WOODSTOCK

SHOP FOX®

INTERNATIONAL

MODEL W1687
3 HP DUST COLLECTOR



OWNER'S MANUAL

(FOR MODELS MANUFACTURED SINCE 9/11)

C US
247569

Phone: (360) 734-3482 • Online Technical Support: tech-support@shopfox.biz

COPYRIGHT © JUNE, 2002 BY WOODSTOCK INTERNATIONAL, INC. REVISED OCTOBER, 2013 (TR)

WARNING: NO PORTION OF THIS MANUAL MAY BE REPRODUCED IN ANY SHAPE OR FORM WITHOUT THE WRITTEN APPROVAL OF WOODSTOCK INTERNATIONAL, INC.

V2.10.13 **#4445DS Printed in Taiwan**

⚠ 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.

Contents

INTRODUCTION 2
Woodstock Technical Support 2

SAFETY 6
Standard Machinery Safety Instructions 6
Additional Safety for Dust Collectors 8

ELECTRICAL 9
Circuit Requirements 9
Grounding Requirements 10
Extension Cords 10

SETUP 11
Items Needed for Setup 11
Unpacking 11
Inventory 11
Machine Placement 12
Assembly 13
Power Connection 17
Test Run 18

OPERATIONS 19
General 19
Basic Operation 19
Machine Storage 20
Duct Material 20
System Design 22
System Grounding 27
Cyclone Dust Collector Accessories 28

MAINTENANCE 31
General 31
Lubrication 31
Cleaning Bags 31
Replacing Bags 32

SERVICE 33
General 33
Electrical Safety Instructions 33
Wiring Diagram 34
Troubleshooting 35

PARTS 36
Main Breakdown 36
Main Parts List 37
Label Placement 38

WARRANTY 41

USE THE QUICK GUIDE PAGE LABELS TO SEARCH OUT INFORMATION FAST!

INTRODUCTION

Woodstock Technical Support

This machine has been specially designed to provide many years of trouble-free service. Close attention to detail, ruggedly built parts and a rigid quality control program assure safe and reliable operation.

Woodstock International, Inc. is committed to customer satisfaction. Our intent with this manual is to include the basic information for safety, setup, operation, maintenance, and service of this product.

We stand behind our machines! In the event that questions arise about your machine, please contact Woodstock International Technical Support at (360) 734-3482 or send e-mail to: **tech-support@shopfox.biz**. Our knowledgeable staff will help you troubleshoot problems and process warranty claims.

If you need the latest edition of this manual, you can download it from **http://www.shopfox.biz**.
If you have comments about this manual, please contact us at:

Woodstock International, Inc.
Attn: Technical Documentation Manager
P.O. Box 2309
Bellingham, WA 98227
Email: manuals@woodstockint.com

MACHINE SPECIFICATIONS

© Woodstock International, Inc. • Phone: (800) 840-8420 • Web: www.shopfox.biz

MODEL W1687
3 HP 2,800 CFM DUST COLLECTOR

Product Dimensions

Weight..... 152 lbs.
Width (side-to-side) x Depth (front-to-back) x Height..... 49-1/2 x 21-1/2 x 78 in.
Footprint (Length x Width)..... 49-1/2 x 21-1/2 in.

Shipping Dimensions

Type..... Cardboard Box
Content..... Machine
Weight..... 167 lbs.
Length x Width x Height..... 51 x 23 x 23 in.

Electrical

Power Requirement..... 240V, Single-Phase, 60 Hz
Prewired Voltage..... 240V
Full-Load Current Rating..... 12A
Minimum Circuit Size..... 20A
Connection Type..... Cord & Plug
Power Cord Included..... Yes
Power Cord Length..... 6 ft.
Power Cord Gauge..... 14 AWG
Plug Included..... No
Recommended Plug Type..... 6-20
Switch Type..... ON/OFF Push Button Switch

Motors

Main

Type..... TEFC Capacitor-Start Induction
Horsepower..... 3 HP
Phase..... Single-Phase
Amps..... 12A
Speed..... 3450 RPM
Power Transfer ..... Direct Drive
Bearings..... Sealed & Permanently Lubricated

Main Specifications

Operation

Dust Collector Type	Single-Stage
Approved Dust Types	Wood
Filter Type	Bag
Airflow Capacity	2830 CFM
Max Static Pressure (at 0 CFM)	14.4 in.
Main Inlet Size	8 in.
Inlet Adapter Included	Yes
Number of Adapter Inlets	4
Adapter Inlet Size	4 in.
Machine Collection Capacity At One Time	4
Maximum Material Collection Capacity	10.8 cu. ft.
Filtration Rating	30 Micron

Bag Information

No of Upper Bags	2
No of Lower Bags	2
Upper Bag Diameter	19 in.
Upper Bag Length	33 in.
Lower Bag Diameter	19 in.
Lower Bag Length	33 in.

Impeller Information

Impeller Type	Radial Fin
Impeller Size	13 in.
Impeller Blade Thickness	1/8 in.

Construction

Upper Bag	Fabric
Lower Bag	Fabric
Base	Steel Sheet Metal w/Casters
Caster	High Density Plastic
Impeller	Steel
Paint	Powder Coated
Blower Housing	Steel Sheet Metal
Body	Steel Sheet Metal

Other

Country Of Origin	Taiwan
Warranty	2 Years
Approximate Assembly & Setup Time	1 Hour
Serial Number Location	ID Label Above Magnetic On/Off Switch
ISO 9001 Factory	Yes
CSA Certified	Yes

Features

Fully Mobile
Powder Coated Paint
Includes Steel Base with Casters

Controls and Features

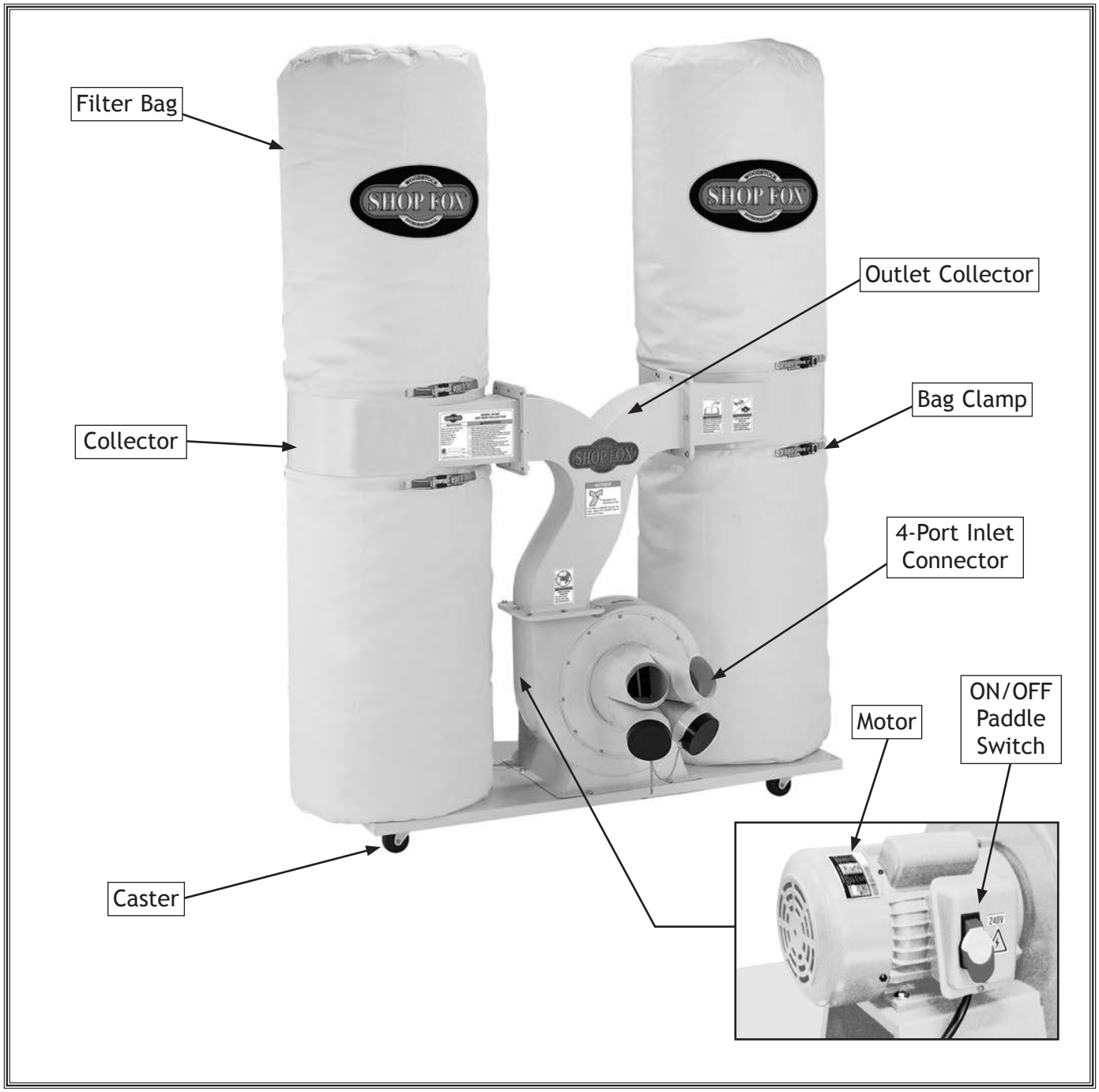


Figure 1. W1687 identification.

SAFETY

For Your Own Safety, Read Manual Before Operating 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—this responsibility is ultimately up to the operator!

⚠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.**

NOTICE **This symbol is used to alert the user to useful information about proper operation of the equipment, and/or a situation that may cause damage to the machinery.**

Standard Machinery Safety Instructions

OWNER'S MANUAL. Read and understand this owner's manual BEFORE using machine. Untrained users can be seriously hurt.

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.

HAZARDOUS DUST. Dust created while using machinery may cause cancer, birth defects, or long-term respiratory damage. Be aware of dust hazards associated with workpiece materials, and always wear a NIOSH-approved respirator to reduce your risk.

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 avoid accidental slips which could cause a loss of workpiece control.

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.

MENTAL ALERTNESS. Be mentally alert when running machinery. Never operate under the influence of drugs or alcohol, when tired, or when distracted.

DISCONNECTING POWER SUPPLY. Always disconnect machine from power supply before servicing, adjusting, or changing cutting tools (bits, blades, cutters, etc.). Make sure switch is in OFF position before reconnecting to avoid an unexpected or unintentional start.

DANGEROUS ENVIRONMENTS. Do not use machinery in wet or rainy locations, cluttered areas, around flammables, or in poorly-lit areas. Keep work area clean, dry, and well-lighted to minimize risk of injury.

APPROVED OPERATION. Untrained operators can be seriously hurt by machinery. Only allow trained or properly supervised people to use machine. When machine is not being used, disconnect power, remove switch keys, or lock-out machine to prevent unauthorized use—especially around children. Make workshop kid proof!

ONLY USE AS INTENDED. Only use machine for its intended purpose. Never modify or alter machine for a purpose not intended by the manufacturer or serious injury may result!

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

CHILDREN & BYSTANDERS. Keep children and bystanders a safe distance away from work area. Stop using machine if children or bystanders become a distraction.

REMOVE ADJUSTING TOOLS. Never leave adjustment tools, chuck keys, wrenches, etc. in or on machine—especially near moving parts. Verify removal before starting!

SECURING WORKPIECE. When required, use clamps or vises to secure workpiece. A secured workpiece protects hands and frees both of them to operate the machine.

FEED DIRECTION. Unless otherwise noted, feed work against the rotation of blades or cutters. Feeding in the same direction of rotation may pull your hand into the cut.

GUARDS & COVERS. Guards and covers can protect you from accidental contact with moving parts or flying debris. Make sure they are properly installed, undamaged, and working correctly before using machine.

NEVER STAND ON MACHINE. Serious injury or accidental contact with cutting tool may occur if machine is tipped. Machine may be damaged.

STABLE MACHINE. Unexpected movement during operations greatly increases the risk of injury and loss of control. Verify machines are stable/secure and mobile bases (if used) are locked before starting.

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

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.

UNATTENDED OPERATION. Never leave machine running while unattended. Turn machine off and ensure all moving parts completely stop before walking away.

MAINTAIN WITH CARE. Follow all maintenance instructions and lubrication schedules to keep machine in good working condition. An improperly maintained machine may increase the risk of serious injury.

