUIRED.** Full mental alertness is required for safe operation of machinery. Never operate under the influence of drugs or alcohol, when tired, or when distracted.

**ELECTRICAL EQUIPMENT INJURY RISKS.** You can be shocked, burned, or killed by touching live electrical components or improperly grounded machinery. To reduce this risk, only allow qualified service personnel to do electrical installation or repair work, and always disconnect power before accessing or exposing electrical equipment.

**DISCONNECT POWER FIRST.** Always disconnect machine from power supply **BEFORE** making adjustments, changing tooling, or servicing machine. This prevents an injury risk from unintended startup or contact with live electrical components.

**EYE PROTECTION.** Always wear ANSI-approved safety glasses or a face shield when operating or observing machinery to reduce the risk of eye injury or blindness from flying particles. Everyday eyeglasses are **NOT** approved safety glasses.



# WARNING

**WEARING PROPER APPAREL.** Do not wear clothing, apparel or jewelry that can become entangled in moving parts. Always tie back or cover long hair. Wear non-slip footwear to reduce risk of slipping and losing control or accidentally contacting cutting tool or moving parts.

**HAZARDOUS DUST.** Dust created by machinery operations may cause cancer, birth defects, or long-term respiratory damage. Be aware of dust hazards associated with each workpiece material. Always wear a NIOSH-approved respirator to reduce your risk.

**HEARING PROTECTION.** Always wear hearing protection when operating or observing loud machinery. Extended exposure to this noise without hearing protection can cause permanent hearing loss.

**REMOVE ADJUSTING TOOLS.** Tools left on machinery can become dangerous projectiles upon startup. Never leave chuck keys, wrenches, or any other tools on machine. Always verify removal before starting!

**USE CORRECT TOOL FOR THE JOB.** Only use this tool for its intended purpose—do not force it or an attachment to do a job for which it was not designed. Never make unapproved modifications—modifying tool or using it differently than intended may result in malfunction or mechanical failure that can lead to personal injury or death!

**AWKWARD POSITIONS.** Keep proper footing and balance at all times when operating machine. Do not overreach! Avoid awkward hand positions that make workpiece control difficult or increase the risk of accidental injury.

**CHILDREN & BYSTANDERS.** Keep children and bystanders at a safe distance from the work area. Stop using machine if they become a distraction.

**GUARDS & COVERS.** Guards and covers reduce accidental contact with moving parts or flying debris. Make sure they are properly installed, undamaged, and working correctly BEFORE operating machine.

**FORCING MACHINERY.** Do not force machine. It will do the job safer and better at the rate for which it was designed.

**NEVER STAND ON MACHINE.** Serious injury may occur if machine is tipped or if the cutting tool is unintentionally contacted.

**STABLE MACHINE.** Unexpected movement during operation greatly increases risk of injury or loss of control. Before starting, verify machine is stable and mobile base (if used) is locked.

**USE RECOMMENDED ACCESSORIES.** Consult this owner's manual or the manufacturer for recommended accessories. Using improper accessories will increase the risk of serious injury.

**UNATTENDED OPERATION.** To reduce the risk of accidental injury, turn machine **OFF** and ensure all moving parts completely stop before walking away. Never leave machine running while unattended.

**MAINTAIN WITH CARE.** Follow all maintenance instructions and lubrication schedules to keep machine in good working condition. A machine that is improperly maintained could malfunction, leading to serious personal injury or death.

**DAMAGED PARTS.** Regularly inspect machine for damaged, loose, or mis-adjusted parts—or any condition that could affect safe operation. Immediately repair/replace BEFORE operating machine. For your own safety, DO NOT operate machine with damaged parts!

**MAINTAIN POWER CORDS.** When disconnecting cord-connected machines from power, grab and pull the plug—NOT the cord. Pulling the cord may damage the wires inside. Do not handle cord/plug with wet hands. Avoid cord damage by keeping it away from heated surfaces, high traffic areas, harsh chemicals, and wet/damp locations.

**EXPERIENCING DIFFICULTIES.** If at any time you experience difficulties performing the intended operation, stop using the machine! Contact our Technical Support at (570) 546-9663.



# Additional Safety for Fume Extractors

## WARNING

Long-term respiratory damage, toxicity, cancer, or birth defects can occur from inhaling fumes, vapors, and particulates generated while cutting substrates without adequate ventilation, exhaust, and fume extraction. All users must be properly trained on the potential hazards, control measures, manufacturer's operating procedures, use of personal protective equipment (PPE), emergency procedures, and safety precautions for CNC laser operations. To reduce these risks, operator and bystanders **MUST** completely heed the warnings below.

**TOXIC MATERIALS.** Exposure to certain types of fumes can result in serious, potentially deadly health effects. To reduce this risk, research toxicity of material types you work with, and always seek to minimize/eliminate exposure to yourself and others. Obtain the Safety Data Sheet (SDS) from material manufacturer **BEFORE** operations, and never knowingly engrave or cut a workpiece that has been treated with or contains material that releases toxic byproducts when heated.

**TOXIC FUMES.** Cutting or engraving metals and plastics give off highly toxic fumes, vapors, and air particulates containing zinc, lead, beryllium, cadmium, mercury, fluorine, hexavalent chromium, chlorine gas, and many others. These fumes and air contaminants can damage the machine and harm your health. If the fume extractor or extraction fan is malfunctioning, immediately stop operations and correct the issue.

**ADEQUATE VENTILATION.** Only use CNC lasers in spaces with adequate ventilation. Some materials can produce vapors and fumes that may irritate the nose, throat, and respiratory tract, or cause suffocation. Only operate CNC lasers with a fully functioning extraction fan and fume extractor. Use additional personnel to monitor operator from outside the operating area in the event of equipment failure.

**EXTRACTION FAN.** To effectively extract fumes and particulates from the machine during operations, use an extraction fan rated for a minimum of **200 CFM** (Cubic Feet per Minute) at 6" static pressure.

**FUME EXTRACTION.** CNC lasers must be equipped with a fume extractor that uses **MERV 15+** or **HEPA** filters. **NEVER** modify fume extractor or bypass safety features. Only operate fume extractor with all filters and covers in place during operation. If any filter is missing or has been replaced with a non-specification filter, the fume extractor will not properly filter contaminated air and will be unsafe to use.

**INSPECTIONS/MAINTENANCE.** Always inspect exhaust ducting and fume extractor for leaks prior to operations. Repair or replace defective components before starting.

**FILTER CLEANING/DISPOSAL.** Filters must be changed regularly according to the frequency of use, or as specified by the manufacturer. When servicing filters, make sure operator and any bystanders are wearing Personal Protective Equipment (PPE). When vacuuming filters and cabinet, only use a shop vacuum that is equipped with a **MERV 15+** or **HEPA** filter, or dangerous particulates may be spread throughout the area contaminating the air. Wrap all waste filters in air-tight plastic bags, then mark and dispose of according to current laws and regulations.

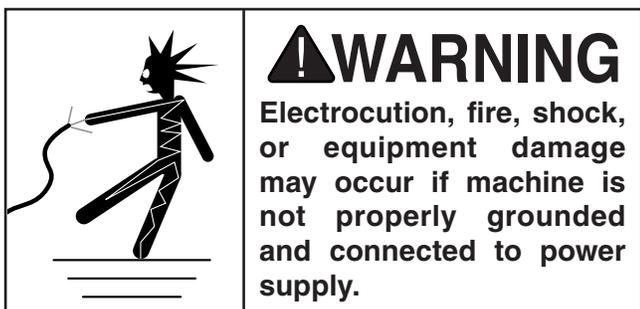
**EXPERIENCING DIFFICULTIES.** Keep in mind that CNC laser hazards are intensified in a confined space. If you are experiencing difficulties performing the intended operation, stop using the equipment, and contact the Occupational Safety and Health Administration (OSHA) at (800) 321-6742, or online at **[www.osha.gov](http://www.osha.gov)** to find out how to design and maintain the best overall CNC laser toxic fume extraction system for your needs.



# SECTION 2: POWER SUPPLY

## Availability

Before installing the machine, consider the availability and proximity of the required power supply circuit. If an existing circuit does not meet the requirements for this machine, a new circuit must be installed. To minimize the risk of electrocution, fire, or equipment damage, installation work and electrical wiring must be done by an electrician or qualified service personnel in accordance with all applicable codes and standards.



## Full-Load Current Rating

The full-load current rating is the amperage a machine draws at 100% of the rated output power. On machines with multiple motors, this is the amperage drawn by the largest motor or sum of all motors and electrical devices that might operate at one time during normal operations.

**Full-Load Current Rating at 110V..... 9 Amps**

**Full-Load Current Rating at 220V .... 4.5 Amps**

The full-load current is not the maximum amount of amps that the machine will draw. If the machine is overloaded, it will draw additional amps beyond the full-load rating.

If the machine is overloaded for a sufficient length of time, damage, overheating, or fire may result—especially if connected to an undersized circuit. To reduce the risk of these hazards, avoid overloading the machine during operation and make sure it is connected to a power supply circuit that meets the specified circuit requirements.

## Circuit Information

A power supply circuit includes all electrical equipment between the breaker box or fuse panel in the building and the machine. The power supply circuit used for this machine must be sized to safely handle the full-load current drawn from the machine for an extended period of time. (If this machine is connected to a circuit protected by fuses, use a time delay fuse marked D.)

### **! CAUTION**

For your own safety and protection of property, consult an electrician if you are unsure about wiring practices or electrical codes in your area.

*Note: Circuit requirements in this manual apply to a dedicated circuit—where only one machine will be running on the circuit at a time. If machine will be connected to a shared circuit where multiple machines may be running at the same time, consult an electrician or qualified service personnel to ensure circuit is properly sized for safe operation.*

## Circuit Requirements for 110V

This machine is prewired to operate on a power supply circuit that has a verified ground and meets the following requirements:

**Nominal Voltage ..... 110V, 115V, 120V**  
**Cycle ..... 60 Hz**  
**Phase ..... Single-Phase**  
**Power Supply Circuit ..... 15 Amps**  
**Plug/Receptacle ..... NEMA 5-15**

## Circuit Requirements for 220V

This machine can be converted to operate on a power supply circuit that has a verified ground and meets the requirements listed below. (Refer to **Voltage Conversion** instructions for details.)

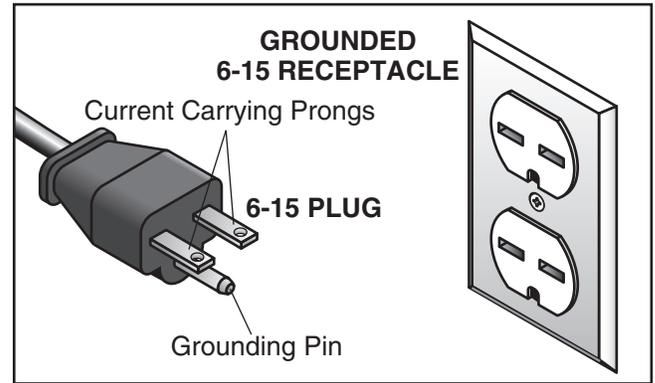
**Nominal Voltage ..... 208V, 220V, 230V, 240V**  
**Cycle ..... 60 Hz**  
**Phase ..... Single-Phase**  
**Power Supply Circuit ..... 15 Amps**  
**Plug/Receptacle ..... NEMA 6-15**



## Grounding Requirements

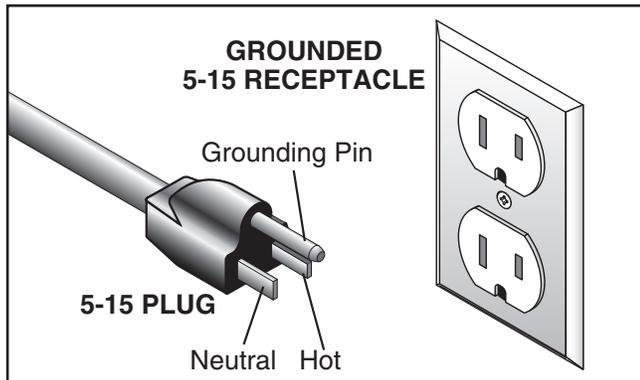
This machine **MUST** be grounded. In the event of certain malfunctions or breakdowns, grounding reduces the risk of electric shock by providing a path of least resistance for electric current.

**For 110V operation:** This machine is equipped with a power cord that has an equipment-grounding wire and a grounding plug (see following figure). The plug must only be inserted into a matching receptacle (outlet) that is properly installed and grounded in accordance with all local codes and ordinances.



**Figure 9.** Typical 6-15 plug and receptacle.

Improper connection of the equipment-grounding wire can result in a risk of electric shock. The wire with green insulation (with or without yellow stripes) is the equipment-grounding wire. If repair or replacement of the power cord or plug is necessary, do not connect the equipment-grounding wire to a live (current carrying) terminal.



**Figure 8.** Typical 5-15 plug and receptacle.

Check with a qualified electrician or service personnel if you do not understand these grounding requirements, or if you are in doubt about whether the tool is properly grounded. If you ever notice that a cord or plug is damaged or worn, disconnect it from power, and immediately replace it with a new one.

**⚠ CAUTION**

**SHOCK HAZARD!**

**Two-prong outlets do not meet the grounding requirements for this machine. Do not modify or use an adapter on the plug provided—if it will not fit the outlet, have a qualified electrician install the proper outlet with a verified ground.**

## Extension Cords

We do not recommend using an extension cord with this machine. If you must use an extension cord, only use it if absolutely necessary and only on a temporary basis.

Extension cords cause voltage drop, which can damage electrical components and shorten motor life. Voltage drop increases as the extension cord size gets longer and the gauge size gets smaller (higher gauge numbers indicate smaller sizes).

