

MODEL W1816
3 HP LOW-PROFILE CYCLONE
DUST COLLECTOR



OWNER'S MANUAL
(FOR MODELS MANUFACTURED SINCE 10/09)

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

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WARNING: NO PORTION OF THIS MANUAL MAY BE REPRODUCED IN ANY SHAPE OR FORM WITHOUT

THE WRITTEN APPROVAL OF WOODSTOCK INTERNATIONAL, INC.



WARNING!

This manual provides critical safety instructions on the proper setup, operation, maintenance and service of this machine/equipment.

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

The owner of this machine/equipment 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, blade/cutter 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.

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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:

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MACHINE SPECIFICATIONS



Phone #: (360) 734-3482 • Online Tech Support: tech-support@shopfox.biz • Web: www.shopfox.biz

MODEL W1816 3HP LOW-PROFILE CYCLONE DUST COLLECTOR

Motor

Type	TEFC Capacitor Start Induction
Class	Class "F"
Horsepower	3 HP
Voltage	220V
Phase.....	Single
Amps	22A
Speed	3450 RPM
Cycle.....	60 Hz
Number Of Speeds.....	1
Power Transfer	Direct Drive
Bearings	Sealed and Lubricated

Main Specifications

Operation

Maximum Air Flow.....	1489 CFM
Maximum Static Pressure (Inches of Water)	10.2
Intake Hole Size	8"
Collection Drum Capacity.....	55 Gallons
Canister Filter Capacity.....	0.2-2.0 Microns

Lower Bag

Number	2
Capacity	4.3 cu. ft. each
Diameter x Length	20"D x 23 ⁵ / ₈ "L

Canister Filter

Number	2
Filter Surface Area	90.42 sq. ft. each
Diameter x Length	19 ³ / ₄ "D x 15 ³ / ₄ "L

Impeller Information

Type	Radial Fin
Diameter.....	14 ¹ / ₂ "
Blade Thickness.....	1 ¹ / ₈ "

Overall Dimensions

Weight	375 lbs.
Length x Width x Height.....	67"L x 44"W x 80"H
Foot Print (Length x Width).....	67"L x 44"W

Construction Materials

Lower Bag.....	Clear Plastic
Canister Filter	Spun Bond Polyester
Frame.....	Steel
Impeller	Riveted Steel
Impeller Housing.....	Steel
Cyclone	Steel
Collection Drum.....	Steel

Shipping Dimensions

Weight 403 lbs.
 Length x Width x Height.....67"L x 30"W x 43"H

Electrical

Switch Magnetic Switch w/Thermal Overload Protection & Remote Control
 Switch Voltage 220V
 Phase.....Single-Phase
 Cord Length.....10½ ft.
 Cord Gauge 12 gauge
 Recommended Breaker Size..... 30 amp
 Plug Included No
 Recommended Plug..... NEMA L6-30

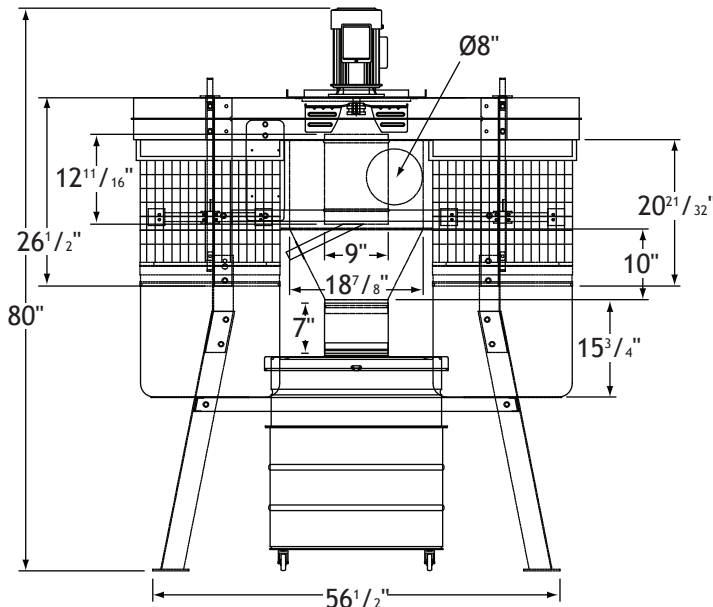
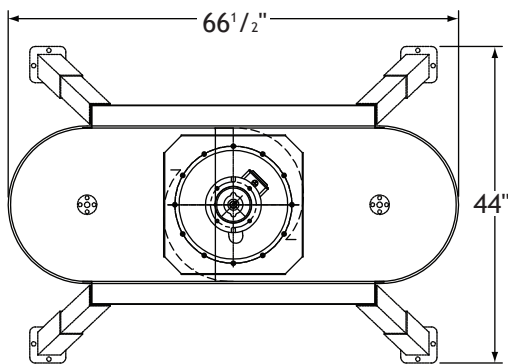
Other