CHECK DAMAGED PARTS. Regularly inspect machine for damaged parts, loose bolts, mis-adjusted or mis-aligned parts, binding, or any other conditions that may affect safe operation. Always repair or replace damaged parts, wires, cords, or plugs before operating machine.

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 the cord/plug with wet hands. Avoid cord damage by keeping it away from heated surfaces, high traffic areas, harsh chemicals, and wet or damp locations.

EXPERIENCING DIFFICULTIES. If at any time you are experiencing difficulties performing the intended operation, stop using the machine! Contact our Technical Support for help at (360) 734-3482.

Additional Safety for Dust Collectors

INTENDED USE. This dust collector is only intended for collecting wood dust and chips from woodworking machines. DO NOT use this dust collector to collect metal, dirt, pebbles, drywall, asbestos, lead paint, silica, liquids, aerosols, or any flammable, combustible, or hazardous materials.

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

DUST ALLERGIES. Dust from certain woods may cause an allergic reaction in people and animals. Make sure you know what type of wood dust you will be exposed to in case there is a possibility of an allergic reaction.

WEAR RESPIRATOR. Fine dust that is too small to be caught in the filter will be blown into the ambient air during operation. Always wear a NIOSH approved respirator during operation and for a short time after to reduce your risk of permanent respiratory damage.

EMPTYING DUST. When emptying dust from the collection container, wear a respirator and safety glasses. Empty dust away from ignition sources and into an approved container.

DISCONNECTING POWER SUPPLY. Turn the switch OFF, disconnect the dust collector from the power supply, and allow the impeller to come to a complete stop before leaving the machine unattended or doing any service, cleaning, maintenance, or adjustments.

REGULAR CLEANING. Regularly check/empty the collection bags or drum to avoid the buildup of fine dust that can increase the risk of fire. Make sure to regularly clean the surrounding area where the machine is operated—excessive dust buildup on overhead lights, heaters, electrical panels, or other heat sources will increase the risk of fire.

SUSPENDED DUST PARTICLES AND IGNITION SOURCES. DO NOT operate the dust collector in areas where explosion risks are high. Areas of high risk include, but are not limited to, areas near pilot lights, open flames, or other ignition sources.

FIRE SUPPRESSION. Only operate dust collector in locations that contain a fire suppression system or have a fire extinguisher nearby.

IMPELLER HAZARDS. DO NOT place your hands or tools near the open inlet during operation for any reason. The powerful suction could easily pull them into the impeller, which will cause serious personal injury or damage to the machine. Always keep small animals and children away from open dust collection inlets.

AVOIDING SPARKS. DO NOT allow steel or rocks to strike the impeller—this may produce sparks. Sparks can smolder in wood dust for a long time before a fire is detected. If you accidentally cut into wood containing tramp metal (nails, staples, spikes, etc.), immediately turn OFF the dust collector, disconnect it from power, and wait for the impeller to stop—then empty the collection container into an approved airtight metal container.

OPERATING LOCATION. To reduce respiratory exposure to fine dust, locate permanently installed dust collectors away from the working area, or in another room that is equipped with a smoke detector. DO NOT operate the dust collector in rainy or wet locations—exposure to water may create an shock hazard or decrease the life of the machine.

STATIC ELECTRICITY. Plastic dust lines generate high amounts of static electricity as dust chips pass through them. Although rare, sparks caused by static electricity can cause explosions or fire. To reduce this risk, make sure all dust lines are thoroughly grounded by using a grounding wire.

ELECTRICAL

Circuit Requirements

This machine must be connected to the correct size and type of power supply circuit, or fire or electrical damage may occur. Read through this section to determine if an adequate power supply circuit is available. If a correct circuit is not available, a qualified electrician MUST install one before you can connect the machine to power.

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.)

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 240V ..... 12 Amps

Circuit Requirements

This machine is prewired to operate on a 240V power supply circuit that has a verified ground and meets the following requirements:

Circuit Type ..... 240V, 60 Hz, Single-Phase
Circuit Size ..... 20 Amps
Plug/Receptacle ..... NEMA 6-20

⚠WARNING

The machine must be properly set up before it is safe to operate. DO NOT connect this machine to the power source until instructed to do later in this manual.

⚠WARNING



Incorrectly wiring or grounding this machine can cause electrocution, fire, or machine damage. To reduce this risk, only an electrician or qualified service personnel should do any required electrical work on this machine.

NOTICE

The circuit requirements listed in this manual apply to a dedicated circuit—where only one machine will be running at a time. If this machine will be connected to a shared circuit where multiple machines will be running at the same time, consult a qualified electrician to ensure that the circuit is properly sized for safe operation.

Grounding Requirements

This machine MUST be grounded. In the event of certain types of malfunctions or breakdowns, grounding provides a path of least resistance for electric current to travel—in order to reduce the risk of electric shock.

Improper connection of the equipment-grounding wire will increase the risk of electric shock. The wire with green insulation (with/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.

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.

For 240V Connection

This machine is equipped with a power cord that has an equipment-grounding wire and NEMA 6-20 grounding plug. The plug must only be inserted into a matching receptacle (see **Figure**) that is properly installed and grounded in accordance with local codes and ordinances.

Extension Cords

We do not recommend using an extension cord with this machine. Extension cords cause voltage drop, which may damage electrical components and shorten motor life. Voltage drop increases with longer extension cords and smaller gauge sizes (higher gauge numbers indicate smaller sizes).

Any extension cord used with this machine must contain a ground wire, match the required plug and receptacle, and meet the following requirements:

Minimum Gauge Size at 240V ..... 12 AWG
Maximum Length (Shorter is Better) ..... 50 ft.

⚠WARNING

The machine must be properly set up before it is safe to operate. DO NOT connect this machine to the power source until instructed to do later in this manual.

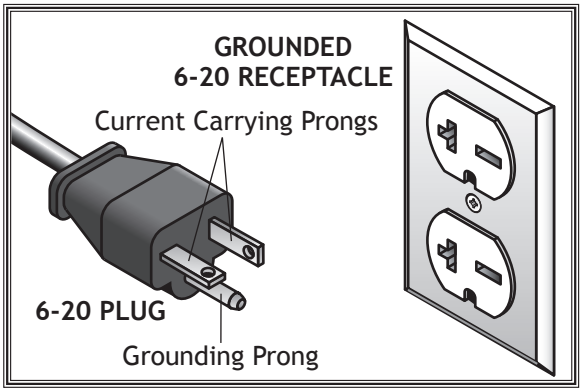
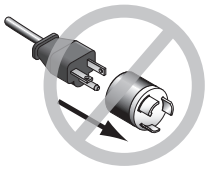


Figure 2. NEMA 6-20 plug & receptacle.

⚠CAUTION



No adapter should be used with the required plug. If the plug does not fit the available receptacle, or the machine must be reconnected to a different type of circuit, the reconnection must be made by an electrician or qualified service personnel and it must comply with all local codes and ordinances.

SETUP

Items Needed for Setup

The following items are needed, but not included, to setup your machine.

Description	Qty
• Safety Glasses for Each Person	1
• Phillips Head Screwdriver	1

Unpacking

This machine has been carefully packaged for safe transportation. If you notice the machine has been damaged during shipping, please contact your authorized Shop Fox dealer immediately.

Inventory

The following is a description of the main components shipped with the Model W1687. Lay the components out to inventory them.

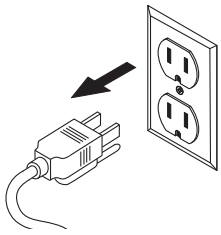
Note: *If you can't find an item on this list, check the mounting location on the machine or examine the packaging materials carefully. Occasionally we pre-install certain components for safer shipping.*

Box Inventory (Figures 3-4)	Qty
A. Motor and Impeller Assembly	1
B. Metal "Y" Outlet	1
C. 4-Way Inlet	1
D. Collector (Right)	1
E. Collector (Left)	1
F. Collection & Filtration Bags	4
G. Base Plate	1
H. Quick Release Clamps	4
I. Upper Support Brackets	2
J. Lower Support Brackets	2
K. Rubber Gaskets	3
L. Casters	4
M. Foam Strips 4 x 20mm (not shown)	4

Hardware and Tools

— Hex Wrench 5mm	1
— Open-End Wrench 10/12mm	1
— Flange Bolts $^{5}/_{16}$"-18 x $^{1}/_{2}$"	52
— Phillip Head Screws $^{1}/_{4}$"-20 x $2^{1}/_{2}$"	4
— Hex Nuts $^{1}/_{4}$"-20	4

⚠WARNING



Keep machine disconnected from power until instructed otherwise.

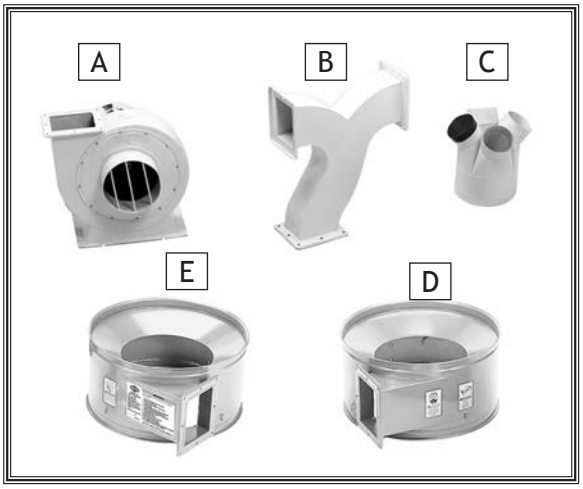


Figure 3. Inventory items (1).

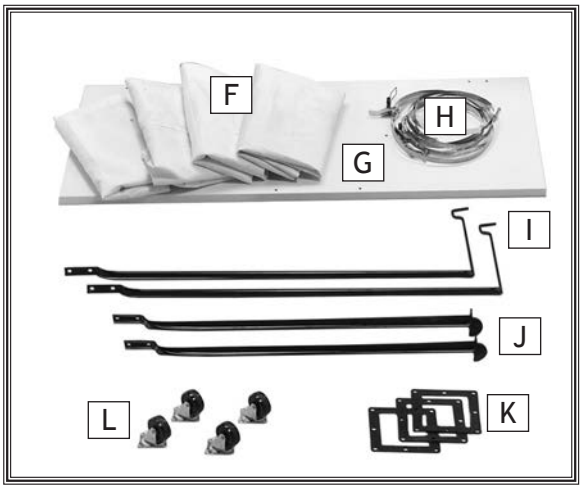


Figure 4. Inventory items (2).

Machine Placement

Weight Load

Refer to the **Machine Specifications** 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.**



⚠CAUTION

Children or untrained people may be seriously injured by this machine. Only install in an access restricted location.

Physical Environment

The physical environment where your machine is operated is important for safe operation and the longevity of its 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 access to a means of disconnecting the power source or engaging a lockout/tagout device.

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.

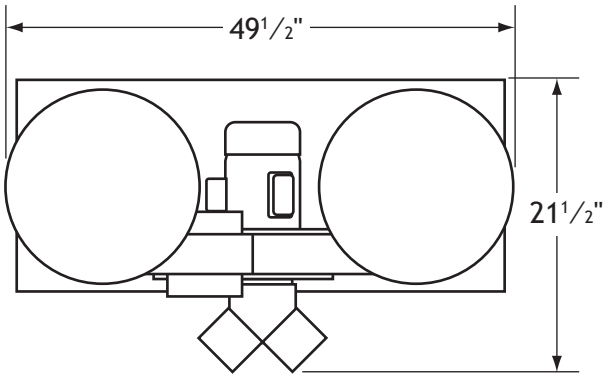


Figure 5. Working clearances.

Assembly

To assemble the dust collector, do these steps:

1. Place the base upside down on a clean, flat surface (to avoid scratching the paint.)

2. Attach the casters to the base with (16) $^{5}/_{16}$"-8 x $^{1}/_{2}$" flange bolts, as shown in **Figure 6.**

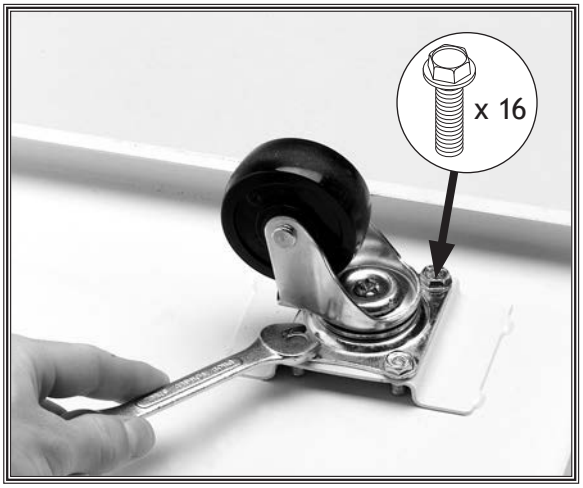


Figure 6. Installing caster to base.