Any extension cord used with this machine must be in good condition and contain a ground wire and matching plug/receptacle. Additionally, it must meet the following size requirements:

**Minimum Gauge Size ..... 14 AWG**  
**Maximum Length (Shorter is Better).....50 ft.**

**For 220V operation:** The plug specified under “Circuit Requirements for 220V” on the previous page has a grounding prong that must be attached to the equipment-grounding wire on the included power cord. The plug must only be inserted into a matching receptacle (see following figure) that is properly installed and grounded in accordance with all local codes and ordinances.



# Converting Voltage to 220V

The voltage conversion **MUST** be performed by an electrician or qualified service personnel.

The voltage conversion procedure consists of rewiring the motor, replacing the circuit breaker, and installing the correct plug.

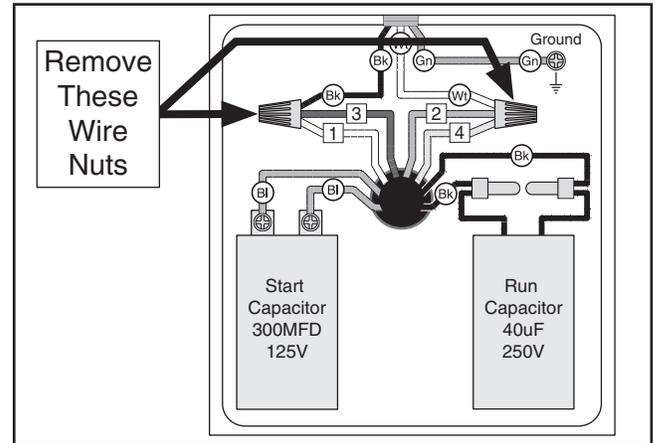
A wiring diagram is provided on **Page 34** for your reference.

Items Needed	Qty
• Phillips Head Screwdriver #2 .....	1
• Open-End Wrenches or Sockets 12, 14mm...	1
• Electrical Tape.....	As Needed
• Wire Cutters/Stripper.....	1
• NEMA 6-15 Plug .....	1
• Circuit Breaker 7A (P0953029X) .....	1
• Wire Nut 14-22 AWG.....	1

## To convert Model G0953 to 220V:

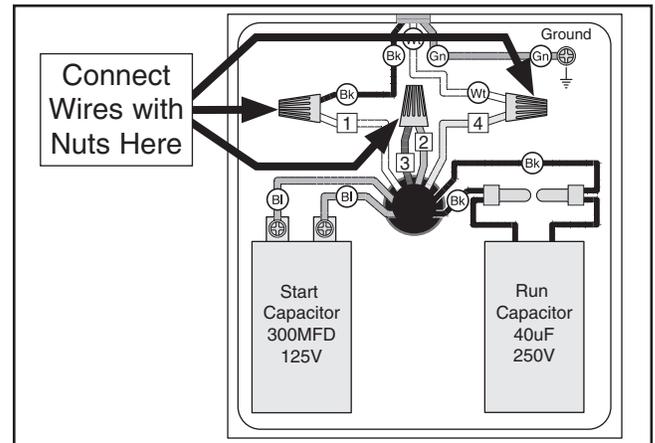
1. DISCONNECT MACHINE FROM POWER!
2. Unlatch and remove inlet lid.
3. Unlatch and remove top and middle filter housings, then gently lay bottom filter housing on its side.
4. Remove base plate.

5. Open motor junction box, then loosen two wire nuts indicated in **Figure 10**.



**Figure 10.** Motor prepared for 110V.

6. Use three wire nuts to connect wires as indicated in **Figure 11**. Twist wire nuts onto their respective wires and wrap them with electrical tape so they will not come loose during operation.

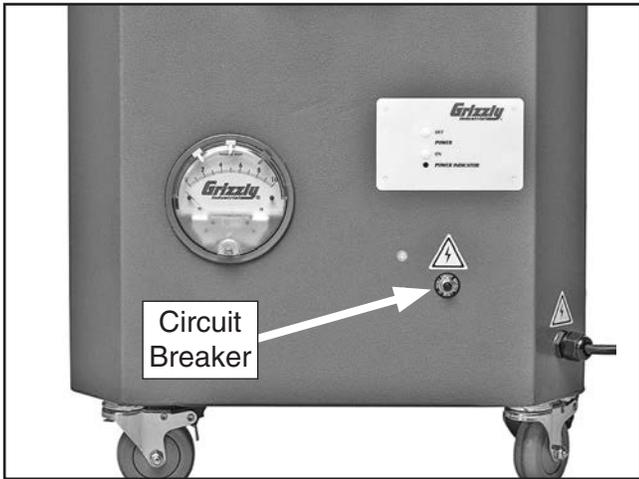


**Figure 11.** Motor rewired for 220V.

7. Close and secure motor junction box.



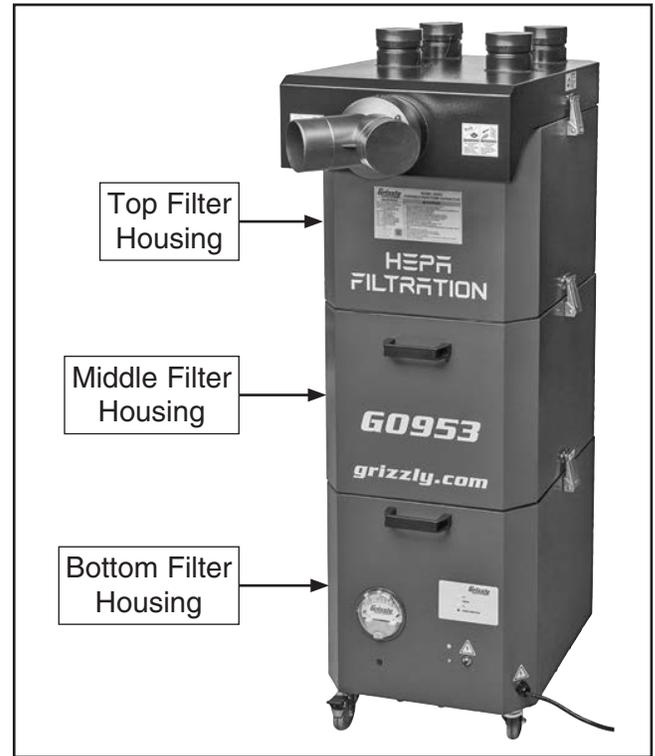
8. Replace pre-installed 12A circuit breaker (see **Figure 12**) with 7A circuit breaker.



**Figure 12.** Location of circuit breaker.

9. Re-install base plate, and set bottom filter housing right side up.
10. Cut off existing 5-15 plug.
11. Install a 6-15 plug on power cord, according to plug manufacturer's instructions.
  - If plug manufacturer's instructions are not available, NEMA standard 6-15 plug wiring is provided on **Page 34**.

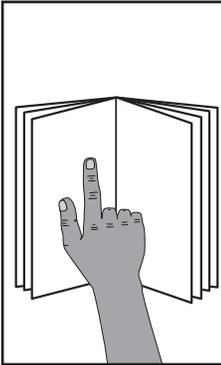
12. Re-stack filter housings and inlet lid, and secure with latches, as shown in **Figure 13**.



**Figure 13.** Filter housings and inlet lid stacked and secured correctly.



# SECTION 3: SETUP



## **!WARNING**

This machine presents serious injury hazards to untrained users. Read through this entire manual to become familiar with the controls and operations before starting the machine!



## **!WARNING**

Wear safety glasses during the entire setup process!



## **!WARNING**

### **HEAVY LIFT!**

Straining or crushing injury may occur from improperly lifting machine or some of its parts. To reduce this risk, get help from other people and use a forklift (or other lifting equipment) rated for weight of this machine.

## Needed for Setup

The following items are needed, but not included, for the setup/assembly of this machine.

Description	Qty
• Safety Glasses (for each person).....	1
• Another Person .....	1
• Lifting Equipment (Rated for at least 450 lbs.).....	1
• Phillips Head Screwdriver #2 .....	1
• Hex Wrench 3, 6mm .....	1 Ea.
• Open-End Wrench or Socket $\frac{5}{16}$ " , $\frac{1}{2}$ "....	1 Ea.
• Open-End Wrench or Socket 10mm .....	1

## Unpacking

This machine was carefully packaged for safe transport. When unpacking, separate all enclosed items from packaging materials and inspect them for shipping damage. ***If items are damaged, please call us immediately at (570) 546-9663.***

**IMPORTANT:** Save all packaging materials until you are completely satisfied with the machine and have resolved any issues between Grizzly or the shipping agent. ***You MUST have the original packaging to file a freight claim. It is also extremely helpful if you need to return your machine later.***



# Inventory

The following is a list of items shipped with your machine. Before beginning setup, lay these items out and inventory them.

If any non-proprietary parts are missing (e.g. a nut or a washer), we will gladly replace them; or for the sake of expediency, replacements can be obtained at your local hardware store.

<b>Box 1 (Figure 14)</b>	<b>Qty</b>
<b>A.</b> Inlet Lid.....	1
<b>B.</b> Top Filter Housing .....	1
—Spark Arrestor.....	1
—Pleated Pre-Filter.....	1
—Bag Filter .....	1
—Filter Stand .....	1
—Pleated Polyester Filter.....	1
<b>C.</b> Middle Filter Housing.....	1
—Activated Carbon Bag, Type-1000 .....	1
—Activated Carbon Bag, Type-3000.....	1
—Activated Carbon Bag, Type-9000.....	1
—Woven Mesh Screens.....	4
<b>D.</b> Bottom Filter Housing.....	1
—Pleated Pre-Filter.....	1
—HEPA Filter .....	1

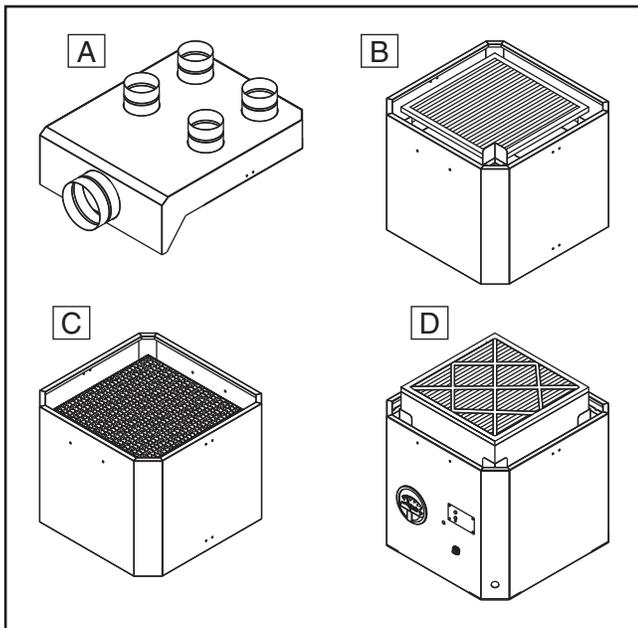


Figure 14. Box 1 inventory.

<b>Box 2 (Figure 15)</b>	<b>Qty</b>
<b>E.</b> Toggle Latches .....	6
<b>F.</b> Cleats .....	6
<b>G.</b> Handles .....	6
<b>H.</b> Locking Caster Wheels 3" .....	4
<b>I.</b> Inlet Covers 4" .....	5
<b>J.</b> Inlet Adapter 6" x 4" x 2.....	1
<b>K.</b> Remote Control .....	1
<b>L.</b> Fasteners (Not Shown)	
—Flat Head Cap Screws M5-.8 x 14.....	24
—Flange Nuts M5-.8 .....	24
—Tap Screw #10 x 5/8".....	1
—Cap Screws 5/16"-18 x 3/4".....	12
—Flat Washers 5/16" .....	12
—Hex Nuts 5/16"-18 .....	12
—Hex Bolts 1/4"-20 x 3/4" .....	16
—Flat Washers 1/4" .....	16

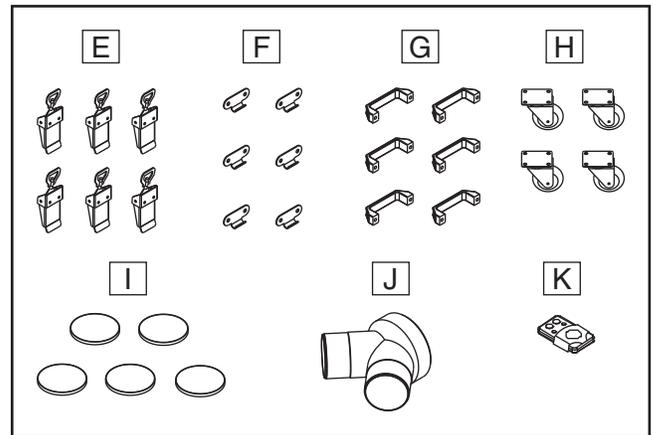


Figure 15. Box 2 inventory.

## NOTICE

If you cannot find an item on this list, carefully check around/inside the machine and packaging materials. Often, these items get lost in packaging materials while unpacking or they are pre-installed at the factory.