3. Turn the base over, align the motor and impeller with the mounting holes, then secure the assembly with (4) $^{5}/_{16}$"-8 x $^{1}/_{2}$" flange bolts, as shown in **Figure 7**. The intake portion should be near the edge.

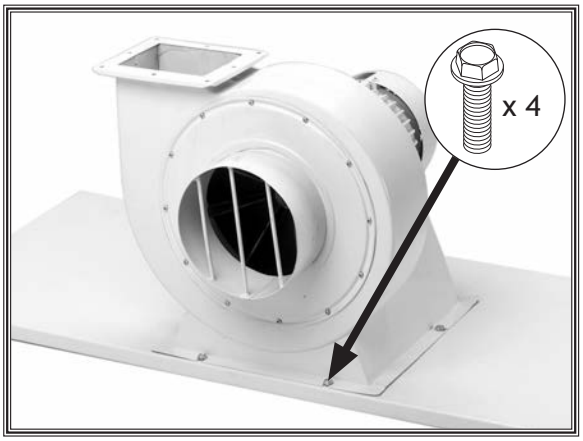


Figure 7. Installing caster to base.

4. Place a rubber gasket around the impeller outlet rim, as shown in **Figure 8**.



Figure 8. Positioning impeller outlet gasket.

5. Secure the metal "Y" outlet to the impeller outlet with (8) 5/16"-18 x 1/2" flange bolts, as shown in **Figure 9**.

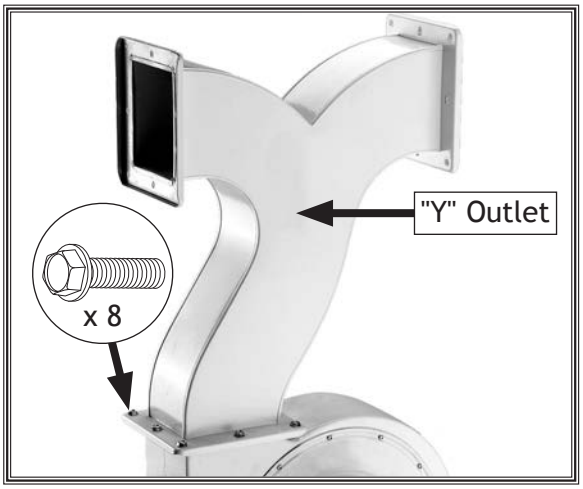


Figure 9. "Y" outlet installed.

6. With assistance, place one of the rubber gaskets around the rim of the intake on one of the collectors, then secure the collector to the metal "Y" outlet with (8) 5/16"-18 x 1/2" flange bolts (see **Figure 10**).

Note: *The collector attaches to each support bracket. The inside of the collector is funnel shaped and directs the air around in a cyclonic motion.*

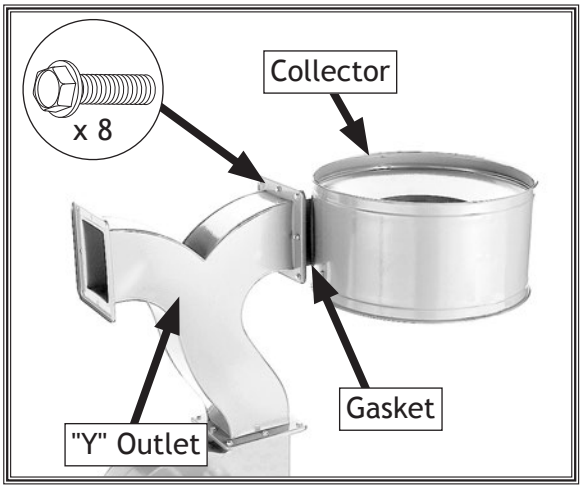


Figure 10. Collector installed.

7. Repeat **Step 6** for the other collector. The assembly should now look similar to **Figure 11**.



Figure 11. Example of collectors installed.

8. Wrap a foam strip around the outside top rim of the collector (see **Figure 12**).



Figure 12. Installing foam strip around top of collector.

9. Trim any excess from foam strip so the ends come together evenly, as shown in **Figure 13**.



Figure 13. Ends of foam strip trimmed to come together evenly.

10. Wrap a foam strip around the outside bottom rim of the collector and trim the excess, as shown in **Figure 14**.

Install the remaining foam strips on the other side.

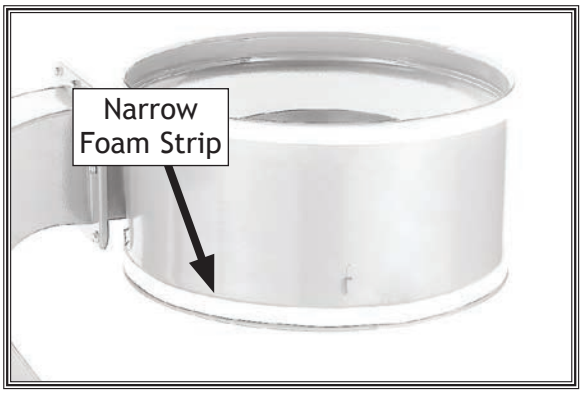


Figure 14. Foam strip installed around bottom of collector.

11. Align each of the collector supports with the mounting holes on the base, as shown in **Figure 15**, then secure them in place with (4) 5/16"-18 x 1/2" flange bolts.

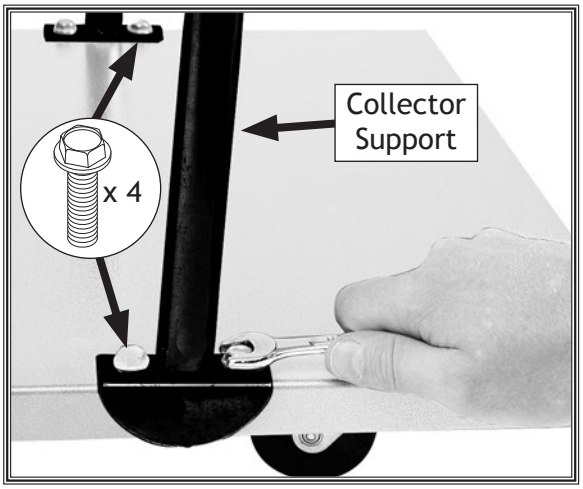


Figure 15. Installing collector support.

12. Place an upper bag support over a collector support and secure it to the collector with (2) 5/16"-18 x 1/2" flange bolts, as shown in **Figure 16**.

13. Repeat **Step 12** for the other collector, collector support and upper bag support.

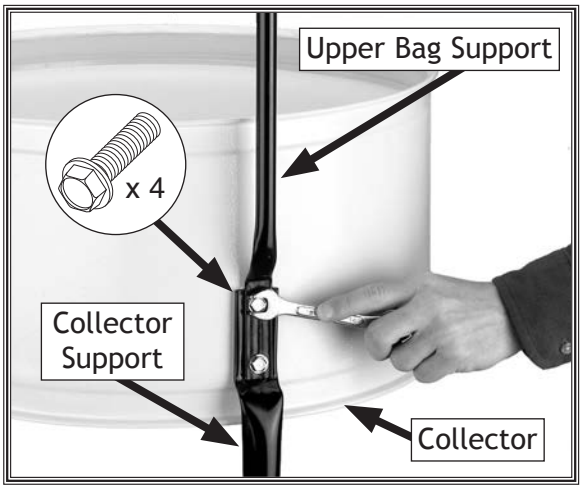


Figure 16. Mounting collector to brackets.

14. Hook the top loop of the upper filter bags (with Shop Fox logo) over the upper bag supports, as shown in **Figure 17**.



Figure 17. Attaching the upper filter bag.

15. Fasten the upper and lower bags to the collector using the quick-release clamps, as shown in **Figure 18**.

    Note: *DO NOT force the clamp. If it will not close, choose the next notch over, then clamp in place.*

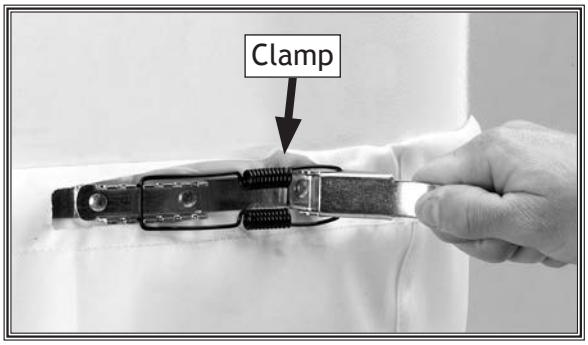


Figure 18. Securing lower collection bag.

16. Insert the inlet over the impeller intake hole.

17. Secure the inlet in place with the Phillips head screw (see **Figure 19**).

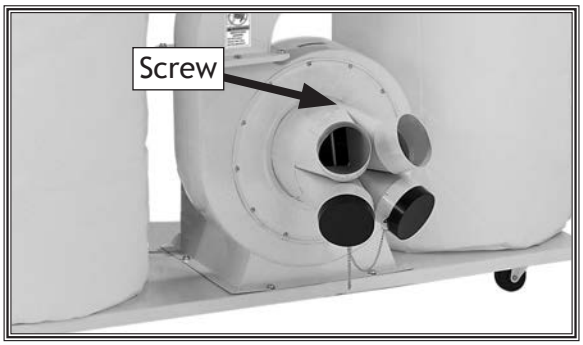


Figure 19. Inlet secured.

Power Connection

After you have completed all previous setup instructions and circuit requirements, the machine is ready to be connected to the power supply.

To prevent accidental damage to the power cord, make sure it is kept away from potential damage sources at all times—whether connected or not. Potential damage sources include high traffic areas, sharp objects, heat sources, harsh chemicals, water, damp areas, etc. To avoid unexpected startups or property damage, use the following steps whenever connecting or disconnecting the machine.

Connecting Power

1. Turn the machine power switch ***OFF***.

2. Insert the power cord plug into a matching power supply receptacle. The machine is now connected to the power source.

Disconnecting Power

1. Turn the machine power switch ***OFF***.

2. Grasp the molded plug and pull it completely out of the receptacle. Do not pull by the cord as this may damage the wires inside.

Test Run

Once assembly is complete, test run your machine to make sure it runs properly and is ready for regular operation.

The test run consists of verifying the following: 1) The motor powers up and runs correctly, and 2) the safety disabling mechanism on the switch works correctly.

If, during the test run, you cannot easily locate the source of an unusual noise or vibration, stop using the machine immediately, then review **Troubleshooting** on **Page 35**. If you still cannot remedy a problem, contact our Tech Support at (360) 734-3482 for assistance.

To test run the machine, do these steps:

1. Make sure you understand the safety instructions at the beginning of the manual, and verify that the machine is setup properly.

2. Ensure all tools and objects used during setup are cleared away from the machine.

3. Connect the machine to the power source.

4. Verify that the machine is operating correctly by turning the machine ***ON***.

   — When operating correctly, the machine runs smoothly with little or no vibration or rubbing noises.

   — Investigate and correct strange or unusual noises or vibrations before operating the machine further. Always disconnect the machine from power when investigating or correcting potential problems.

5. Turn the machine ***OFF***.

6. Remove the switch disabling key (see **Figure 20**).

7. Try to start the machine with the paddle switch.

   — If the machine **does not** start, the switch disabling feature is working as designed.

   — If the machine **does** stars, immediately stop the machine. The switch disabling feature is not working correctly. Call Tech Support for help.

WARNING



Projectiles thrown from the machine could cause serious eye injury. Wear safety glasses to reduce the risk of injury.

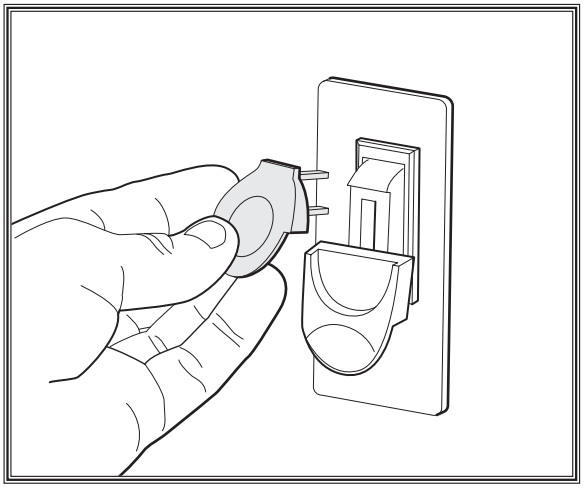


Figure 20. Removing switch key from paddle switch.

OPERATIONS

General

The Model W1687 can be operated as either a stationary or a mobile unit. There are advantages and disadvantages to both set-ups. The advantage of the mobile system is eliminating the cost of many ducts and fittings. On the other hand, the stationary system is more versatile and convenient.

If using this machine as a central dust collector system, put the dust collector in an out of the way location such as a corner or separate room. The dust collector is capable of collecting dust from up to four machines running simultaneously. Shop Fox offers a complete line of dust collection accessories for setting up a stationary system.

Whatever system you choose, always make sure there are no open flames or pilot lights in the same room as the dust collector. There is a risk of explosion if dust is dispersed into the air.

The instructions in this section are written with the understanding that the operator has the necessary knowledge and skills to operate this machine. **If at any time you are experiencing difficulties performing any operation, stop using the machine!**

If you are an inexperienced operator, we strongly recommend that you read books or trade articles, or seek training from an experienced dust collector operator before performing any unfamiliar operations. **Above all, your safety should come first!**

Basic Operation

Operating the Model W1687 is simple and straightforward. Turn the dust collector ***ON***, then turn the machine ***ON***. When you are finished with the machine operation, turn ***OFF*** the machine, then turn ***OFF*** the dust collector.

Blast gates can be used at the start of each branch line to control the air flow from the woodworking machine to the dust collector. If a machine is not being used, keep the blast gate closed to maintain higher levels of efficiency throughout the system.

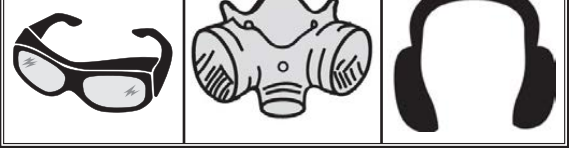
⚠WARNING



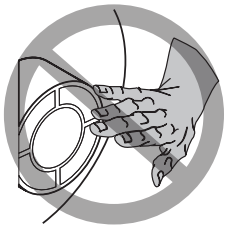
READ and understand this entire instruction manual before using this machine. Serious personal injury may occur if safety and operational information is not understood and followed. DO NOT risk your safety by not reading!

⚠WARNING

Damage to your eyes, lungs, and ears could result from using this machine without proper protective gear. Always wear safety goggles, a respirator, and hearing protection when operating this machine.



⚠WARNING



DO NOT put hands or small objects near inlet openings during operation. Objects sucked into the inlet will meet with the impeller blade. Failure to heed this warning could result in property damage or personal injury.

Outlet Flap

If one dust collection bag fills faster than the other, adjust the metal flap on the inside of the outlet, as shown in **Figure 21**. Pushing the flap to one side or the other diverts the airflow and equalizes the rate the bags fill with dust.

To access the flap, do these steps:

1. DISCONNECT MACHINE FROM POWER!
2. Release one of the clamps and remove an upper filter bag.
3. Reach inside the outlet and adjust the flap.
4. Re-install the top bag with the clamp.

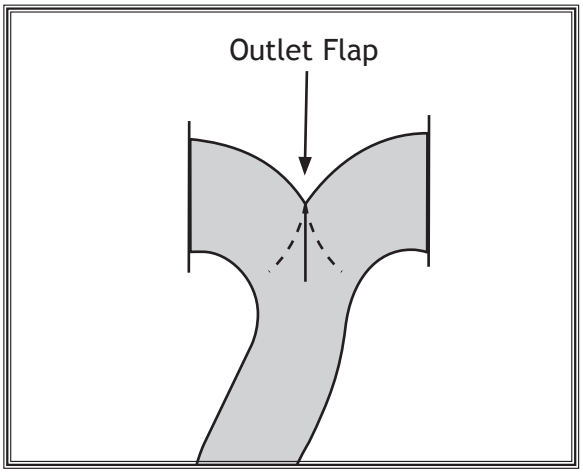


Figure 21. Outlet flap for equalizing filling of collection bags.

Machine Storage

When the dust collector is not in use, unplug the power cord from the power source. Place the cord away from potential damage sources, such as high traffic areas, sharp objects, heat sources, harsh chemicals, water, damp areas, etc.

Duct Material

You have many choices regarding main line and branch line duct material. For best results, use metal duct for the main line and branch lines, then use short lengths of flexible hose to connect each machine to the branch lines.

Plastic duct is also a popular material for home shops. However, be aware that there is a fire or explosion hazard if plastic duct material is used for dust collection without being grounded against static electrical charge build-up. This topic will be discussed later in this section. Another problem with using plastic is that it is less efficient per foot than metal.

Plastic Duct

The popularity of plastic duct is due to the fact that it is an economical and readily available product. It is also simple to assemble and easily sealed against air loss. The primary disadvantage of plastic duct for dust collection is the inherent danger of static electrical build-up.



Figure 22. Example of plastic duct and components.

Metal Duct

Advantages of metal duct is its conductivity, efficiency, and that it does not contribute to static electrical charge build-up. However, static charges are still produced when dust 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.

There are a number of options when it comes to metal duct, but metal duct that is specially manufactured for dust collection 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 tools.

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.

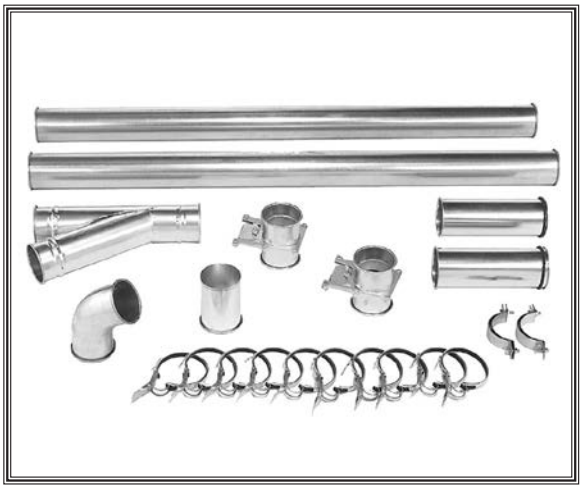


Figure 23. Examples of metal pipe and components.

Flexible Duct

Flexible hose is generally used for short runs, small shops and at rigid duct-to-tool connections. There are many different types of flex hose on the market today. These are manufactured from materials such as polyethylene, PVC, cloth hose dipped in rubber and even metal, including steel and aluminum.

The superior choice here is metal flex hose that is designed to be flexible, yet be as smooth as possible to reduce static pressure loss.

There are also many kinds of pure plastic flexible hose, such as non-perforated drainage type hose and dryer vent hose. Drainage type hose, while being economical, does not quite have the flexibility required for dust collection. The inside of the duct is also deeply corrugated and can increase the static pressure loss by as much as 50% over smooth wall duct. Dryer vent hose, while being completely flexible, is non-resistant to abrasion and has a tendency to collapse in a negative pressure system. We DO NOT recommend using dryer vent hose in your dust collection system. If using flex-hose, choose one of the many types that are designed specifically for the movement of solid particles, i.e. dust, grains, and plastics.

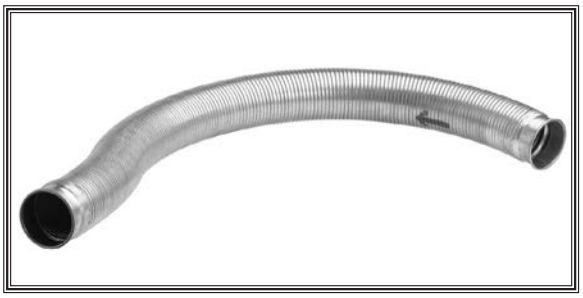


Figure 24. Example of flexible metal duct.



Figure 25. Example of flexible hose.

System Design

Decide Who Will Design

For most small-to-medium sized shops, you can design and build the dust collection system yourself without hiring engineers or consultants. We have included some basic information here to get you started on a basic design.

If you have a large shop or end up designing a complicated system, then we recommend additional research beyond this manual, or that you seek the help of an expert.

Sketch Your Shop Layout

When designing a successful dust collection system, planning is the most important step. In this step, you must sketch a basic layout of your shop, including space requirements of different machines. Your sketch only needs the basic details of the shop layout, similar to the following figure, including all your current/planned machines and your planned placement of the dust collector.

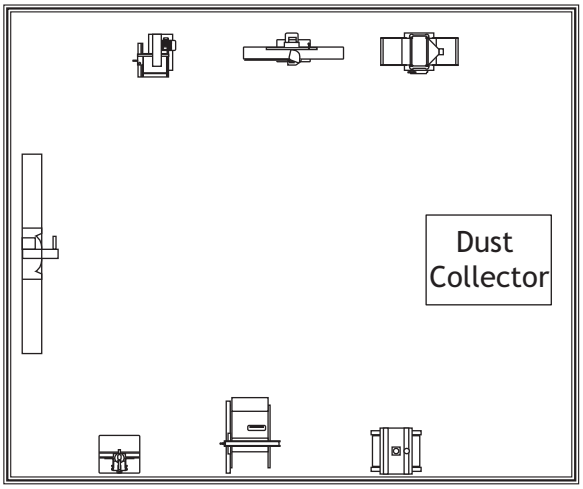


Figure 26. Basic sketch of shop layout.

Sketch a Basic Duct Layout

For the next step, sketch how you will connect your machines to the dust collector. Consider these general guidelines for an efficient system:

1. Machines that produce the most saw dust should be placed nearest to the dust collector (i.e. planers and sanders).

2. Ideally, you should design the duct system to have the shortest possible main line and secondary branch ducts. See the following figures for ideas of efficient versus inefficient duct layouts.

3. Directional changes should be kept to a minimum. The more directional change fittings you use directly increases the overall resistance to airflow.

4. Gradual directional changes are more efficient than sudden directional changes (i.e. use the largest corner radius possible when changing hose or pipe direction).

5. Each individual branch line should have a blast gate immediately after the branch to control suction from one machine to another.

6. The simpler the system, the more efficient and less costly it will be.

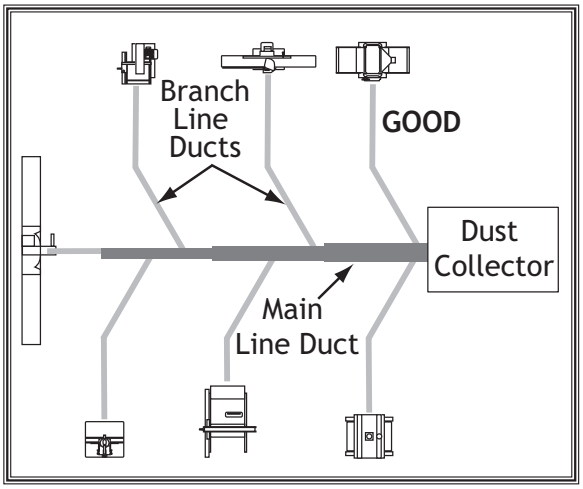


Figure 27. Efficient duct layout.

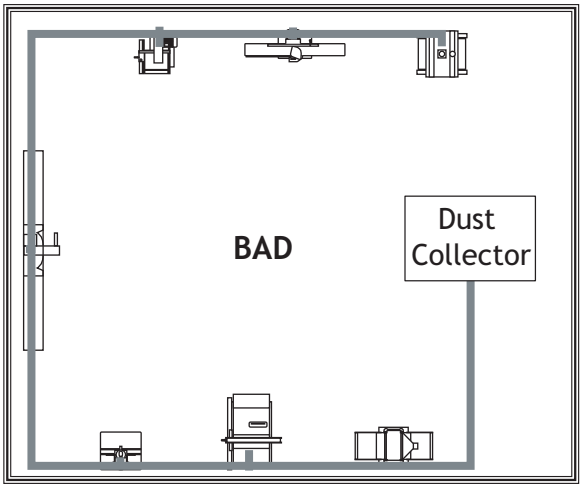


Figure 28. Inefficient duct layout.