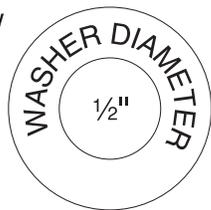
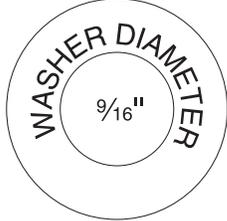
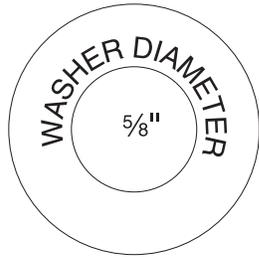
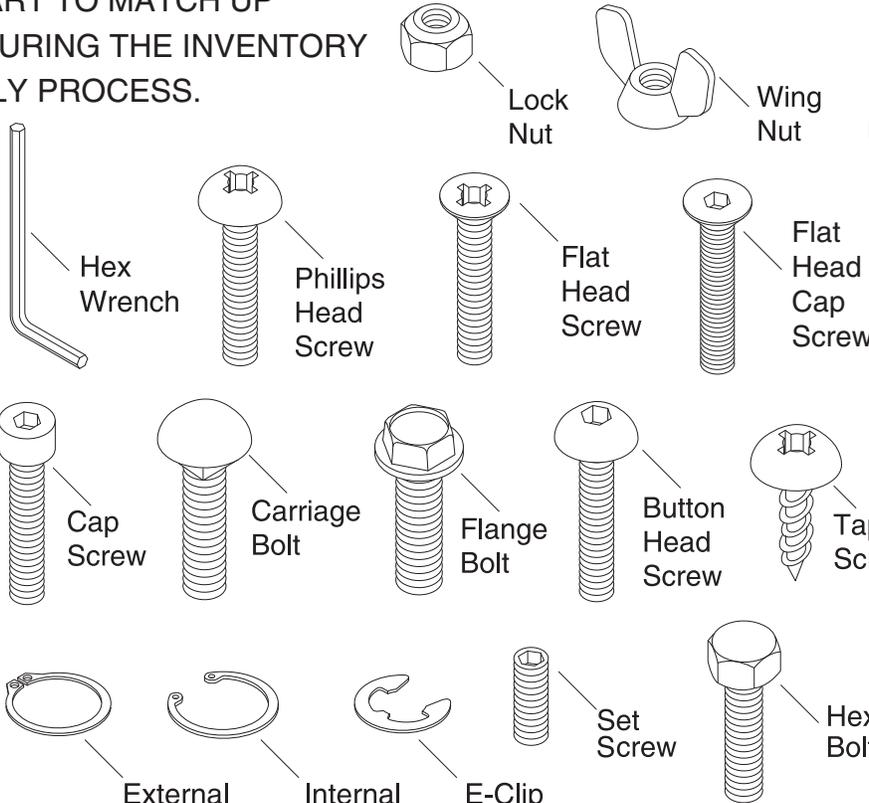


# Hardware Recognition Chart

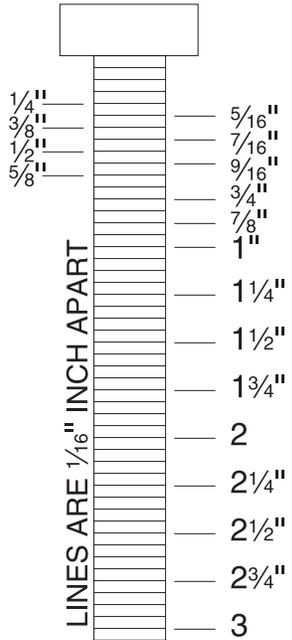
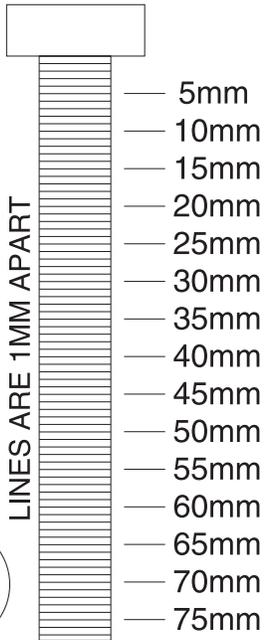
USE THIS CHART TO MATCH UP HARDWARE DURING THE INVENTORY AND ASSEMBLY PROCESS.

MEASURE BOLT DIAMETER BY PLACING INSIDE CIRCLE

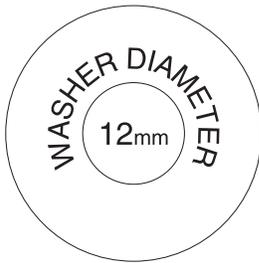
- #10
- 1/4"
- 5/16"
- 3/8"
- 7/16"
- 1/2"



- 4mm
- 5mm
- 6mm
- 8mm
- 10mm
- 12mm
- 16mm



WASHERS ARE MEASURED BY THE INSIDE DIAMETER



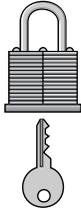
# Site Considerations

## Weight Load

Refer to the **Machine Data Sheet** for the weight of your machine. Make sure that the surface upon which the machine is placed will bear the weight of the machine, additional equipment that may be installed on the machine, and the heaviest workpiece that will be used. Additionally, consider the weight of the operator and any dynamic loading that may occur when operating the machine.

## Space Allocation

Consider the largest size of workpiece that will be processed through this machine and provide enough space around the machine for adequate operator material handling or the installation of auxiliary equipment. With permanent installations, leave enough space around the machine to open or remove doors/covers as required by the maintenance and service described in this manual. **See below for required space allocation.**

	<p><b>CAUTION</b> Children or untrained people may be seriously injured by this machine. Only install in an access restricted location.</p>
---	---

## Physical Environment

The physical environment where the machine is operated is important for safe operation and longevity of machine components. For best results, operate this machine in a dry environment that is free from excessive moisture, hazardous chemicals, airborne abrasives, or extreme conditions. Extreme conditions for this type of machinery are generally those where the ambient temperature range exceeds 41°–104°F; the relative humidity range exceeds 20%–95% (non-condensing); or the environment is subject to vibration, shocks, or bumps.

## Electrical Installation

Place this machine near an existing power source. Make sure all power cords are protected from traffic, material handling, moisture, chemicals, or other hazards. Make sure to leave enough space around machine to disconnect power supply or apply a lockout/tagout device, if required.

## Lighting

Lighting around the machine must be adequate enough that operations can be performed safely. Shadows, glare, or strobe effects that may distract or impede the operator must be eliminated.

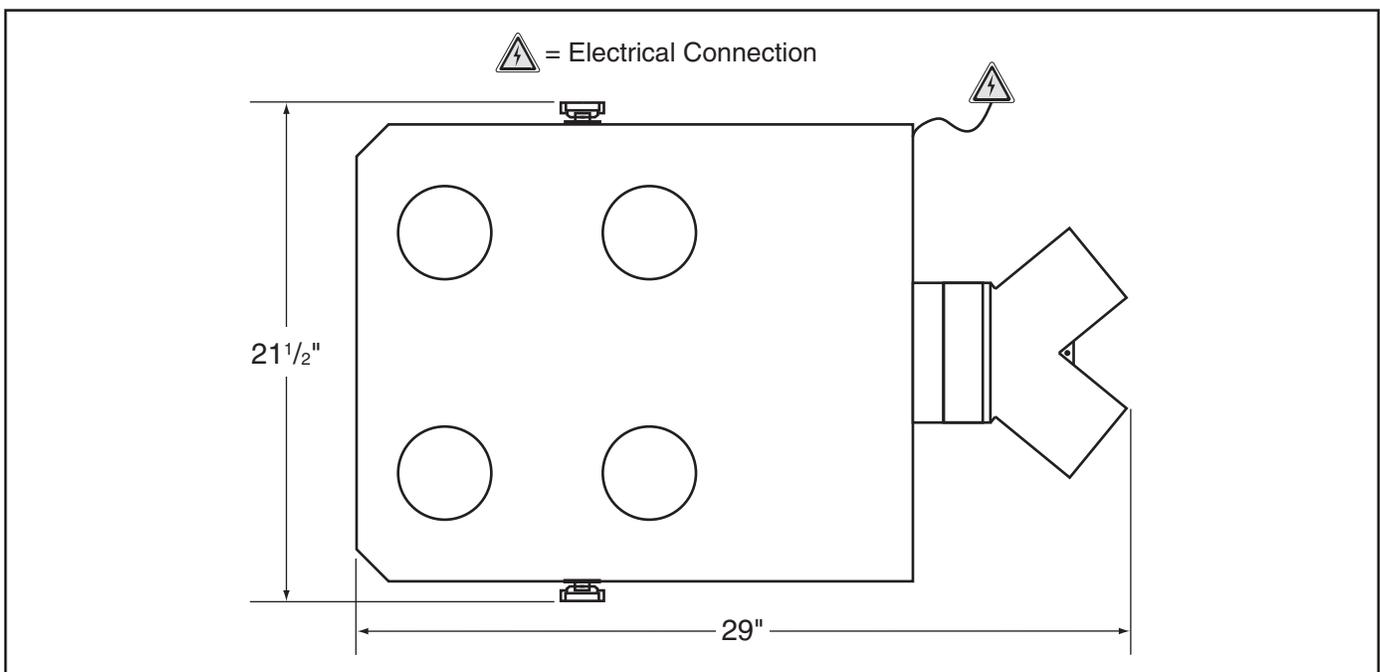


Figure 16. Minimum working clearances.

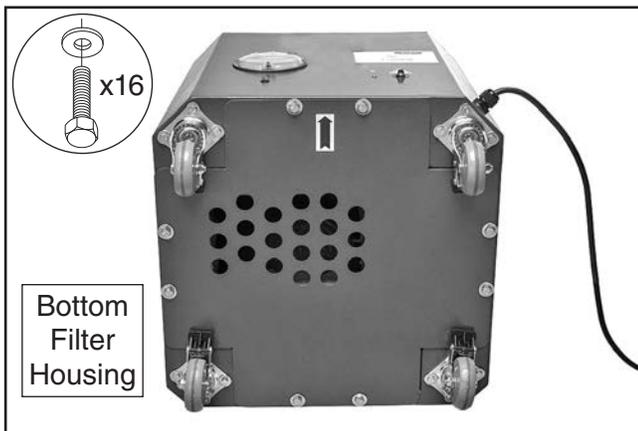


# Assembly

The machine must be fully assembled before it can be operated. Before beginning the assembly process, refer to **Needed for Setup** and gather all listed items. To ensure the assembly process goes smoothly, first clean any parts that are covered or coated in heavy-duty rust preventative (if applicable).

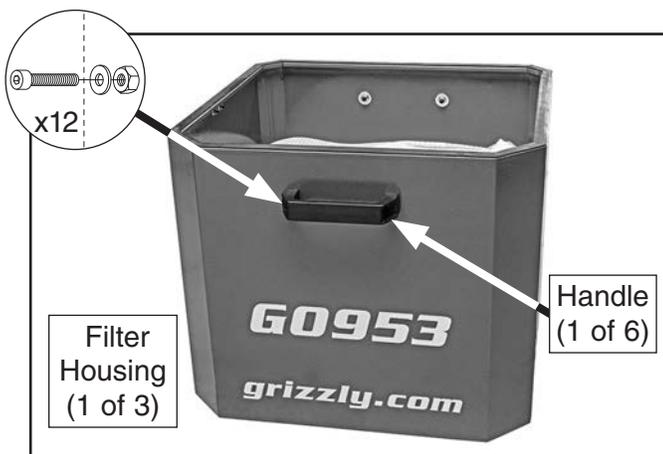
## To assemble machine:

1. Lay bottom filter housing on its side (see **Figure 17**), install (4) caster wheels with (4)  $\frac{1}{4}$ "-20 x  $\frac{3}{4}$ " hex bolts and  $\frac{1}{4}$ " flat washers, set housing right-side up, and lock casters.



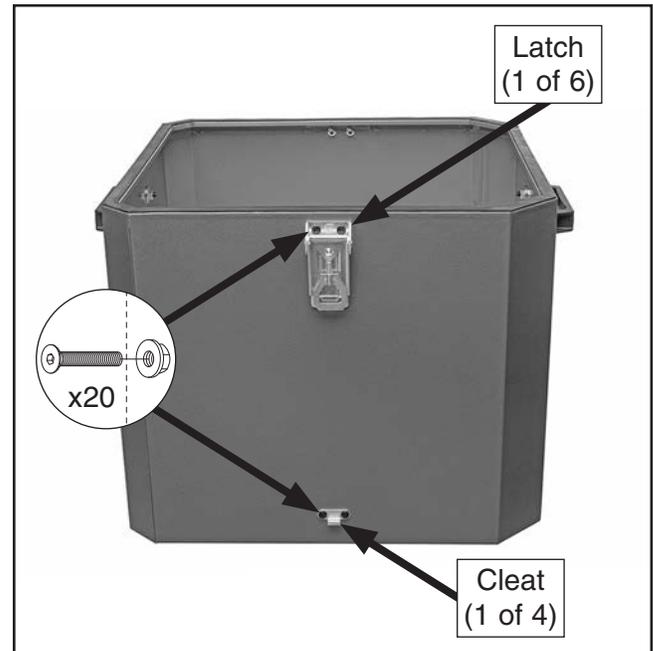
**Figure 17.** Caster wheels installed on bottom filter housing.

2. Install (1) handle (see **Figure 18**) on front and back of each filter housing with (2)  $\frac{5}{16}$ "-18 x  $\frac{3}{4}$ " cap screws,  $\frac{5}{16}$ " flat washers, and  $\frac{5}{16}$ "-18 hex nuts.



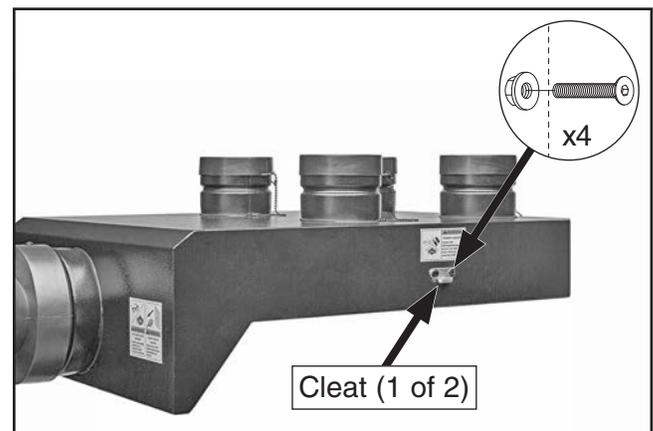
**Figure 18.** Handles installed (middle filter housing shown).