Determine Required CFMs

Since each machine produces a different amount of sawdust, the requirements for the minimum amount of CFM to move that sawdust is unique to the machine (for example, a planer produces more sawdust than a table saw). Knowing this required CFM is important to gauging which size of duct to use.

Refer to the provided table for a close estimation of the airflow each machine requires. Keep in mind that machines that generate the most sawdust should be placed closest to the dust collector. If the machine has multiple dust ports, the total CFM required is the sum of all ports.

If the machine doesn't have a built in dust port, use the following table to determine which size of dust port to install on your machine.

Machine Dust Port Size	Approximate Required CFM
2"	98
2.5"	150
3"	220
4"	395
5"	614
6"	884

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

Machine	Average Dust Port Size
Table Saw	4"
Miter/Radial-Arm Saw	2"
Jointer (6" and smaller)	4"
Jointer (8"-12")	5"
Thickness Planer (13" and smaller)	4"
Thickness Planer (14"-20")	6"
Shaper	4"
Router (mounted to table)	2"
Bandsaw	4"
Lathe	4"
Disc Sander (12" and smaller)	2"
Disc Sander (13-18")	4"
Belt Sander (6" and smaller)	2"
Belt Sander (7"-9")	3"
Edge Sander (6" x 80" and smaller)	4"
Edge Sander (6" x 80" and larger)	5"
Drum Sander (24" and smaller)	2 x 4"
Drum Sander (24" and larger)	4 x 4"
Widebelt Sander (18" and smaller)	5"
Widebelt Sander (24"-37" 1 head)	2 x 6"
Widebelt Sander (24"-51" 2x head)	5 x 4"

Figure 30. Dust port size and quantity per average machine.

Write the required CFM for each machine on your sketch, as shown in the following figure.

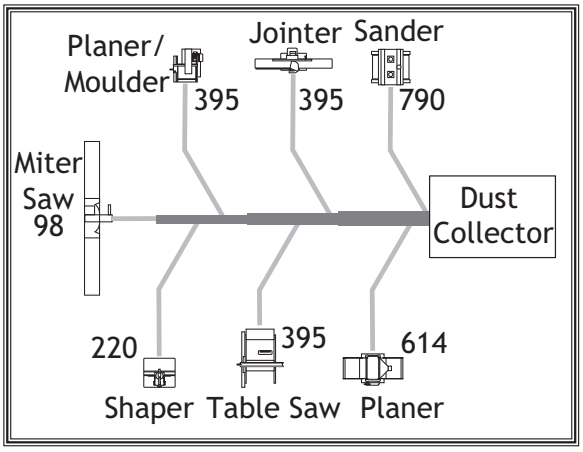


Figure 31. CFM requirements labeled.

Determining Main Line Duct Size

The general rule of thumb for a main line duct is that the velocity of the airflow must not fall below 3500 FPM.

For small/medium sized shops, using the inlet size of the dust collector as the main line duct size will usually keep the air velocity above 3500 FPM and, depending on your system, will allow you to keep multiple branches open at one time.

Mark your drawing, as shown in the following figure, but using the inlet size for your dust collector as the main line.

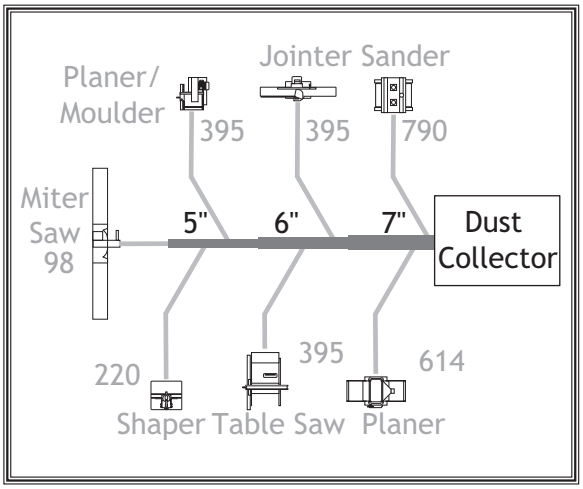


Figure 32. Main line size labeled on sketch.

Determining Branch Line Duct Size

The general rule of thumb for a branch line duct is that the velocity of the airflow must not fall below 4000 FPM.

For small/medium sized shops, using the dust port size from the machine as the branch line duct size will achieve the correct velocity in most applications. However, if the dust port on the machine is smaller than 4", make the branch line 4" and neck the line right before the dust port.

Note: *Systems with powerful dust collectors work better if multiple blast gates are left open. This also allows you to run two machines at once. Experiment with different combinations of blast gates open/closed to find the best results for your system.*

Write your determined branch line sizes on your drawing, as shown in the following figure.

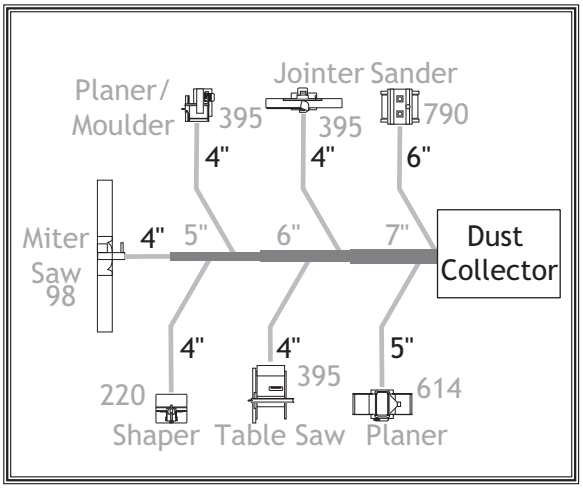


Figure 33. Branch line sizes labeled on sketch.

If two machines will connect to the same branch line and both will operate at the same time, then add the required CFM for each machine together and find the closest total CFM in the provided table to determine the correct branch size.

If both machines will never run at the same time, reference the machine with the biggest dust port in the provided table and add blast gates after the Y-branch to open/close the line to each machine.

Total CFM	Branch Line Size
600	5"
700	5"
800	6"
1000	6"
1200	7"
1400	8"
1600	8"

Figure 34. Sizing chart for multiple machines on the same branch line.

Planning Drop Downs

Plan the drop downs for each machine, using blast gates wherever possible to control airflow.

Calculating Duct Resistance

Adding duct work, elbows, branches and any other components to a duct line increases airflow resistance (static pressure loss). This resistance can be minimized by using rigid (smooth) pipe and gradual curves, as opposed to flexible pipe and 90° elbows.

To help you think about this resistance, imagine riding a bicycle in a tunnel that is an exact replica of your duct work. If the inside of the tunnel is very bumpy (flexible pipe) and has a lot of sharp turns (90° elbows), it will take a lot more effort to travel from one end to the other.

The purpose of calculating the resistance is to determine if it is low enough from the machine to the dust collector to meet the given CFM requirement for the machine. Use the provided tables to calculate the resistance of duct work.

In most small/medium shops it is only necessary to calculate the line with the longest duct length or the most fittings (operating under the assumption that if the line with the highest resistance works, the others will be fine).

To calculate the static pressure of any given line in the system, do these steps:

1. Make a list of each size duct in the line, including the length, and multiply those numbers by the static pressure value given in the upper chart.

2. List each type of elbow or branch and multiply the quantity (if more than one) by the static pressure loss given in the lower chart.

3. Add the additional factors from the table below to your list.

Additional Factors	Static Pressure
Seasoned Dust Collection Filter	5"
Entry Loss at Large Machine Hood	2"

Figure 35. Additional factors affecting static pressure.

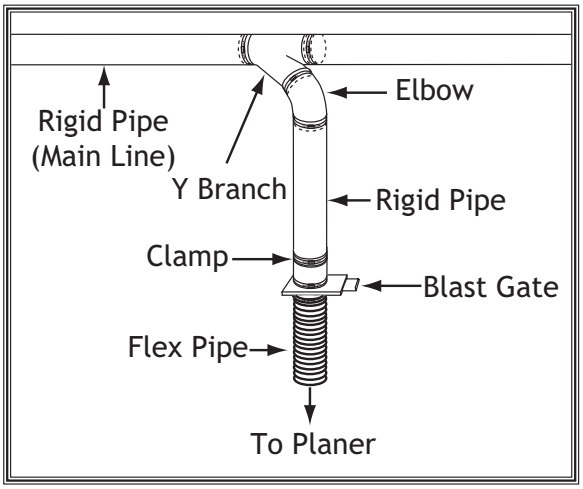


Figure 36. Drop down setup.

Duct Dia.	Approximate Static Pressure Loss Per Foot of Rigid Pipe		Approximate Static Pressure Loss Per Foot of Flex Pipe	
	Main Lines at 3500 FPM	Branch Lines at 4000 FPM	Main Lines at 3500 FPM	Branch Lines at 4000 FPM
2"	.091	.122	.35	.453
2.5"	.08	.107	.306	.397
3"	.071	.094	.271	.352
4"	.057	.075	.215	.28
5"	.046	.059	.172	.225
6"	.037	.047	.136	.18
7"	.029	.036	.106	.141
8"	.023	.027	.08	.108
9"	.017	.019	.057	.079

Figure 37. Upper static pressure loss chart.

Fitting Dia.	90° Elbow	45° Elbow	45° Wye(Y)	90° Wye(Y)
3"	.47	.235	.282	.188
4"	.45	.225	.375	.225
5"	.531	.266	.354	.236
6"	.564	.282	.329	.235
7"	.468	.234	.324	.216
8"	.405	.203	.297	.189

Figure 38. Lower static pressure loss chart.

4. Total your list, as shown in the following example to come up with your overall static pressure loss number for that line.

Note: *Always account for a seasoned filter, so you don't end up with a system that only works well when the filter is clean.*

Note: *When calculating static pressure loss to determine if multiple lines can be left open at the same time, only include the main line numbers once.*

5. Compare the total static pressure loss for that line to the maximum static pressure loss found on the data sheet for your machine (located toward the front of the manual).

— If the CFM for your static pressure loss is above the requirement of the machine, then the line will most likely be successful. Congratulations! You've just designed your own dust system. Compile a list of materials and refer to **Accessories** to start buying the components necessary to make your system a reality.

— If the CFM for your static pressure loss is below the requirement of the machine, then that line will not effectively collect the dust. You must then modify some of the factors in that line to reduce the static pressure loss. Some of the ways to do this include: 1) Installing larger duct, 2) reducing amount of flexible duct used, 3) increasing machine dust port size, 4) moving machine closer to dust collector to eliminate duct length, and 5) reducing 90° elbows or replacing them with 45° elbows.

Main Line	
6" Rigid Pipe (.037) at 20'	0.740
Branch Line	
4" Rigid Pipe (.075) at 10'	0.750
4" Flex Pipe (.28) at 5'	1.400
Elbows/Branches	
6" 45° Y-Branch	0.329
4" 45° Elbow	0.225
Additional Factors	
Seasoned Filter	1.000
Total Static Pressure Loss	**4.444**

Figure 39. Totaling static pressure numbers.

Example Materials List

After the system is designed, create a materials list of all the items you will need to build your dust collection sytem. This will make it easy when it comes time to purchase the materials.

The following is an example of some items that might be needed. Refer to **Accessories** for dust collection components available through your Shop Fox dealer.

Description	Quantity
6" Rigid Pipe at 20'	4
4" Rigid Pipe at 10'	2
4" Flex Hose at 5'	6
6" 45° Y-Branch	6
4" 45° Elbow	6

System Grounding

Since plastic hose is abundant, relatively inexpensive, easily assembled and air tight, it is a very popular material for conveying dust from woodworking machines to the dust collector. We recommend using flexible hose (flex-hose) to connect the woodworking machine to the dust collector. However, plastic flex-hose and plastic duct are an insulator, and dust particles moving against the walls of the plastic duct create a static electrical build up. This charge will build until it discharges to a ground. If a grounding medium is not available to prevent static electrical build up, the electrical charge will arc to the nearest grounded source. This electrical discharge may cause an explosion and subsequent fire inside the system.

To protect against static electrical build up inside a non-conducting duct, a bare copper wire should be placed inside the duct along its length and grounded to the dust collector. You must also confirm that the dust collector is continuously grounded through the electrical circuit to the electric service panel.

If you connect the dust collector to more than one machine by way of a non-conducting branching duct system and blast gates, the system must still be grounded as mentioned above. We recommend inserting a continuous bare copper ground wire (see **Figure 40**) inside the entire duct system and attaching the wire to each grounded woodworking machine and dust collector.