3. Install (1) toggle latch (see **Figure 19**) on top left and top right side of each filter housing with (2) M5-.8 x 14 flat head cap screws and M5-.8 flange nuts.
4. Install (1) cleat (see **Figure 19**) on bottom left and bottom right side of top and middle filter housings with (2) M5-.8 x 14 flat head cap screws and M5-.8 flange nuts.



**Figure 19.** Toggle latches and cleats installed.

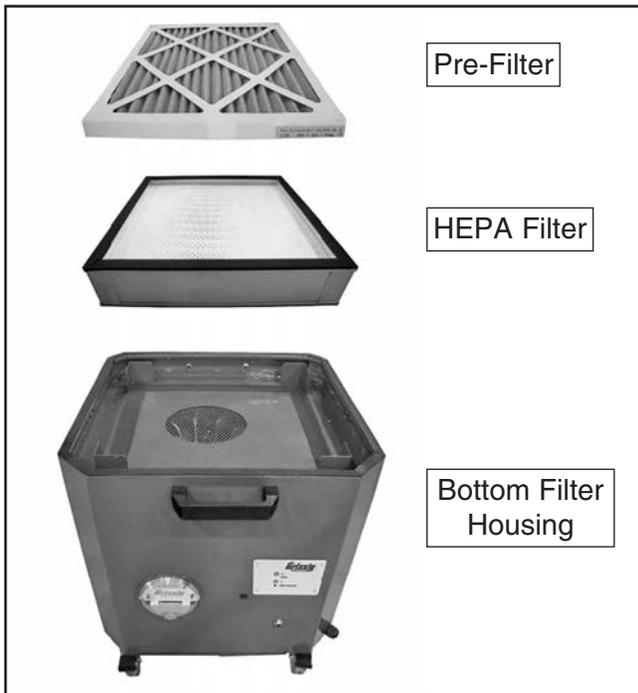
5. Install (1) cleat (see **Figure 20**) on left and right side of inlet lid with (2) M5-.8 x 14 flat head cap screws and M5-.8 flange nuts.



**Figure 20.** Latch cleat installed on lid.



- In bottom filter housing, verify HEPA filter and pre-filter are installed as shown in **Figure 21**.



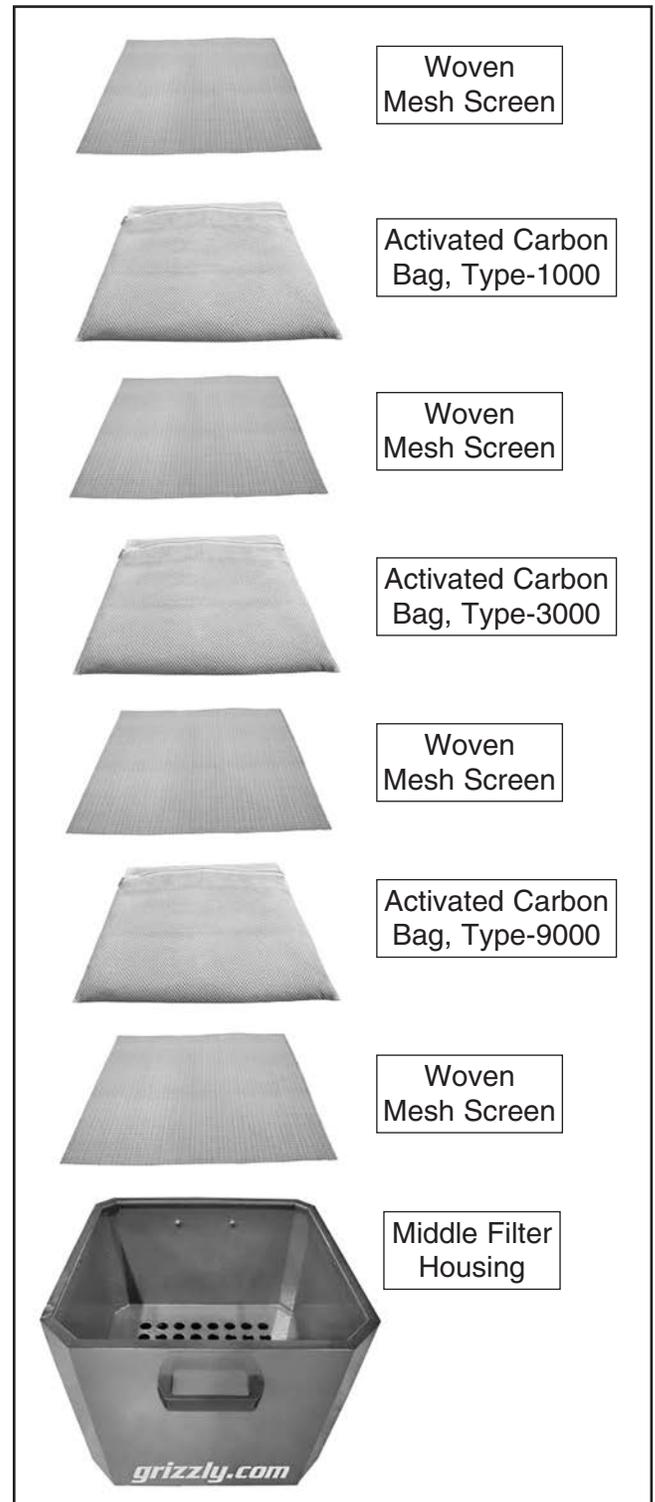
**Figure 21.** Order of filter installation in bottom filter housing.

- Position middle filter housing on top of bottom filter housing (see **Figure 22**). Ensure labels are oriented in same direction as control panel, and corners of housings are aligned, then secure with toggle latches.



**Figure 22.** Middle filter housing installed.

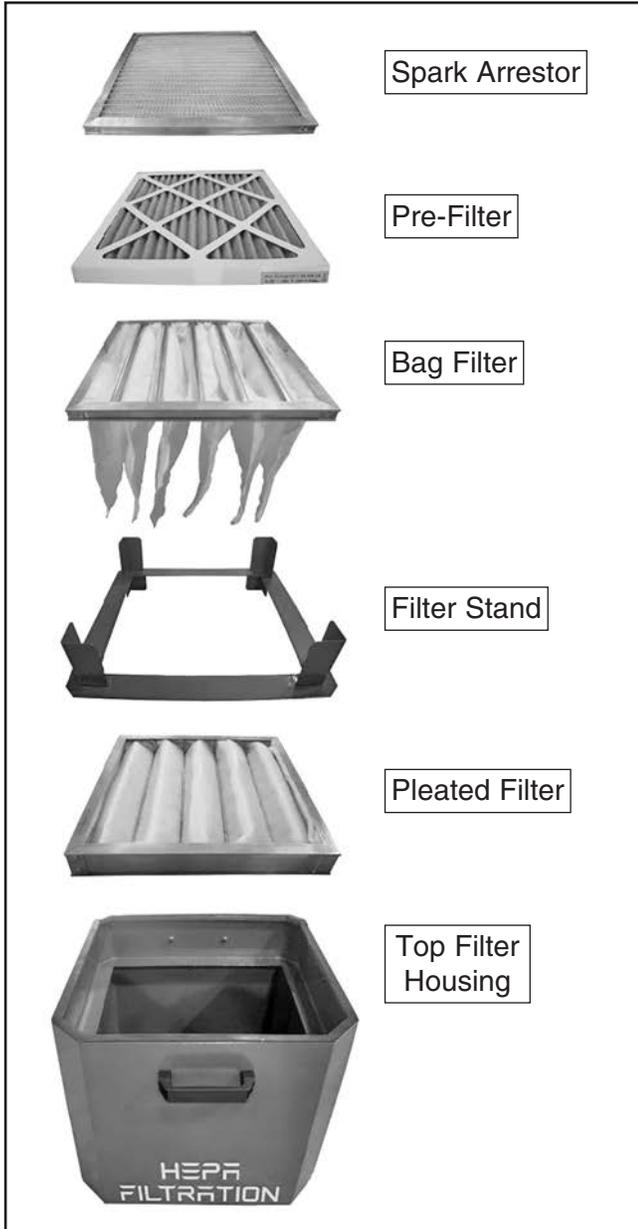
- Remove activated carbon bags and mesh screens from middle filter housing, extract carbon bags from plastic wrapping, then re-install carbon bags and mesh screens as shown in **Figure 23**.



**Figure 23.** Order of filter installation in middle filter housing.

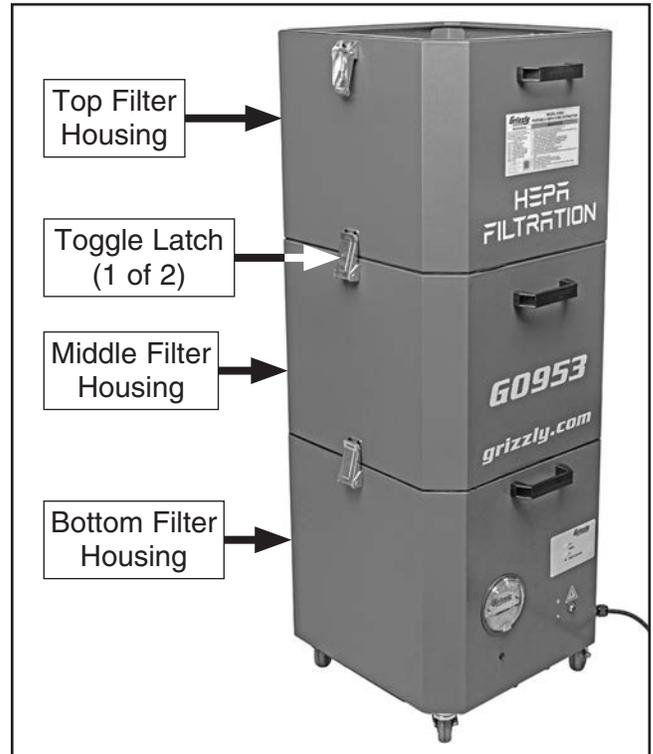


- In top filter housing, verify pleated filter, filter stand, bag filter, pre-filter, and spark arrestor are installed as shown in **Figure 24**.



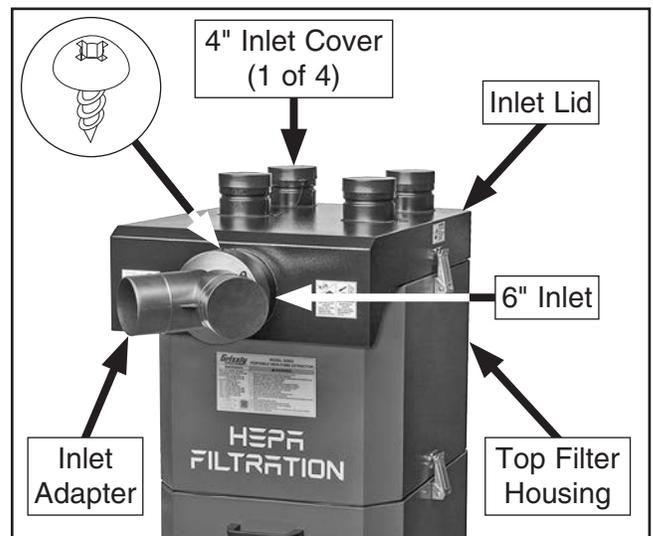
**Figure 24.** Order of filter installation in top filter housing.

- Position top filter housing on top of middle filter housing (see **Figure 25**). Ensure labels are oriented in same direction as control panel, and corners of housings are aligned, then secure with toggle latches.



**Figure 25.** Top filter housing installed.

- Position inlet lid on top filter housing (see **Figure 26**). Ensure 6" inlet is facing same direction as control panel, and corners of housing and inlet lid are aligned, then secure with toggle latches.
- Install (4) 4" inlet covers (see **Figure 26**) by passing chain over each inlet and then pressing cap onto inlet.
- Install inlet adapter on 6" inlet with (1) #10 x 5/8" tap screw (see **Figure 26**).



**Figure 26.** Inlet lid installed on top filter housing.



# Ducting System

## Overview

This fume extractor is designed *exclusively* to extract and filter fumes and particulate generated during laser cutting processes. **DO NOT** use this fume extractor to collect wood dust. Due to potential fire risk, **DO NOT** use this fume extractor to collect metal chips.

For best performance, place this fume extractor as close to the laser system as possible and install blast gates at the beginning of ducting lines. Only open one line at a time to focus maximum suction at the machine where fumes are being extracted.

Grizzly offers a complete line of ducting and accessories for setting up your fume extraction ductwork (see **Page 26**)

Whatever system design you choose, always make sure to position ducting and extractor away from any open flames (including pilot lights); otherwise you risk an explosion if material is dispersed into the air.

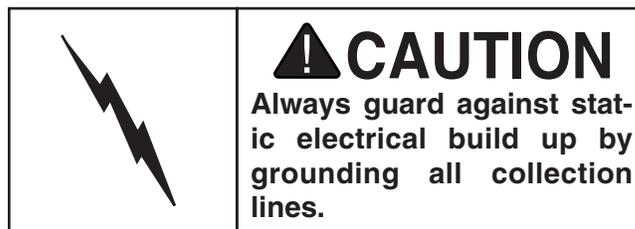
## Duct Material

For best results, use only smooth-wall, sheet-metal ducting or flexible metal ducting to connect each machine.

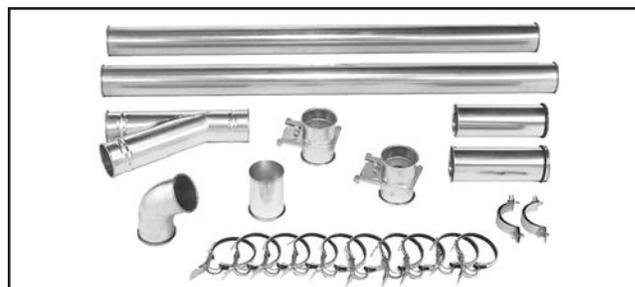
For further guidance on duct material, consult *NFPA 91: Standard for Exhaust Systems for Air Conveying of Vapors, Gases, and Particulate Solids* from The National Fire Protection Agency.

## Metal Ducting

Advantages of metal ducting is its conductivity and that it does not contribute to static electrical charge build-up. However, static charges are still produced when particles strike other dust particles as they move through the duct. Since metal duct is a conductor, it can be grounded quite easily to dissipate any static electrical charges. Replace any plastic exhaust ports with sheet-metal equivalents, or bond sheet metal ducting to metal frame of machine with grounding wire.



There are a number of options when it comes to metal duct, but duct that is specially manufactured for extraction of laser fumes and particulate is the best choice. When selecting your metal duct, choose high-quality metal duct with smooth-welded internal seams that will minimize airflow resistance. This type of duct usually connects to other ducts or elbows with a simple, self-sealing clamp, is very quick and easy to assemble, and can be readily dismantled and re-installed. This is especially important if you ever need to change things around in your shop or add more machines.



**Figure 27.** Examples of metal duct and components.

Avoid inferior metal duct that requires you to cut it to length and snap it together. This type of duct is time-consuming to install because it requires you to seal all the seams with silicone and screw the components on the ends with sheet-metal screws. Another disadvantage is the rough internal seams and crimped ends that unavoidably increase static pressure loss.



## Flexible Duct

Flexible hose is generally used for short runs and at rigid duct-to-machine connections. The superior choice here is metal flex hose that is designed to be flexible, yet be as smooth as possible inside to reduce static pressure loss. DO NOT use dryer vent hose because it tends to collapse.

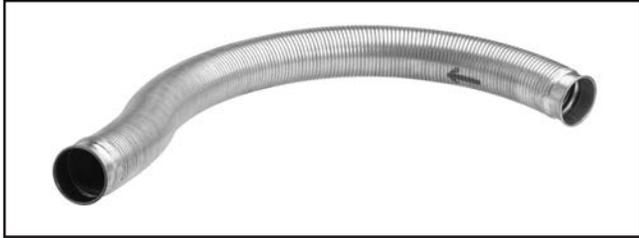


Figure 28. Example of flexible metal duct.

## Ensure Required CFM at Machine

Since each machine produces a different amount of fumes, the requirements for the minimum amount of CFM to move the fumes is unique to the machine. Knowing this required CFM is important to gauging what size duct to use.

For best results when using the inlet adapter, we recommend installing blast gates to control airflow for each line near the inlet.

Refer to **Figure 29** for a close estimation of the airflow each laser cutting machine requires. Machines that generate the most fumes should be placed as close as possible to the fume extractor.

Machine Exhaust Port Size	Approximate Required CFM
2"	100
2.5"	150
3"	250
4"	400
5"	600
6"	850
7"	1200
8"	1600
9"	2000
10"	2500

Figure 29. Approximate required airflow for machines based on dust port size.

# System Grounding

To guard against static electrical buildup, we strongly recommend replacing any plastic exhaust ports on laser machines with metal equivalents.

If you absolutely must use any plastic duct or components, they must be completely grounded and bonded to the metal frame of a grounded machine by wrapping the flex hose with an external ground wire connected to both machines as shown in **Figure 30**. Ensure that each machine is continuously grounded to the grounding terminal in your electric service panel.

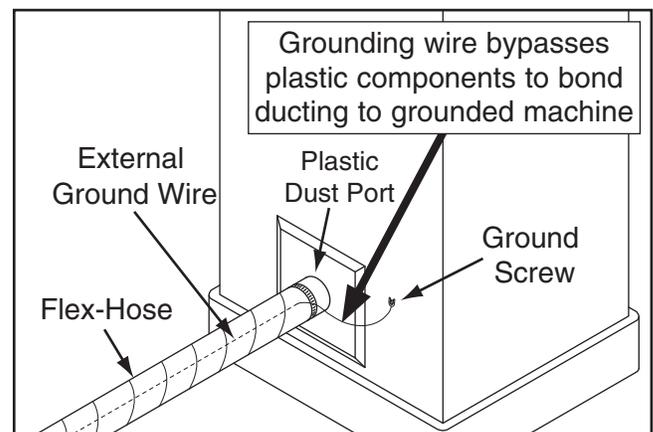


Figure 30. Example showing how to ground and bond ducting with a grounding wire.

## ⚠ CAUTION

Always guard against static electrical buildup by grounding all collection lines.



# Test Run

---

Once assembly is complete, test run the machine to ensure it is properly connected to power and safety components are functioning correctly.

If you find an unusual problem during the test run, immediately stop the machine, disconnect it from power, and fix the problem **BEFORE** operating the machine again. The **Troubleshooting** table in the **SERVICE** section of this manual can help.

The Test Run consists of verifying the following: 1) The motor powers up and runs correctly, and 2) the remote control works correctly.

## **WARNING**

**Serious injury or death can result from using this machine BEFORE understanding its controls and related safety information. DO NOT operate, or allow others to operate, machine until the information is understood.**

## **WARNING**

**DO NOT start machine until all preceding setup instructions have been performed. Operating an improperly set up machine may result in malfunction or unexpected results that can lead to serious injury, death, or machine/property damage.**

### To test run machine:

1. Clear all setup tools away from machine.
2. Lock swivel casters on base.
3. Connect machine to power supply.
4. On control panel, press ON button to turn machine **ON**. POWER INDICATOR light will illuminate.  
  
Verify motor starts up and runs smoothly without any problems or unusual noises.
5. On control panel, press OFF button to turn machine **OFF**. POWER INDICATOR light will dim.
6. To test remote control, press remote button A to turn motor **ON**, then press button B to turn motor **OFF**.

— If machine does NOT start or stop, press OFF button on control panel to turn machine **OFF**. Refer to **Pairing Remote Control** on **Page 30** and ensure remote control is paired.



# SECTION 4: OPERATIONS

## Operation

This laser fume extractor draws in fumes and particulate matter through the inlet lid, and discharges air through an 8-stage air-filter system contained in three filter housings.

The machine can be used solely as a laser fume extractor by connecting it directly to a laser cutting system, or it can be used as an area air filter.

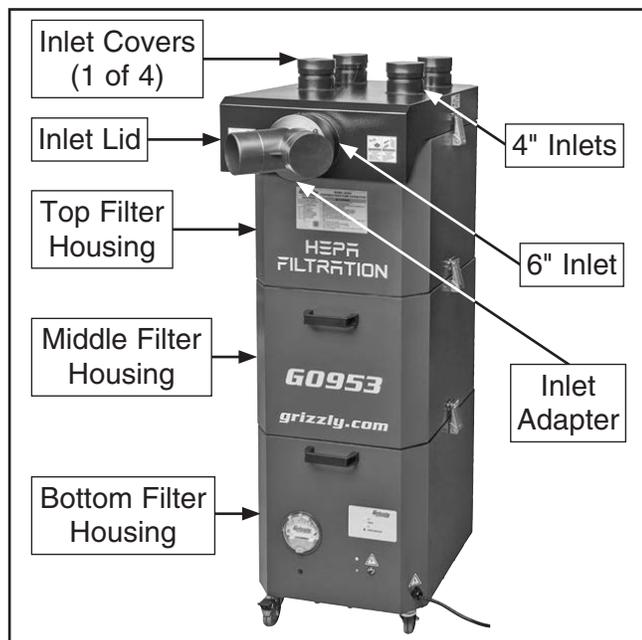
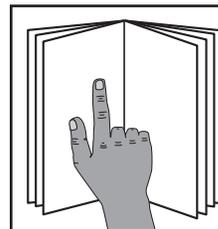
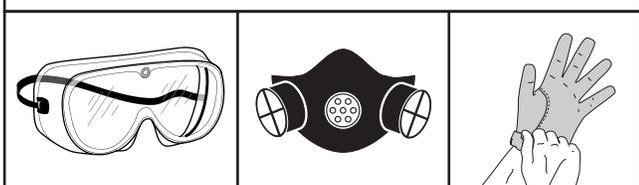


Figure 31. Fume extractor components.

### **!WARNING**

Eye and face injuries and respiratory problems can occur while operating or cleaning this machine. Wear personal protective equipment to reduce your risk from these hazards. Wear NIOSH-approved respirator, ANSI-approved safety goggles, and protective gloves whenever cleaning or replacing filters.



### **!WARNING**

To reduce your risk of serious injury, read this entire manual **BEFORE** using machine.

### **!WARNING**

Never operate machine with damaged or worn parts. Never operate machine with filters, housings, or inlet lid removed.

### **NOTICE**

If you are not experienced with this type of machine, WE STRONGLY RECOMMEND that you seek additional training outside of this manual. Read books/magazines or get formal training before beginning any projects. Regardless of the content in this section, Grizzly Industrial will not be held liable for accidents caused by lack of training.

#### Using Machine as Fume Extractor

1. Install inlet covers on 4" inlets (see Figure 31).
2. Turn fume extractor **ON**.
3. Turn laser cutting machine **ON** and perform operation.
4. Turn laser cutting machine **OFF**, then turn fume extractor **OFF**.

#### Using Machine as Area Air Filter

1. Remove inlet covers from 4" inlets (see Figure 31).
2. Install inlet adapter on 6" inlet, and cover 4" inlets on adapter with inlet covers.
3. Turn fume extractor **ON**.
4. When air filtering operation is complete, turn fume extractor **OFF**.



# SECTION 5: ACCESSORIES

## **! WARNING**

Installing unapproved accessories may cause machine to malfunction, resulting in serious personal injury or machine damage. To reduce this risk, only install accessories recommended for this machine by Grizzly.

## **NOTICE**

Refer to our website or latest catalog for additional recommended accessories.

### **G0953 Replacement Filters**

- T33152—Aluminum Mesh Spark Arrestor
- T33153—2-10 Micron Pleated Pre-Filter
- T33154—Bag Filter
- T33155—1-Micron Polyester Filter
- T33156—Woven Nylon Mesh
- T33157—Activated Carbon Bag, Type-1000
- T33158—Activated Carbon Bag, Type-3000
- T33159—Activated Carbon Bag, Type-9000
- T33160—0.3-Micron HEPA Filter

### **H7215—4" x 5' Rigid Flex Hose**

### **H7217—6" x 5' Rigid Flex Hose**

These rigid flex hoses with rolled collars provide just enough flexibility to make difficult connections while still keeping the inside wall smooth.

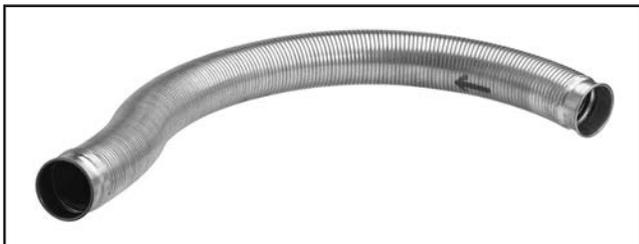


Figure 32. Rigid flex hose.

- H2499—Small Half-Mask Respirator
- H3631—Medium Half-Mask Respirator
- H3632—Large Half-Mask Respirator
- H3635—Cartridge Filter Pair P100

Breathing dust has been linked to nasal cancer and severe respiratory illnesses. Compatible with safety glasses!



Figure 33. Half-mask respirator and disposable cartridge filters.

### **H5293—4" Industrial Dust Collection Kit**

### **H5298—6" Industrial Dust Collection Kit**

These Industrial Dust Collection Fittings Starter Kits include everything you will need for a simple, single-machine setup. The big advantage of these metal fittings lies in their design flexibility, as they can be unclamped and reconfigured for new shop layouts.

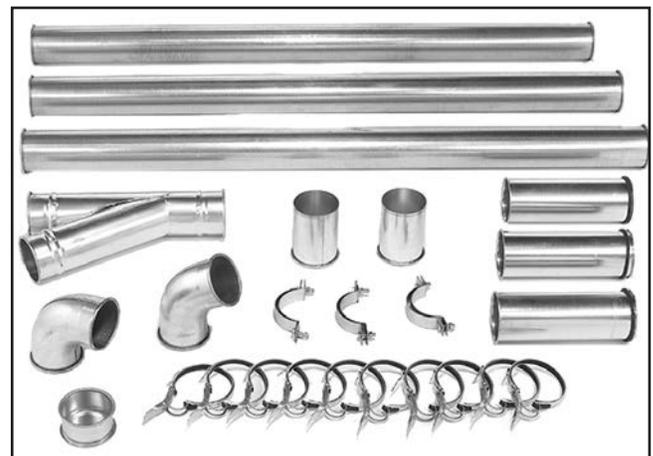


Figure 34. Industrial dust collection kits.

**order online at [www.grizzly.com](http://www.grizzly.com) or call 1-800-523-4777**



## Basic Eye Protection

T20501—Face Shield Crown Protector 4"

T20502—Face Shield Crown Protector 7"

T20503—Face Shield Window

T20451—"Kirova" Clear Safety Glasses

T20456—DAKURA Safety Glasses, Black/Clear

T28175—S3960HS Stealth Safety Glasses



Figure 35. Assortment of basic eye protection.

T10456—Heavy-Duty Anti-Fatigue Mat 3' x 5'

This Heavy-Duty Anti-Fatigue Mat features beveled edges and no-slip tread for safety and comfort. Open-hole design allows liquid to drain through, so it's perfect for wet or oily conditions. Measures 3' wide x 5' long x  $\frac{3}{8}$ " thick.