Be sure that you extend the bare copper wire down all branches of the system. Do not forget to connect the wires to each other with wire nuts when two branches meet at a "Y" or "T" connection.

Ensure that the entire system is grounded. If using plastic blast gates to direct air flow, the grounding wire must be jumped (see **Figure 41**) around the blast gate without interruption to the grounding system.

We also recommend wrapping the outside of all plastic ducts with bare copper wire to ground the outside of the system against static electrical build up. Wire connections at Y's and T's should be made with wire nuts.

Attach the bare ground wire to each stationary woodworking machine and attach to the dust collector frame with a ground screw, as shown in **Figure 40.** Ensure that each machine is continuously grounded to the grounding terminal in your electric service panel.

⚠CAUTION



Always guard against static electrical build up by grounding all dust collection lines.

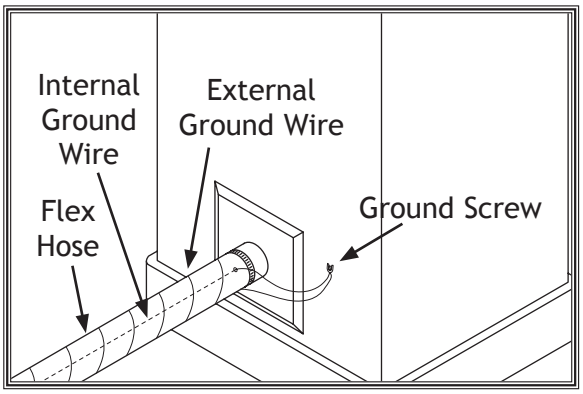


Figure 40. Flex-hose grounded to machine.

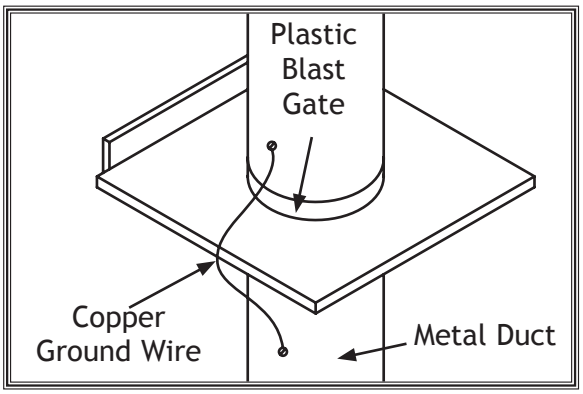
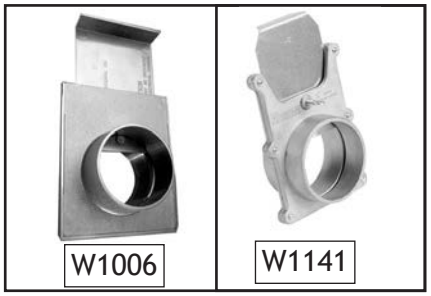


Figure 41. Ground jumper wire when using plastic blast gates and metal duct.

Dust Collector Accessories

The following dust collector accessories may be available through your local Woodstock International Inc. Dealer. If you do not have a dealer in your area, these products are also available through online dealers. Please call or e-mail Woodstock International Inc. Customer Service to get a current listing of dealers at: 1-800-840-8420 or at sales@woodstockint.com.

Blast Gates are available in both black ABS plastic and aluminum. Plastic blast gates are economically priced, have a textured surface and an easy sliding gate action. For those customers who prefer metal, our top quality aluminum blast gates feature a cast aluminum body with steel gate and locking knob. The following types and models are available:



Black ABS Plastic Blast Gates
W1006 3" Outer Diameter
W1007 4" Outer Diameter
W1008 5" Outer Diameter
W1009 6" Outer Diameter

Aluminum Blast Gates
W1141 3" Outer Diameter
W1142 4" Outer Diameter

The **Model W1053 Grounding Kit** provides everything you need to ground a dust collection system, including directions for installation. A large system may need more than one kit, so keep plenty of these on hand. This safety accessory is essential to any complete dust collection assortment.



The **Model W1055 Dust Collection Accessories Kit #2** provides the necessary hoses, clamps, hoods and fittings to connect two woodworking machines to a dust collector. Air flow to each machine is controlled by a blast gate. Kit comes complete with comprehensive instructions and can be expanded even further using our other dust collection accessories (list enclosed in each box).



Kit includes:
- (2) 4" Blast gates (W1007)
- (2) 4" x 10' Hose (W1031)
- (1) Table saw dust hood (W1004)
- (1) Universal dust hood (W1010)
- (1) 4" Y-fitting (W1015)
- (10) 4" Wire hose clamps (W1317)
- Shipping weight: 15 lbs. 14 oz.
- Package size: 24" x 24" x 12"



Y-Fittings are used to attach branch lines to service more than one machine. This design provides increased lateral air flow and efficiency over other types of fittings.
W1014: 3" Outer Diameter
W1015: 4" Outer Diameter

The **Model W1039 Universal Adapter** provides a multitude of dust collection reducing options. Simply cut away unneeded steps with a hacksaw. Outside diameter step sizes include 1", 2", 2½", 3", 4", 5" and 6".



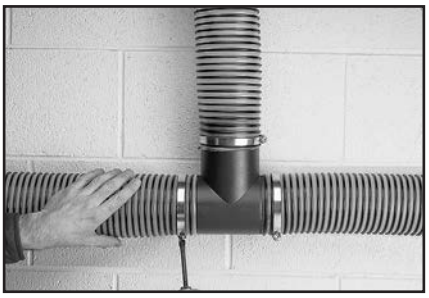
Splices are used to connect full sections of hose for longer runs or to utilize short sections.
W1018: 3" Outer Diameter
W1019: 4" Outer Diameter



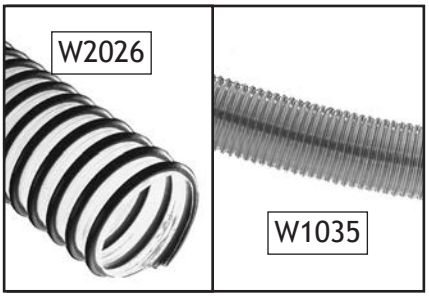
Reducers provide a step down from a larger main line to smaller branch lines. This step-down increases air velocity near the machine where it's needed most. These three size reductions will handle most system needs.
W1020: 3" x 2" Outer Diameter
W1011: 4" x 3" Outer Diameter
W1037: 5" x 4" Outer Diameter



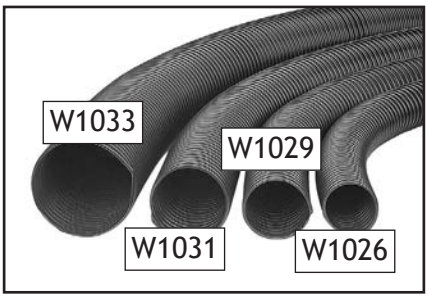
T-fittings provide the option of adding branches to a system to service each machine in a shop. T's are very helpful when space or design constraints prohibit the use of Y's.
W1012: 3" Outer Diameter
W1013: 4" Outer Diameter.



Woodstock International hoses are ideally suited for dust removal because of their strength, durability and flexibility. Available in the most requested sizes and priced to move! The following types and models are available:



Wire-Reinforced Clear Hose	Clear Dust Collection Hose	Black Dust Collection Hose
W1034 4" x 10'	W2026 2" x 10'	W1026 2" x 10'
W1035 5" x 10'	W2027 2½" x 10'	W1027 2½" x 10'
W1036 6" x 10'	W2028 3" x 10'	W1028 3" x 10'
D3887 7" x 3'	W2029 3" x 20'	W1029 3" x 20'
D3888 7" x 10'	W2031 4" x 10'	W1030 3" x 50'
D3889 8" x 3'	W2032 4" x 20'	W1031 4" x 10'
D3890 8" x 10'	W2033 5" x 10'	W1032 4" x 20'
D3891 9" x 2'		W1033 5" x 10'
D3892 9" x 10'		



The **Model W1690 Deluxe Ceiling Mounted 3-Speed Air Cleaner** has a convenient remote control and features a three-speed motor, automatic shutuoff timer, and hangs easily from the workshiop ceiling.



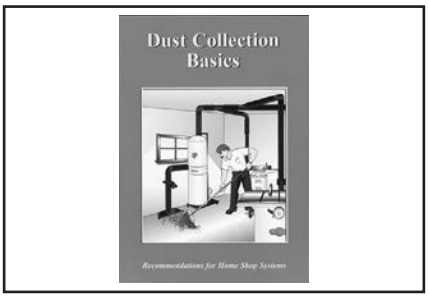
Model W1746 Fine Air Filter features a three-speed fan, automatic shut-off and 0.3 micron filter. This Fine Air Filter circulates shop air and captures the finest dust that otherwise stays suspended. Even with an efficient dust collector, if other machines are making dust, you need the Fine Air Filter. Some of the typical particles that the filter will remove are smoke, dust mites, pollen, mold spores, and general airborne debris.



Model W1049 Large Dust Collection Separator is designed to fit securely on top of a standard 30-gallon metal trash can. This molded ABS fitting is engineered to use cyclonic action to drop out larger particles from the dust flow. The fitting features molded inlets and outlets which can be easily connected to standard systems using 4" flexible hose. You'll be amazed at how well it works! Metal trash can must be used for grounding purposes. Fits cans with 20" - 21" diameter opening.



Model W1050 Dust Collection Basics Handbook carefully guides you through setting up a quality dust collection system in your shop. Includes an easy-to-follow walk-through on designing the optimum dust collection system, and practical tips for minimizing cost and maximizing performance. A must have for beginners! 64-pages.



OPERATIONS

MAINTENANCE

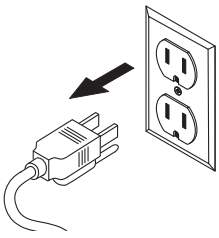
General

Regular periodic maintenance on your machine will ensure its optimum performance. Make a habit of inspecting your machine each time you use it.

Check for the following conditions and repair or replace when necessary:

- Loose mounting bolts.
- Worn switch.
- Worn or damaged cords and plugs.
- Almost full collection bag.
- Any other unsafe condition.

⚠WARNING



MAKE SURE that your machine is unplugged during all maintenance procedures! If this warning is ignored, serious personal injury may occur.

Lubrication

Since all bearings are shielded and permanently lubricated, simply leave them alone until they need to be replaced. Do not lubricate them.

Cleaning Bags

Always empty the collection bags on a regular basis. Emptying the collection bags allows the machine to operate at a much higher level of efficiency.

Always wear the appropriate respirator or dust mask and safety glasses when emptying the collection bags. Small dust particles can escape the bags during emptying, causing them to become airborne and easily inhaled. This microscopic airborne dust is extremely unhealthy to breathe and can cause serious health problems.

While the Model W1687 excels at collecting the majority of wood dust produced by your machines, it is not an air filter; therefore, we strongly recommend the supplemental aid of a shop air filter such as the Model W1746 or W1690 (see **Accessories** on **Page 28**). Air filters are designed to collect the smaller dust particles in the air that escape from the dust collector bags.

⚠WARNING

Always wear a respirator and safety glasses when emptying dust collection bags on the dust collector. Sawdust may cause allergic reactions or respiratory problems.





Replacing Bags

The lower bags should be emptied when they become 2/3 to 3/4 full.

To empty the dust collection bags, do these steps:

1. DISCONNECT MACHINE FROM POWER!
2. Make sure you are wearing safety glasses and a respirator.
3. Release the quick release clamp securing each collection bag, then remove the bags from the collector, as shown in **Figure 42**.
4. Place a garbage bag over each bag, invert the bag, and shake the dust out.
5. Dispose of the dust and re-install the bags with the clamps.



Figure 42. Replacing lower bag.

SERVICE

General

This section covers the most common service adjustments or procedures that may need to be made during the life of your machine.

If you require additional machine service not included in this section, please contact Woodstock International Technical Support at (360) 734-3482 or send e-mail to: **tech-support@shopfox.biz**.

Electrical Safety Instructions

These pages are current at the time of printing. However, in the spirit of improvement, we may make changes to future machines. Study this diagram carefully. If you notice differences between your machine and the wiring diagrams that follow, call our Technical Support at (360) 734-3482.

⚠WARNING

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!