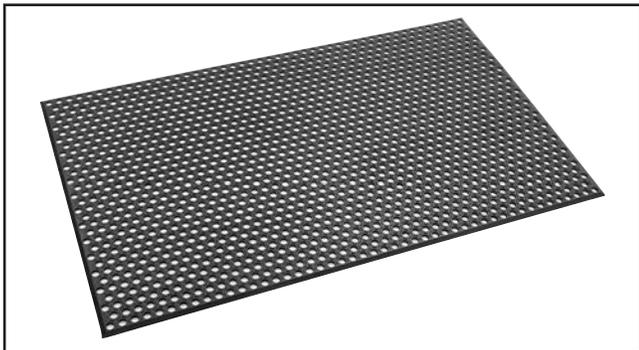


Figure 36. T10456 Anti-Fatigue Mat.

## G0872—60W Benchtop 17" x 23" Laser Cutter/Engraver

The machine can produce amazingly detailed, high resolution designs with stepper controlled movements on linear bearing rails and refined optics.

The 60W CO<sub>2</sub> laser can cut through various plastics, wood types, fabrics, vinyl, and even leather. With engraving speeds up to 1,900 in./min. and accuracy better than 0.002", this machine produces amazing results in a flash.

The G0872 is only compatible with the included RDCam V8 design software. It includes a water chiller system, exhaust fan, and air pump. Meets FDA safety standards.

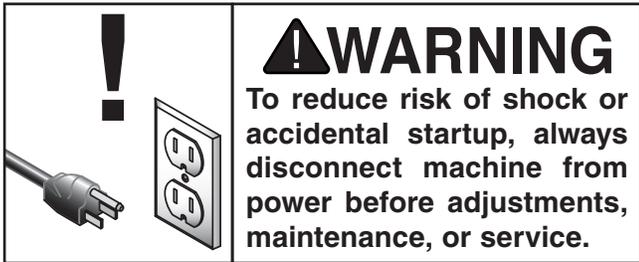


Figure 37. G0872 60W 17" x 23" CNC Laser Cutter/Engraver.

**order online at [www.grizzly.com](http://www.grizzly.com) or call 1-800-523-4777**



# SECTION 6: MAINTENANCE



## Schedule

For optimum performance from this machine, this maintenance schedule must be strictly followed.

### Ongoing

To minimize your risk of injury and maintain proper machine operation, shut down the machine immediately if you ever observe any of the items below, and fix the problem before continuing operations:

- Loose mounting bolts.
- Damaged filters.
- Worn or damaged wires.
- Suction leaks.
- Any other unsafe condition.

### Monthly Check

- Clean/vacuum dust buildup off machine body.

## Cleaning/Replacing Filters

Clean the filters when the operating pressure on the pressure gauge exceeds 4 inches of water (inAq). Replace the filters when the operating pressure exceeds 7 inches of water (inAq) and cleaning does not improve performance.

Items Needed	Qty
Soft Bristle Brush .....	1
Vacuum Cleaner w/HEPA Filter.....	1
Safety Goggles.....	1 Pr.
Respirator .....	1
Protective Gloves.....	1 Pr.

### Cleaning Filters

Always clean filters outdoors when possible! However, take special care to avoid contaminating the environment. When cleaning filters, always inspect for damage and replace filters if ANY damage or tears are found.

Initially clean all filters by carefully tapping caked-on dust into an enclosed container to minimize release of dust into the air, then follow the applicable instructions provided below for each filter type.

**IMPORTANT:** DO NOT use compressed air to clean filters—especially if indoors—as it will likely cause a large amount of fine dust to become airborne and could damage the filters.

Re-install the filters in the same sequence in which they were removed (refer to **Pages 20–21**). Examine each filter to determine if it is marked with a label indicating the direction of airflow. If so, the filter should be installed with the arrow pointing down (toward the floor).

#### Top Filter Housing Spark Arrestor

Flush with water or other liquid into an enclosed container and air dry. Carefully collect flushed waste and dispose of properly.

#### Stage-1 2–10 Micron Pleated Pre-Filter

Clean with a soft bristle brush, and vacuum with a shop vacuum equipped with a HEPA filter.



### Stage-2 1-Micron Bag Filter

Clean with a soft bristle brush, and vacuum with a shop vacuum equipped with a HEPA filter.

### Stage-3 1-Micron Pleated Polyester Filter

Clean with a soft bristle brush, and vacuum with a shop vacuum equipped with a HEPA filter.

### Middle Filter Housing

#### Stage-4, -5, -6 Activated Carbon Bags

The bags cannot be cleaned. Flush the woven mesh screens with water or other liquid into an enclosed container and air dry. Carefully collect flushed waste and dispose of properly.

### Bottom Filter Housing

#### Stage-7 2–10 Micron Pleated Pre-Filter

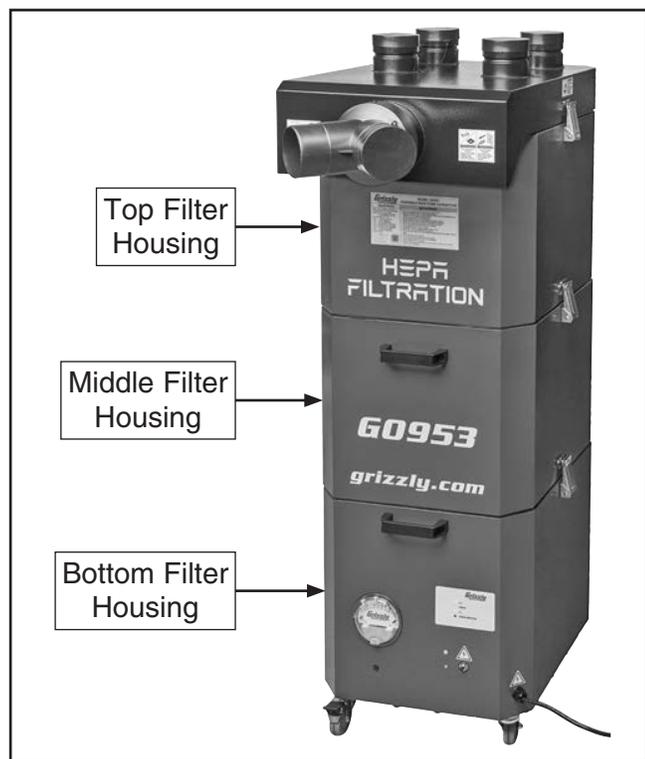
Clean with a soft bristle brush, and vacuum with a shop vacuum equipped with a HEPA filter.

### Stage-8 0.3 Micron HEPA Filter

Clean with a soft bristle brush, and vacuum with a shop vacuum equipped with a HEPA filter.

## Replacing Filters

1. DISCONNECT MACHINE FROM POWER!
2. Wear NIOSH-approved respirator, ANSI-approved goggles, and protective gloves.
3. Unlatch and remove inlet lid.
4. Unlatch and remove top and middle filter housings for access to filters. If re-using, note airflow direction across filter for replacement in **Step 5**.
5. Replace filters in same sequence they were removed (refer to **Pages 20–21**), while also ensuring filters are installed with proper airflow direction. Re-stack filter housings as shown in **Figure 38** and secure with latches.



**Figure 38.** Filter housing identification.



# Pairing Remote Control

The Model G0953 is equipped with a remote control receiver that operates on an RF frequency from up to 50' away.

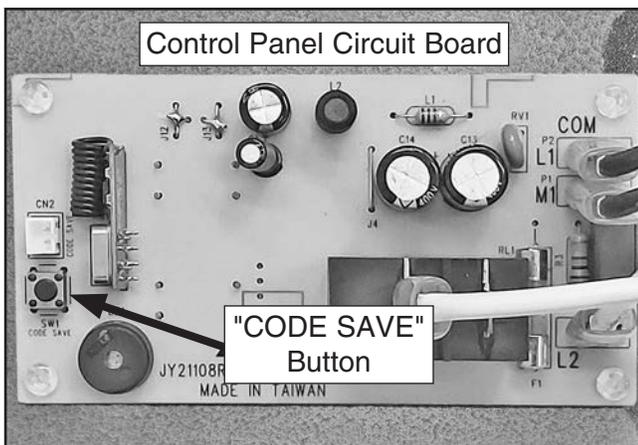
## **!WARNING**

**Avoid touching electrified parts inside machine while performing procedure below! Touching electrified parts will result in personal injury including but not limited to severe burns, electrocution, or death. Use a wood dowel or other non-conducting item to push button on circuit board.**

Items Needed	Qty
Open-End Wrench or Socket 12mm .....	1
Wood Dowel .....	1

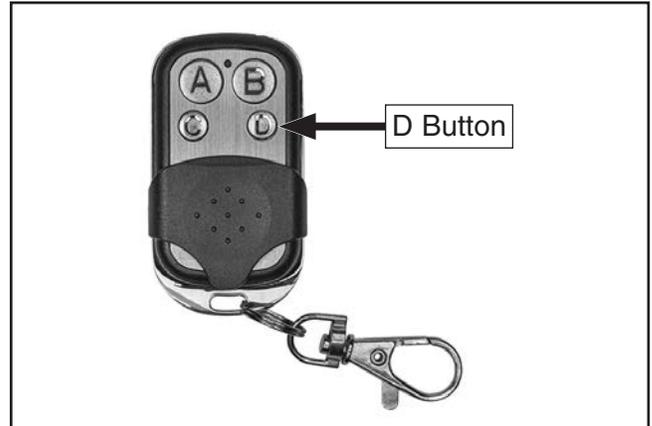
### To pair remote control:

1. Remove inlet lid and top and middle filter housings.
2. Remove filters from bottom filter housing.
3. Lay bottom filter housing on its side, and remove bottom cover.
4. Press and hold "CODE SAVE" button (see **Figure 39**) on circuit board with wood dowel until it beeps once.



**Figure 39.** Location of "CODE SAVE" button on control panel circuit board.

5. Press and hold D button (see **Figure 40**) on remote control until it beeps twice. Pairing is complete.



**Figure 40.** Location of D button on remote control.

6. Re-install cover on bottom filter housing, sit housing right-side up, and re-install middle and top filter housings and inlet lid.

# Replacing Remote Control Battery

The remote control is powered by a 12V type A27 battery. If the receiver stops responding to the remote control, replace the battery as the first course of action.

Items Needed	Qty
Phillips Head Screwdriver #00 .....	1
A27 12V Battery .....	1

### To replace remote control battery:

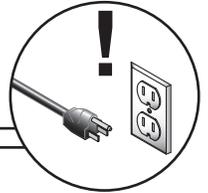
1. Turn remote control face down, remove (3) Phillips head screws, then remove battery cover.
2. Replace battery, then re-assemble remote control.



# SECTION 7: SERVICE

Review the troubleshooting procedures in this section if a problem develops with your machine. If you need replacement parts or additional help with a procedure, call our Technical Support. **Note:** *Please gather the serial number and manufacture date of your machine before calling.*

## Troubleshooting



### Motor & Electrical

Symptom	Possible Cause	Possible Solution
Machine does not start, or a power supply breaker immediately trips after startup.	<ol style="list-style-type: none"> <li>1. Machine circuit breaker tripped or at fault.</li> <li>2. Blown fuse.</li> <li>3. Incorrect power supply voltage or circuit size.</li> <li>4. Plug/receptacle at fault/wired incorrectly.</li> <li>5. Hand-held remote control not working.</li> <li>6. Receiver at fault.</li> <li>7. Power supply circuit breaker tripped or fuse blown.</li> <li>8. Motor wires connected incorrectly.</li> <li>9. Start capacitor at fault.</li> <li>10. Centrifugal switch adjustment/contact points at fault.</li> <li>11. Wiring broken, disconnected, or corroded.</li> <li>12. Circuit breaker switch at fault.</li> <li>13. Circuit board at fault.</li> <li>14. Motor or motor bearings at fault.</li> </ol>	<ol style="list-style-type: none"> <li>1. Reset circuit breaker on switch.</li> <li>2. Replace circuit board/ensure no shorts.</li> <li>3. Ensure correct power supply voltage and circuit size.</li> <li>4. Test for good contacts; correct the wiring.</li> <li>5. Replace batteries (<b>Page 30</b>); ensure remote control is paired with receiver (<b>Page 30</b>); stay in signal range.</li> <li>6. Replace circuit board.</li> <li>7. Ensure circuit is free of shorts. Reset circuit breaker or replace fuse.</li> <li>8. Correct motor wiring connections (<b>Page 34</b>).</li> <li>9. Test/replace if at fault.</li> <li>10. Adjust centrifugal switch/clean contact points. Replace either if at fault.</li> <li>11. Fix broken wires or disconnected/corroded connections.</li> <li>12. Replace circuit breaker.</li> <li>13. Inspect/replace if at fault.</li> <li>14. Replace motor.</li> </ol>
Machine stalls or is underpowered.	<ol style="list-style-type: none"> <li>1. Fume extraction ducting problem.</li> <li>2. Filter(s) clogged/at fault.</li> <li>3. Motor wires connected incorrectly.</li> <li>4. Fume extractor undersized.</li> <li>5. Plug/receptacle at fault/wired incorrectly.</li> <li>6. Motor overheated, tripping machine circuit breaker.</li> <li>7. Run capacitor at fault.</li> <li>8. Extension cord too long.</li> <li>9. Centrifugal switch/contact points at fault.</li> <li>10. Motor or motor bearings at fault.</li> </ol>	<ol style="list-style-type: none"> <li>1. Clear blockages, seal leaks, use smooth wall duct, eliminate bends, close other branches.</li> <li>2. Clean/replace filter(s) (<b>Page 28</b>).</li> <li>3. Correct motor wiring connections (<b>Page 34</b>).</li> <li>4. Move closer to machine/redesign ducting layout/upgrade fume extractor.</li> <li>5. Test for good contacts/correct wiring.</li> <li>6. Clean motor, let cool, and reduce workload. Reset breaker.</li> <li>7. Test/repair/replace.</li> <li>8. Move machine closer to power supply; use shorter extension cord.</li> <li>9. Adjust centrifugal switch/clean contact points. Replace either if at fault.</li> <li>10. Replace motor.</li> </ol>



Symptom	Possible Cause	Possible Solution
Machine has vibration or noisy operation.	<ol style="list-style-type: none"> <li>1. Motor or component loose.</li> <li>2. Caster fasteners loose or not properly adjusted.</li> <li>3. Motor fan rubbing on fan cover.</li> <li>4. Centrifugal switch needs adjustment/at fault.</li> <li>5. Motor bearings at fault.</li> </ol>	<ol style="list-style-type: none"> <li>1. Replace damaged or missing bolts/nuts or tighten if loose.</li> <li>2. Tighten caster fasteners to stabilize machine.</li> <li>3. Fix/replace fan cover; replace loose/damaged fan.</li> <li>4. Adjust/replace if at fault.</li> <li>5. Test by rotating shaft; rotational grinding/loose shaft requires bearing replacement.</li> </ol>

## Operations

Symptom	Possible Cause	Possible Solution
Fume extractor does not adequately collect fumes; poor performance.	<ol style="list-style-type: none"> <li>1. Unused port(s) not covered.</li> <li>2. Filters are dirty/clogged.</li> <li>3. Leak in ducting/connections.</li> <li>4. Ducting blocked/restricted.</li> <li>5. Fume extractor is too far away from point of suction, or there are too many sharp bends in ducting.</li> <li>6. Fume extractor is undersized.</li> </ol>	<ol style="list-style-type: none"> <li>1. Cover unused port(s).</li> <li>2. Clean filters; replace with new filters if performance does not improve (<b>Page 28</b>).</li> <li>3. Seal leak.</li> <li>4. Remove ducting from dust collector inlet and unblock the restriction.</li> <li>5. Relocate fume extractor closer to the point of suction; remove sharp bends in ducting.</li> <li>6. Install a larger fume extractor.</li> </ol>
Loud, repetitious noise, or excessive vibration coming from fume extractor (non-motor related).	<ol style="list-style-type: none"> <li>1. Fume extractor not on flat surface and wobbles/casters not locked.</li> <li>2. Impeller damaged and unbalanced.</li> <li>3. Impeller loose on motor shaft.</li> </ol>	<ol style="list-style-type: none"> <li>1. Stabilize fume extractor; lock casters.</li> <li>2. Disconnect fume extractor from power; inspect impeller for cracks or damage; replace impeller if damaged.</li> <li>3. Secure impeller; replace motor and impeller as a set if motor shaft and impeller hub are damaged.</li> </ol>
Remote control does not operate fume extractor.	<ol style="list-style-type: none"> <li>1. Machine is disconnected from power.</li> <li>2. Remote control battery is weak or dead.</li> <li>3. A wall or barrier disrupts the radio frequency, or controller is too far away.</li> <li>4. Remote control not paired with receiver.</li> </ol>	<ol style="list-style-type: none"> <li>1. Verify machine is connected to power source.</li> <li>2. Replace battery (<b>Page 30</b>).</li> <li>3. Move machine away from barrier; use remote with 50' of machine.</li> <li>4. Program receiver to accept remote control (<b>Page 30</b>).</li> </ol>



# SECTION 8: WIRING

These pages are current at the time of printing. However, in the spirit of improvement, we may make changes to the electrical systems of future machines. Compare the manufacture date of your machine to the one stated in this manual, and study this section carefully.

If there are differences between your machine and what is shown in this section, call Technical Support at (570) 546-9663 for assistance BEFORE making any changes to the wiring on your machine. An updated wiring diagram may be available. **Note:** *Please gather the serial number and manufacture date of your machine before calling. This information can be found on the main machine label.*

## WARNING

### Wiring Safety Instructions

**SHOCK HAZARD.** Working on wiring that is connected to a power source is extremely dangerous. Touching electrified parts will result in personal injury including but not limited to severe burns, electrocution, or death. Disconnect the power from the machine before servicing electrical components!

**MODIFICATIONS.** Modifying the wiring beyond what is shown in the diagram may lead to unpredictable results, including serious injury or fire. This includes the installation of unapproved after-market parts.

**WIRE CONNECTIONS.** All connections must be tight to prevent wires from loosening during machine operation. Double-check all wires disconnected or connected during any wiring task to ensure tight connections.

**CIRCUIT REQUIREMENTS.** You MUST follow the requirements at the beginning of this manual when connecting your machine to a power source.

**WIRE/COMPONENT DAMAGE.** Damaged wires or components increase the risk of serious personal injury, fire, or machine damage. If you notice that any wires or components are damaged while performing a wiring task, replace those wires or components.

**MOTOR WIRING.** The motor wiring shown in these diagrams is current at the time of printing but may not match your machine. If you find this to be the case, use the wiring diagram inside the motor junction box.

**CAPACITORS/INVERTERS.** Some capacitors and power inverters store an electrical charge for up to 10 minutes after being disconnected from the power source. To reduce the risk of being shocked, wait at least this long before working on capacitors.

**EXPERIENCING DIFFICULTIES.** If you are experiencing difficulties understanding the information included in this section, contact our Technical Support at (570) 546-9663.

#### NOTICE

The photos and diagrams included in this section are best viewed in color. You can view these pages in color at [www.grizzly.com](http://www.grizzly.com).

#### COLOR KEY

BLACK		BLUE		YELLOW		LIGHT BLUE	
WHITE		BROWN		YELLOW GREEN		BLUE WHITE	
GREEN		GRAY		PURPLE		TURQUOISE	
RED		ORANGE		PINK			



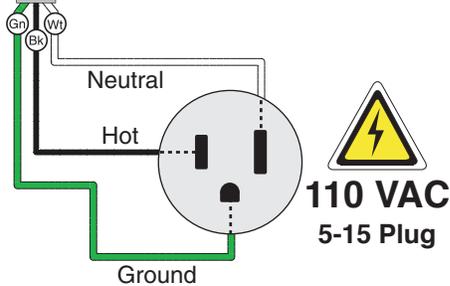
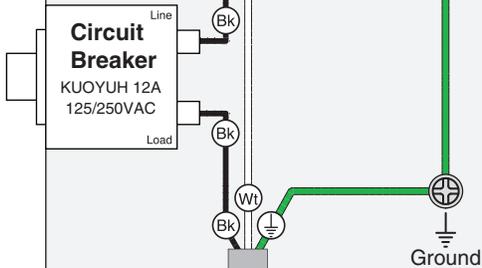
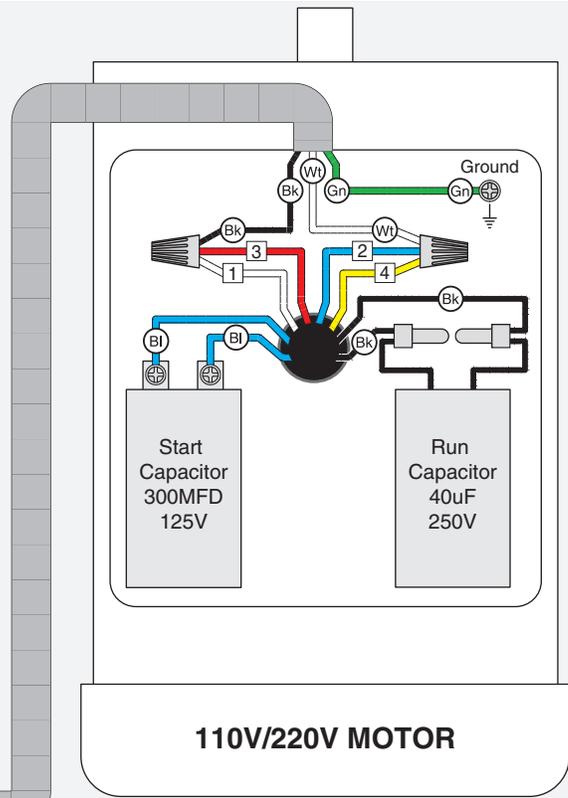
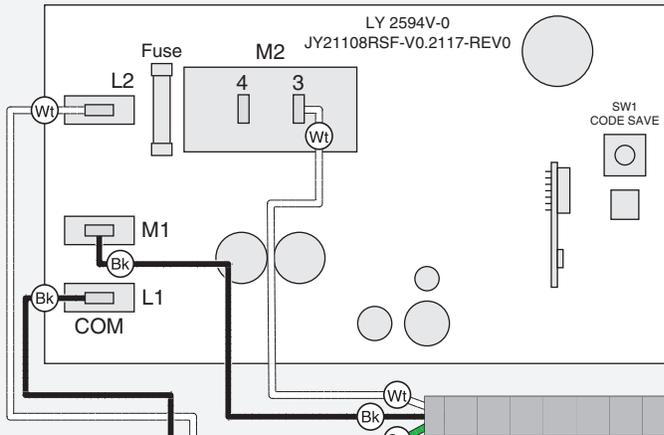
# Wiring Diagram (110V)

## BOTTOM FILTER HOUSING



**WARNING!**  
**SHOCK HAZARD!**  
Disconnect power  
before working on  
wiring.

### CONTROL PANEL CIRCUIT BOARD

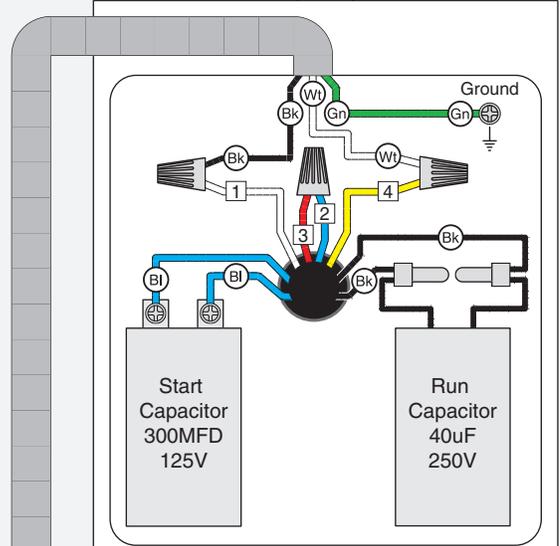
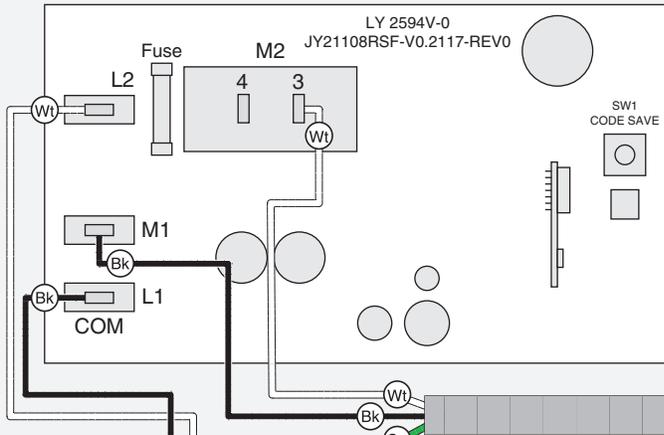


# Wiring Diagram (220V)

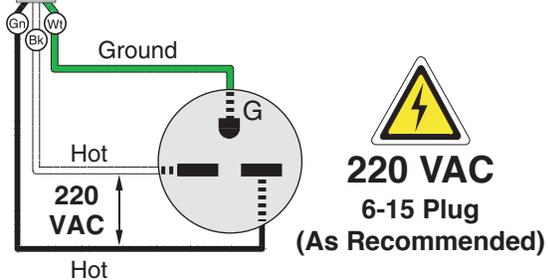
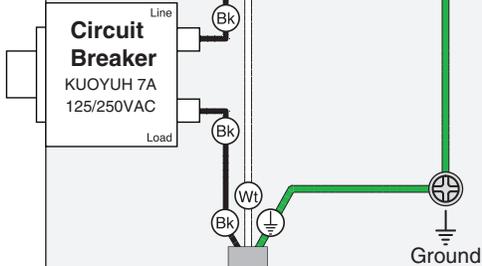
## BOTTOM FILTER HOUSING



### CONTROL PANEL CIRCUIT BOARD



### 110V/220V MOTOR



# Electrical Components



Figure 41. Control panel circuit board wiring.

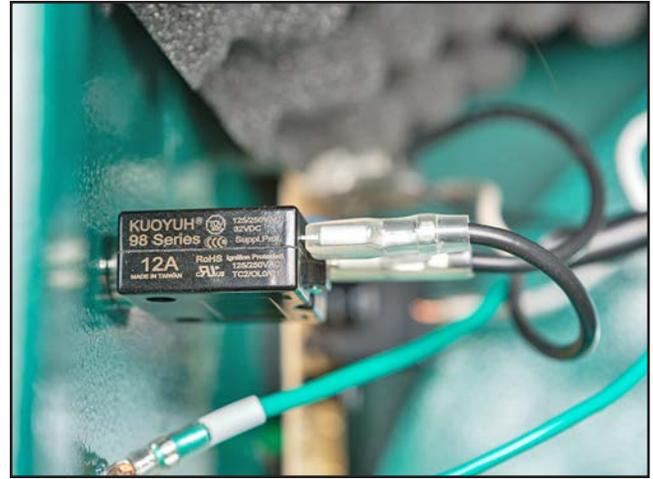


Figure 43. Circuit breaker wiring (110V).