QUALIFIED ELECTRICIAN. Due to the inherent hazards of electricity, only a qualified electrician should perform wiring tasks on this machine. If you are not a qualified electrician, get help from one before attempting any kind of wiring job.

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.

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 before completing the task.

MOTOR WIRING. The motor wiring shown in these diagrams is current at the time of printing, but it may not match your machine. Always use the wiring diagram inside the motor junction box.

MODIFICATIONS. Using aftermarket parts or modifying the wiring beyond what is shown in the diagram may lead to unpredictable results, including serious injury or fire.

CAPACITORS/INVERTERS. Some capacitors and power inverters store an electrical charge for up to five minutes after being disconnected from the power source. To avoid being shocked, wait at least this long before working on these components.

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

EXPERIENCING DIFFICULTIES. If you are experiencing difficulties understanding the information included in this section, contact our Technical Support at (360) 734-3482.

Wiring Diagram

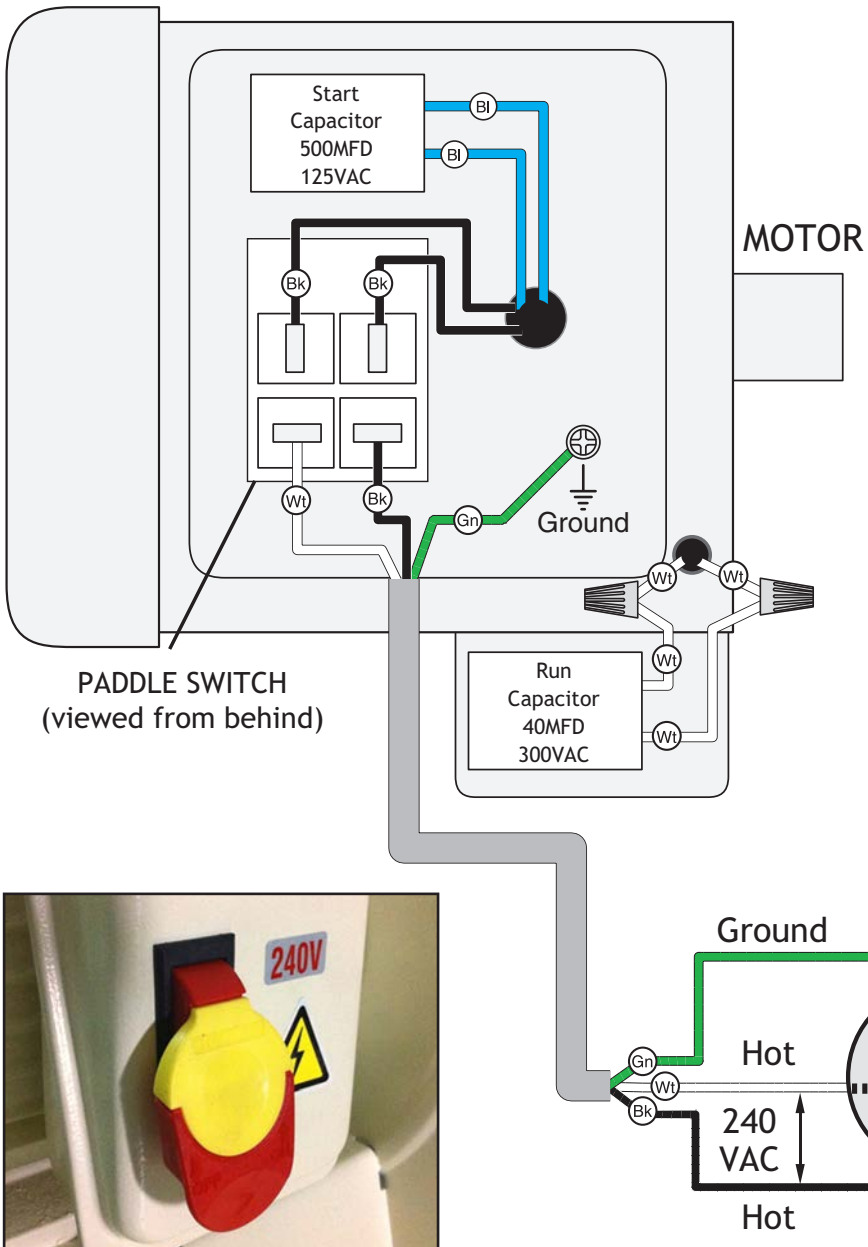




Figure 44. Junction box and start capacitor.

Figure 43. Switch.

NOTICE

The photos and diagrams included in this section are best viewed in color. You can view these pages in color at www.shopfox.biz.

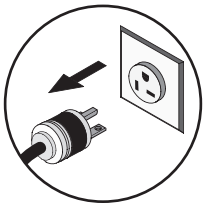
WIRING DIAGRAM COLOR KEY

BLACK	Bk	BLUE	Bl	YELLOW	Yl	LIGHT BLUE	Lb
WHITE	Wt	BROWN	Br	YELLOW GREEN	Yg	BLUE WHITE	Bw
GREEN	Gn	GRAY	Gy	PURPLE	Pu	TUR-QUOISE	Tu
RED	Rd	ORANGE	Or	PINK	Pk		

Read Page 33 STOP Before Wiring

SERVICE

Troubleshooting

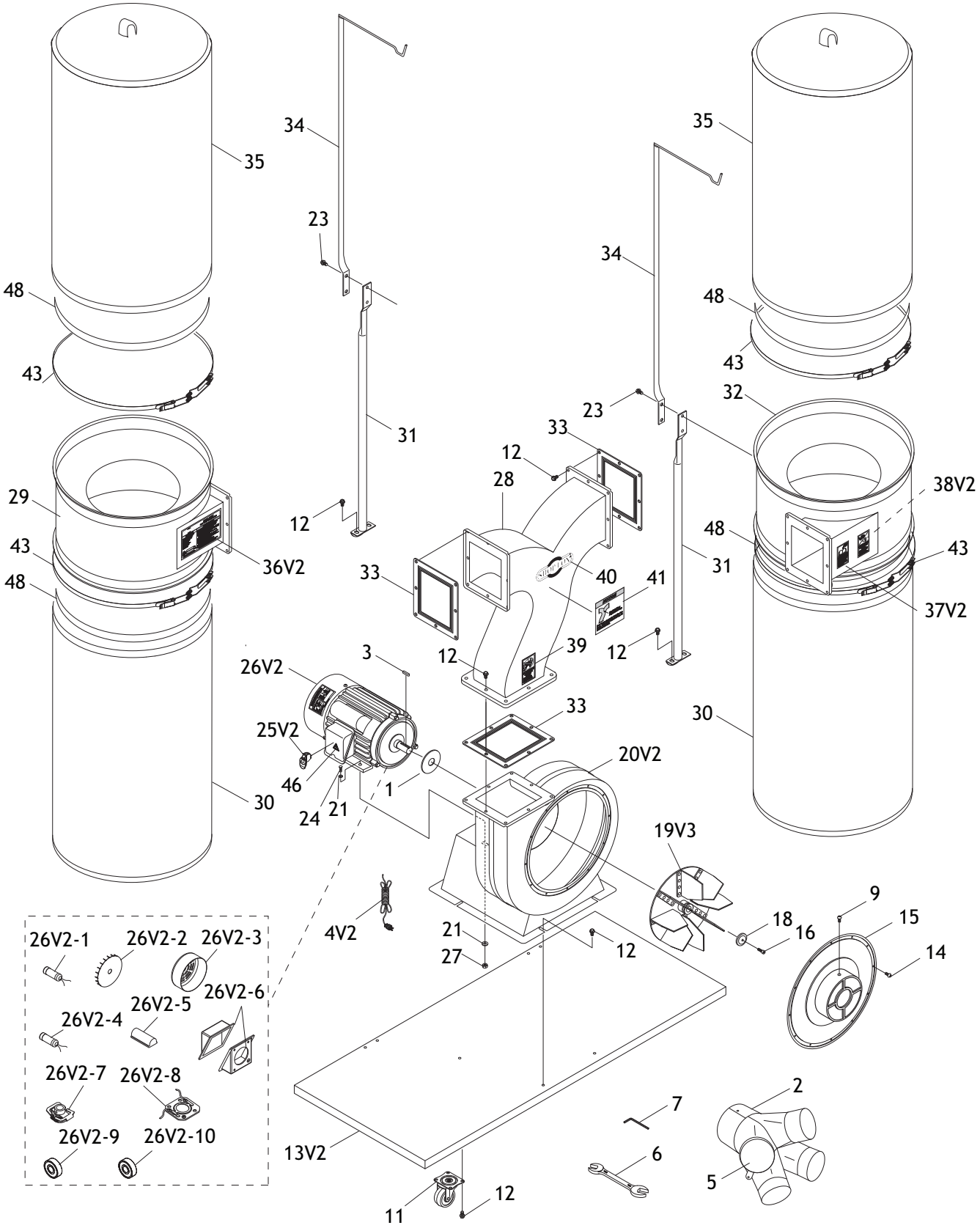


This section covers the most common problems and corrections with this type of machine. **WARNING! DO NOT make any adjustments until power is disconnected and moving parts have come to a complete stop!**

PROBLEM	POSSIBLE CAUSE	CORRECTIVE ACTION
Machine does not start or a breaker trips.	1. Switch disabling key removed. 2. Power supply switched OFF or is at fault. 3. Wall fuse/circuit breaker is blown/tripped. 4. Wiring is open/has high resistance. 5. Motor ON button or ON/OFF switch is at fault. 6. Motor is at fault.	1. Install switch disabling key. 2. Ensure power supply is switched on; ensure power supply has the correct voltage. 3. Ensure circuit size is suitable for this machine; replace weak breaker. 4. Check for broken wires or disconnected/corroded connections, and repair/replace as necessary. 5. Replace faulty ON button or ON/OFF switch. 6. Test/repair/replace.
Machine has vibration or noisy operation.	1. Motor, motor mount, or other mounting component is loose or broken. 2. Motor fan is rubbing on fan cover. 3. Impeller is loose or damaged and unbalanced. 4. Motor bearings are at fault.	1. Retighten. Use thread locking fluid if necessary. Replace stripped fasteners or damaged components if necessary. 2. Replace dented fan cover; replace loose/damaged fan. 3. Disconnect dust collector from power, and inspect the impeller for dents, bends, loose fins. Replace the motor and impeller as a set if the motor shaft and the impeller hub are damaged. 4. Test by rotating shaft; rotational grinding/loose shaft requires bearing replacement.
Dust collector does not adequately collect dust or chips; poor performance.	1. Dust collection bags are full. 2. Filter is dirty. 3. Restriction in duct line. 4. Dust collector is too far away, or there are too many sharp bends in the ducting. 5. Lumber is wet and dust not flowing through ducting smoothly. 6. Leaks in ducting or too many open ports. 7. Not enough open branch lines, causing a velocity drop in the main line. 8. Ducting or machine dust ports are incorrectly sized. 9. The machine dust collection design is inadequate. 10. The dust collector is too small for the dust collection system, or ducting layout design inadequate.	1. Empty collection bags. 2. Clean filter. 3. Remove restriction in the duct line. A plumbing snake may be necessary. 4. Relocate the dust collector closer to the point of suction, and rework ducting without sharp bends. Refer to System Design, beginning on **Page 22**. 5. Process lumber with less than 20% moisture content. 6. Rework the ducting to eliminate all leaks. Close dust ports for lines not being used. 7. Open 1 or 2 more blast gates to different branch lines to allow the velocity in the main line to increase. 8. Re-install correctly sized ducts and fittings. Refer to System Design beginning on **Page 22** for more solutions. 9. Use a dust collection nozzle on a stand. 10. Install a larger dust collector to power your dust collection system.
Sawdust being blown into the air from the dust collector.	1. Duct clamps or dust collection bags are not properly clamped and secured. 2. Bag clamps are loose or damaged.	1. Re-secure ducts and dust collection bag, making sure duct and bag clamps are tight and completely over the ducts and bags. 2. Retighten bag clamps.