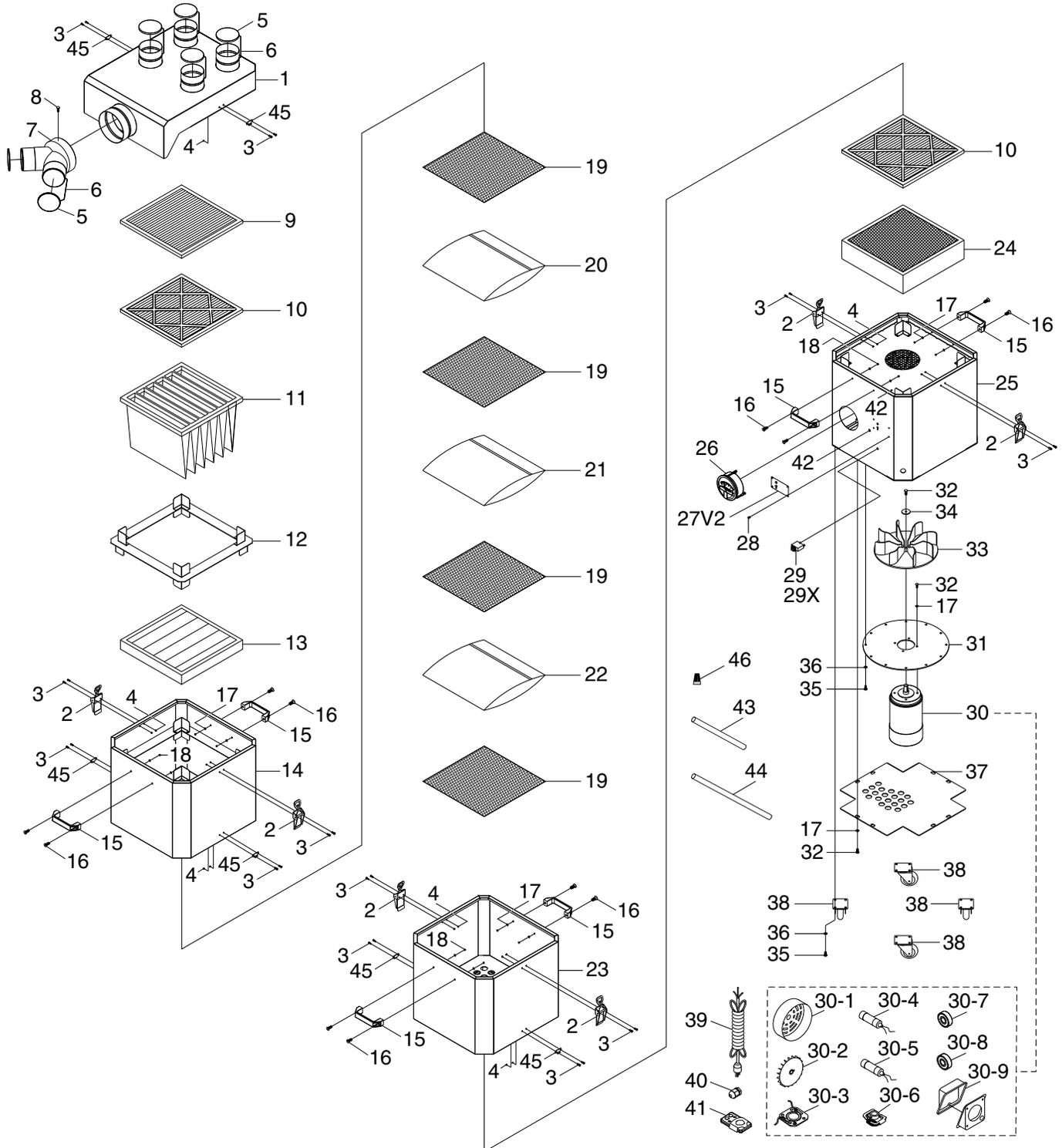
Figure 42. Motor and capacitors wiring (110V).



# SECTION 9: PARTS

We do our best to stock replacement parts when possible, but we cannot guarantee that all parts shown are available for purchase. Call (800) 523-4777 or visit [www.grizzly.com/parts](http://www.grizzly.com/parts) to check for availability.

## Main



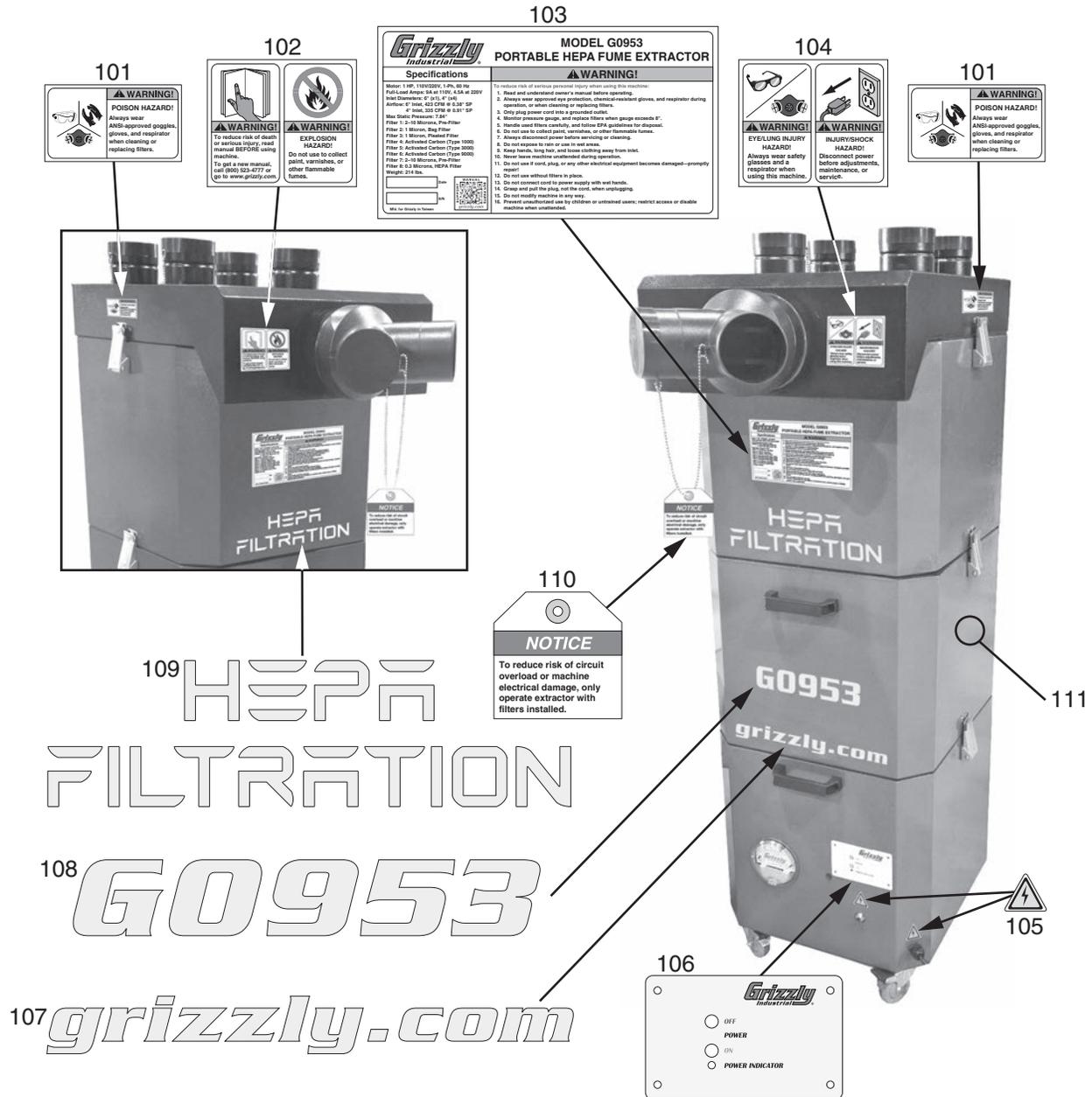
# Main Parts List

REF	PART #	DESCRIPTION
1	P0953001	INLET LID
2	P0953002	LATCH
3	P0953003	FLAT HD CAP SCR M5-.8 X 14
4	P0953004	FLANGE NUT M5-.8
5	P0953005	INLET COVER 4"
6	P0953006	BALL CHAIN 10"
7	P0953007	INLET ADAPTER 6" X 4" X 4"
8	P0953008	TAP SCREW #10 X 5/8
9	P0953009	SPARK ARRESTOR
10	P0953010	PLEATED PRE-FILTER
11	P0953011	BAG FILTER (6-POCKET)
12	P0953012	FILTER SUPPORT BRACKET
13	P0953013	POLYESTER FILTER
14	P0953014	TOP FILTER HOUSING
15	P0953015	HANDLE
16	P0953016	CAP SCREW 5/16-18 X 3/4
17	P0953017	FLAT WASHER 5/16
18	P0953018	HEX NUT 5/16-18
19	P0953019	WOVEN NYLON MESH
20	P0953020	ACTIVATED CARBON BAG (TYPE-1000)
21	P0953021	ACTIVATED CARBON BAG (TYPE-3000)
22	P0953022	ACTIVATED CARBON BAG (TYPE-9000)
23	P0953023	MIDDLE FILTER HOUSING
24	P0953024	HEPA FILTER
25	P0953025	BOTTOM FILTER HOUSING
26	P0953026	PRESSURE GAUGE KAI JYUN G268SP-1
27V2	P0953027V2	CIRCUIT BOARD 110V/220V V2.08.22
28	P0953028	FLAT HD SCR M3-.5 X 6

REF	PART #	DESCRIPTION
29	P0953029	CIRCUIT BREAKER KUOYUH 98-SERIES 12A
29X	P0953029X	CIRCUIT BREAKER KUOYUH 88-SERIES 7A
30	P0953030	MOTOR 1HP 110/220V 1-PH
30-1	P0953030-1	MOTOR FAN COVER
30-2	P0953030-2	MOTOR FAN
30-3	P0953030-3	CONTACT PLATE
30-4	P0953030-4	S CAPACITOR 300M 125V 1-3/8 X 2-3/4
30-5	P0953030-5	R CAPACITOR 40M 250V 1-1/2 X 2-1/2
30-6	P0953030-6	CENTRIFUGAL SWITCH
30-7	P0953030-7	BALL BEARING 6205ZZ (FRONT)
30-8	P0953030-8	BALL BEARING 6202ZZ (REAR)
30-9	P0953030-9	JUNCTION BOX
31	P0953031	IMPELLER BASE
32	P0953032	HEX BOLT 5/16-18 X 3/4
33	P0953033	IMPELLER 12" ALUMINUM
34	P0953034	FLAT WASHER 5/16
35	P0953035	HEX BOLT 1/4-20 X 3/4
36	P0953036	FLAT WASHER 1/4
37	P0953037	BASE PLATE
38	P0953038	CASTER 3", LOCKING SWIVEL
39	P0953039	POWER CORD 14G 3W 118" 5-15P
40	P0953040	STRAIN RELIEF TYPE-3 PG13.5
41	P0953041	REMOTE CONTROL
42	P0953042	GROMMET 10MM
43	P0953043	FLEXIBLE HOSE 5 X 8MM, 343L
44	P0953044	FLEXIBLE HOSE 5 X 8MM, 566L
45	P0953045	CLEAT
46	P0953046	WIRE NUT 14-22 AWG



# Labels & Cosmetics



REF PART #	DESCRIPTION
101	P0953101 POISON HAZARD LABEL
102	P0953102 READ MANUAL/EXPLOSION WARNING LABEL
103	P0953103 MACHINE ID LABEL
104	P0953104 EYE/LUNG/DISCONNECT POWER LABEL
105	P0953105 ELECTRICITY LABEL
106	P0953106 CONTROL PANEL LABEL

REF PART #	DESCRIPTION
107	P0953107 GRIZZLY.COM LABEL
108	P0953108 MODEL NUMBER LABEL
109	P0953109 HEPA FILTRATION LABEL
110	P0953110 HANGING NOTICE TAG
111	P0953111 TOUCH-UP PAINT, GRIZZLY GREEN

**⚠ WARNING**

Safety labels help reduce the risk of serious injury caused by machine hazards. If any label comes off or becomes unreadable, the owner of this machine **MUST** replace it in the original location before resuming operations. For replacements, contact (800) 523-4777 or [www.grizzly.com](http://www.grizzly.com).





# WARRANTY & RETURNS

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Grizzly Industrial, Inc. warrants every product it sells for a period of **1 year** to the original purchaser from the date of purchase. This warranty does not apply to defects due directly or indirectly to misuse, abuse, negligence, accidents, repairs or alterations or lack of maintenance. This is Grizzly's sole written warranty and any and all warranties that may be implied by law, including any merchantability or fitness, for any particular purpose, are hereby limited to the duration of this written warranty. We do not warrant or represent that the merchandise complies with the provisions of any law or acts unless the manufacturer so warrants. In no event shall Grizzly's liability under this warranty exceed the purchase price paid for the product and any legal actions brought against Grizzly shall be tried in the State of Washington, County of Whatcom.

We shall in no event be liable for death, injuries to persons or property or for incidental, contingent, special, or consequential damages arising from the use of our products.

The manufacturers reserve the right to change specifications at any time because they constantly strive to achieve better quality equipment. We make every effort to ensure that our products meet high quality and durability standards and we hope you never need to use this warranty.

In the event you need to use this warranty, contact us by mail or phone and give us all the details. We will then issue you a "Return Number," which must be clearly posted on the outside as well as the inside of the carton. We will not accept any item back without this number. Proof of purchase must accompany the merchandise.

Please feel free to write or call us if you have any questions about the machine or the manual.

Thank you again for your business and continued support. We hope to serve you again soon.

To take advantage of this warranty, you must register it at <https://www.grizzly.com/forms/warranty>, or you can scan the QR code below to be automatically directed to our warranty registration page. Enter all applicable information for the product.



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