PARTS

Main Breakdown

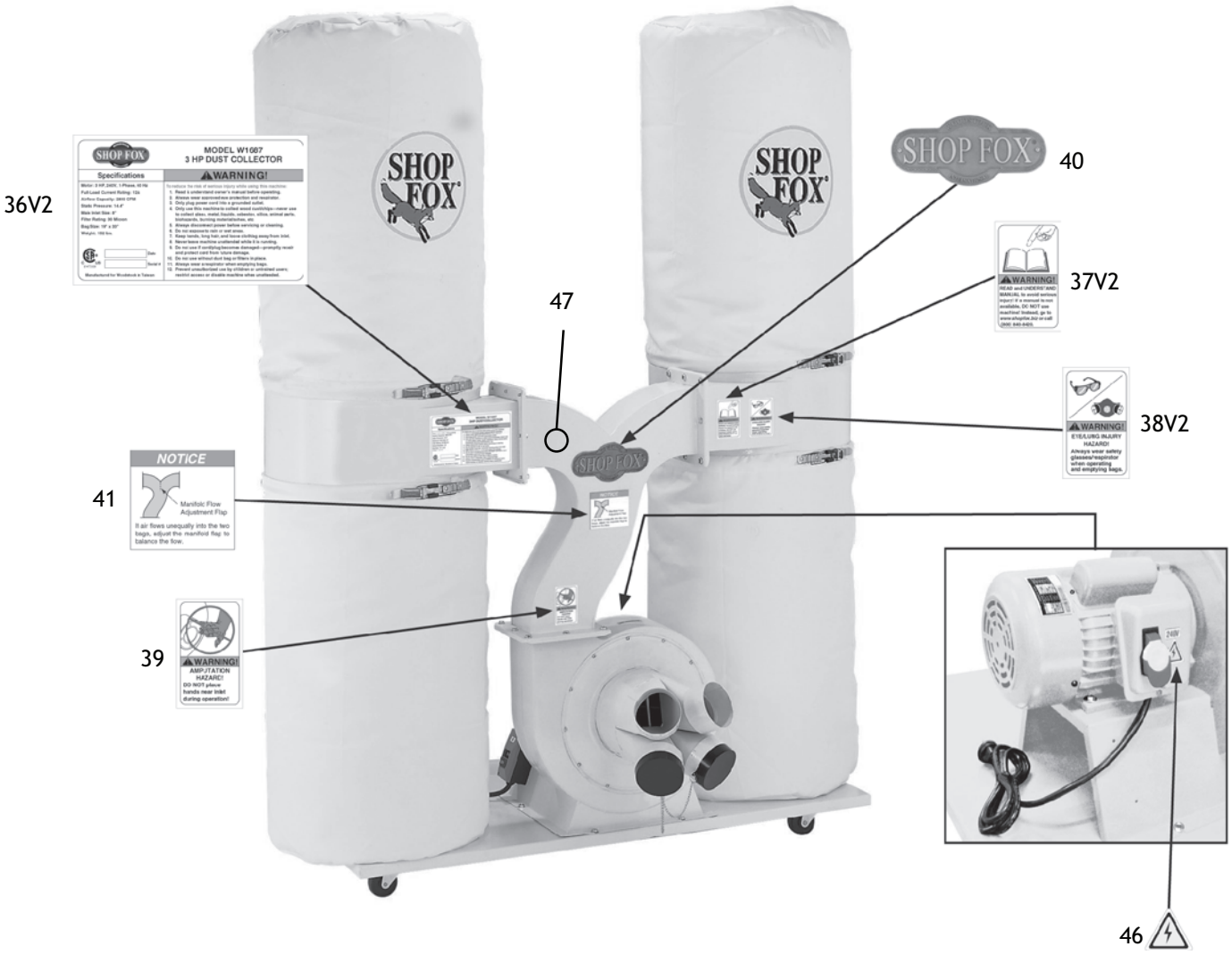


Main Parts List

REF	PART #	DESCRIPTION
1	X1687001	RING GASKET
2	X1687002	4-WAY INLET
3	XPK28M	KEY 7 X 7 X 29
4V2	X1687004V2	POWER CORD 14G X 3W 6' 6-20 V2.09.11
5	X1687005	INLET CAP
6	XPWR1012	WRENCH 10 X 12MM OPEN-END
7	XPAW05M	WRENCH HEX 5MM
9	XPS06	PHLP HD SCR 10-24 X 3/8
11	X1687011	CASTER
12	XPFB01	FLANGE BOLT 5/16-18 X 1/2
13V2	X1687013V2	BASE PLATE RECTANGLE V2.11.09
14	XPS06	PHLP HD SCR 10-24 X 3/8
15	X1687015	INLET COVER
16	X1687016	CAP SCREW M6-1 X 19 LH
18	X1687018	IMPELLER WASHER
19V3	X1687019V3	IMPELLER 12-3/4" ALUM V3.09.11
20V2	X1687020V2	COLLECTOR BODY RECTANGLE V2.11.09
21	XPW07	FLAT WASHER 5/16
23	XPFB01	FLANGE BOLT 5/16-18 X 1/2
24	XPB03	HEX BOLT 5/16-18 X 1
25V2	D2751	PADDLE SWITCH V2.04.12
26V2	X1687026V2	MOTOR 3HP 240V 1-PH V2.09.11
26V2-1	X1687026V2-1	S CAPACITOR 500M 125V V2.09.11
26V2-2	X1687026V2-2	MOTOR FAN V2.09.11
26V2-3	X1687026V2-3	MOTOR FAN COVER V2.09.11

REF	PART #	DESCRIPTION
26V2-4	X1687026V2-4	R CAPACITOR 40M 300V V2.09.11
26V2-5	X1687026V2-5	CAPACITOR COVER V2.09.11
26V2-6	X1687026V2-6	JUNCTION BOX V2.09.11
26V2-7	X1687026V2-7	CENTRIFUGAL SWITCH 3450 V2.09.11
26V2-8	X1687026V2-8	CONTACT PLATE V2.09.11
26V2-9	X1687026V2-9	FRONT MOTOR BEARING
26V2-10	X1687026V2-10	REAR MOTOR BEARING
27	XPN02	HEX NUT 5/16-18
28	X1687028	METAL Y OUTLET
29	X1687029	LEFT COLLECTOR
30	D1796	LOWER BAG
31	X1687031	COLLECTOR SUPPORT
32	X1687032	RIGHT COLLECTOR
33	X1687033	SQUARE GASKET
34	X1687034	UPPER BAG SUPPORT
35	D1795	UPPER BAG
36V2	X1687036V2	MACHINE ID LABEL CSA V2.09.11
37V2	XLABEL-08	READ MANUAL LABEL V2.09.11
38V2	XLABEL-06	GLASSES-RESPIRATOR LABEL V2.09.11
39	X1687039	AMPUTATION HAZARD LABEL
40	XPLOGO2	SHOP FOX NAMEPLATE-MEDIUM
41	X1687041	MANIFOLD NOTICE LABEL
43	X1687043	QUICK RELEASE CLAMP STEEL
46	X-LABEL04	ELECTRICITY LABEL
48	X1687048	FOAM STRIP 4 X 20MM

Label Placement



REF	PART #	DESCRIPTION
36V2	X1687036V2	MACHINE ID LABEL CSA V2.09.11
37V2	XLABEL-98	READ MANUAL LABEL V2.09.11
38V2	XLABEL-06	GLASSES-RESPIRATOR LABEL V2.09.11
39	X1687039	AMPUTATION HAZARD LABEL

REF	PART #	DESCRIPTION
40	XPLOGO2	SHOP FOX NAMEPLATE-MEDIUM
41	X1687041	MANIFOLD NOTICE LABEL
46	X-LABEL04	ELECTRICITY LABEL
47	XPPAINT-1	SHOP FOX WHITE TOUCH-UP PAINT

⚠WARNING

Safety labels warn about machine hazards and how to prevent serious personal injury. The owner of this machine MUST maintain the original location and readability of all labels on this machine. If any label is removed or becomes unreadable, REPLACE that label before allowing machine to be operated again. Contact us at (360) 734-3482 or www.shopfoxtools.com to order new labels.

Warranty Registration

Name_____

Street _____

City _____ State_____ Zip_____

Phone #_____ Email_____ Invoice #_____

Model #_____ Serial #_____ Dealer Name_____ Purchase Date_____

The following information is given on a voluntary basis. It will be used for marketing purposes to help us develop better products and services. ***Of course, all information is strictly confidential.***

1. How did you learn about us?
   _____ Advertisement _____ Friend ____ Local Store
   _____ Mail Order Catalog _____ Website ____ Other:

2. How long have you been a woodworker/metalworker?
   _____ 0-2 Years _____ 2-8 Years ____ 8-20 Years _____ 20+ Years

3. How many of your machines or tools are Shop Fox?
   _____ 0-2 _____ 3-5 ____ 6-9 _____ 10+

4. Do you think your machine represents a good value? _____ Yes ____ No

5. Would you recommend Shop Fox products to a friend? _____ Yes ____ No

6. What is your age group?
   _____ 20-29 _____ 30-39 ____ 40-49
   _____ 50-59 _____ 60-69 ____ 70+

7. What is your annual household income?
   _____ $20,000-$29,000 _____ $30,000-$39,000 ____ $40,000-$49,000
   _____ $50,000-$59,000 _____ $60,000-$69,000 ____ $70,000+

8. Which of the following magazines do you subscribe to?

____ Cabinet Maker	____ Popular Mechanics	____ Today's Homeowner
____ Family Handyman	____ Popular Science	____ Wood
____ Hand Loader	____ Popular Woodworking	____ Wooden Boat
____ Handy	____ Practical Homeowner	____ Woodshop News
____ Home Shop Machinist	____ Precision Shooter	____ Woodsmith
____ Journal of Light Cont.	____ Projects in Metal	____ Woodwork
____ Live Steam	____ RC Modeler	____ Woodworker West
____ Model Airplane News	____ Rifle	____ Woodworker's Journal
____ Modeltec	____ Shop Notes	____ Other:
____ Old House Journal	____ Shotgun News	

9. Comments:_____

_____

_____

_____

_____

CUT ALONG DOTTED LINE

FOLD ALONG DOTTED LINE

Place Stamp Here

WOODSTOCK INTERNATIONAL INC.
P.O. BOX 2309
BELLINGHAM, WA 98227-2309

FOLD ALONG DOTTED LINE

TAPE ALONG EDGES--PLEASE DO NOT STAPLE

WARRANTY

Woodstock International, Inc. warrants all Shop Fox machinery to be free of defects from workmanship and materials for a period of two years from the date of original purchase by the original owner. This warranty does not apply to defects due directly or indirectly to misuse, abuse, negligence or accidents, lack of maintenance, or reimbursement of third party expenses incurred.

Woodstock International, Inc. will repair, replace, or arrange for a dealer refund at its expense and at its option, the Shop Fox machine or machine part, which in proper and intended use has proven to be defective, provided that the original owner returns the product prepaid to an authorized warranty or repair facility as designated by our Bellingham, Washington office with proof of their purchase of the product within two years, and provides Woodstock International, Inc. reasonable opportunity to verify the alleged defect through inspection. If it is determined there is no defect, or that the defect resulted from causes not within the scope of Woodstock International Inc.'s warranty, then the original owner must bear the cost of storing and returning the product.

This is Woodstock International, Inc.’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 that Shop Fox machinery complies with the provisions of any law, acts or electrical codes. We do not reimburse for third party repairs. In no event shall Woodstock International, Inc.’s liability under this limited warranty exceed the purchase price paid for the product, and any legal actions brought against Woodstock International, Inc. 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.

Every effort has been made to ensure that all Shop Fox machinery meets high quality and durability standards. We reserve the right to change specifications at any time because of our commitment to continuously improve the quality of our products.



High Quality Machines and Tools

Woodstock International, Inc. carries thousands of products designed to meet the needs of today's woodworkers and metalworkers. Ask your dealer about these fine products:

BROSEM® PRECISION STOP BLOCK

THE REBEL®

BOARD BUDDIES®

PLANER PAL®

SLICKPLANE®

ACCU-SHARP®

ROMAN CARBIDE®

JOINTER PAL®

DURASTICK®

SOUTH BEND™

STEELEX® FINE TOOLS

STEELEX® PLUS

Rotacator®

Gutmann®

Junglee®

PARROT VISE®

PRO-STIK® ABRASIVE BELT & DISC CLEANER

Aluma-Classic®

WOODSTOCK SHOP FOX® INTERNATIONAL

WHOLESALE ONLY

WOODSTOCK INTERNATIONAL, INC.

Phone: (360) 734-3482 · Fax: (360) 671-3053 · Toll Free Fax: (800) 647-8801

P.O.Box 2309 · Bellingham, WA 98227

SHOPFOX.BIZ