Number of Inlet Ports 1
 Inlet Port Size 8"
 Customer Assembly Time Approximately 1 Hour
 Warranty 2 Year
 Country of Origin Taiwan

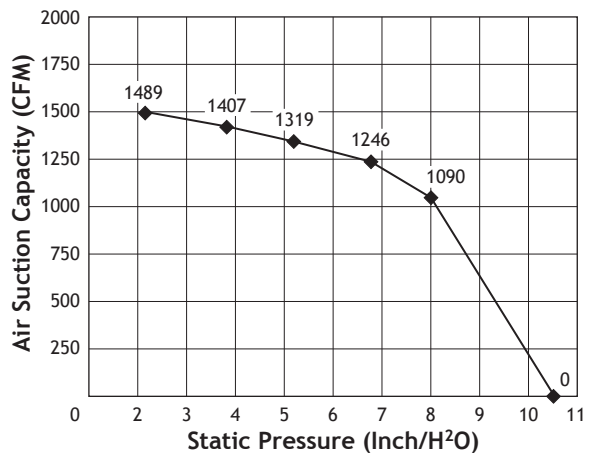
Features

- Steel collection drum with casters for easy dust disposal
- Class "F" motor
- Dual pleated filter with cleaning flaps to maximize air flow
- Remote control switch

Machine Dimensions



Performance Curve

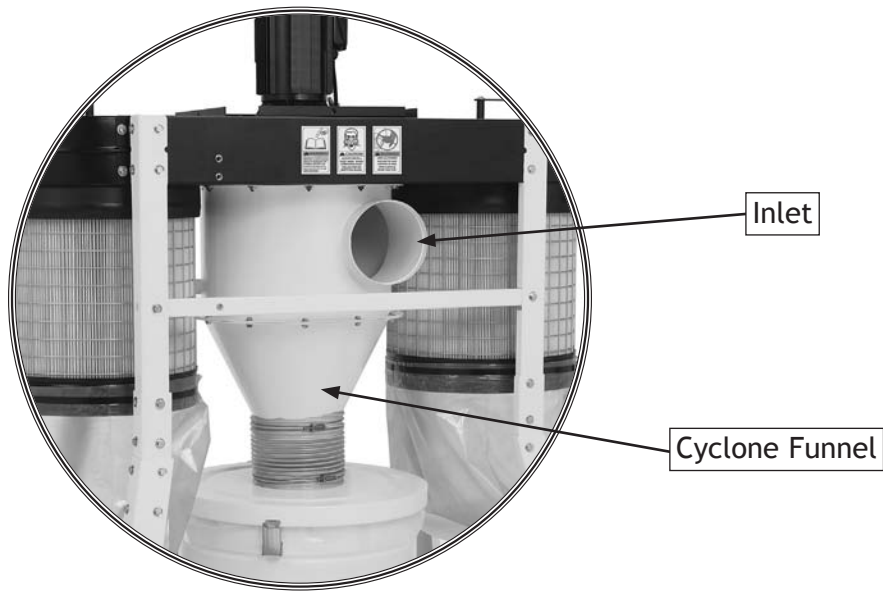
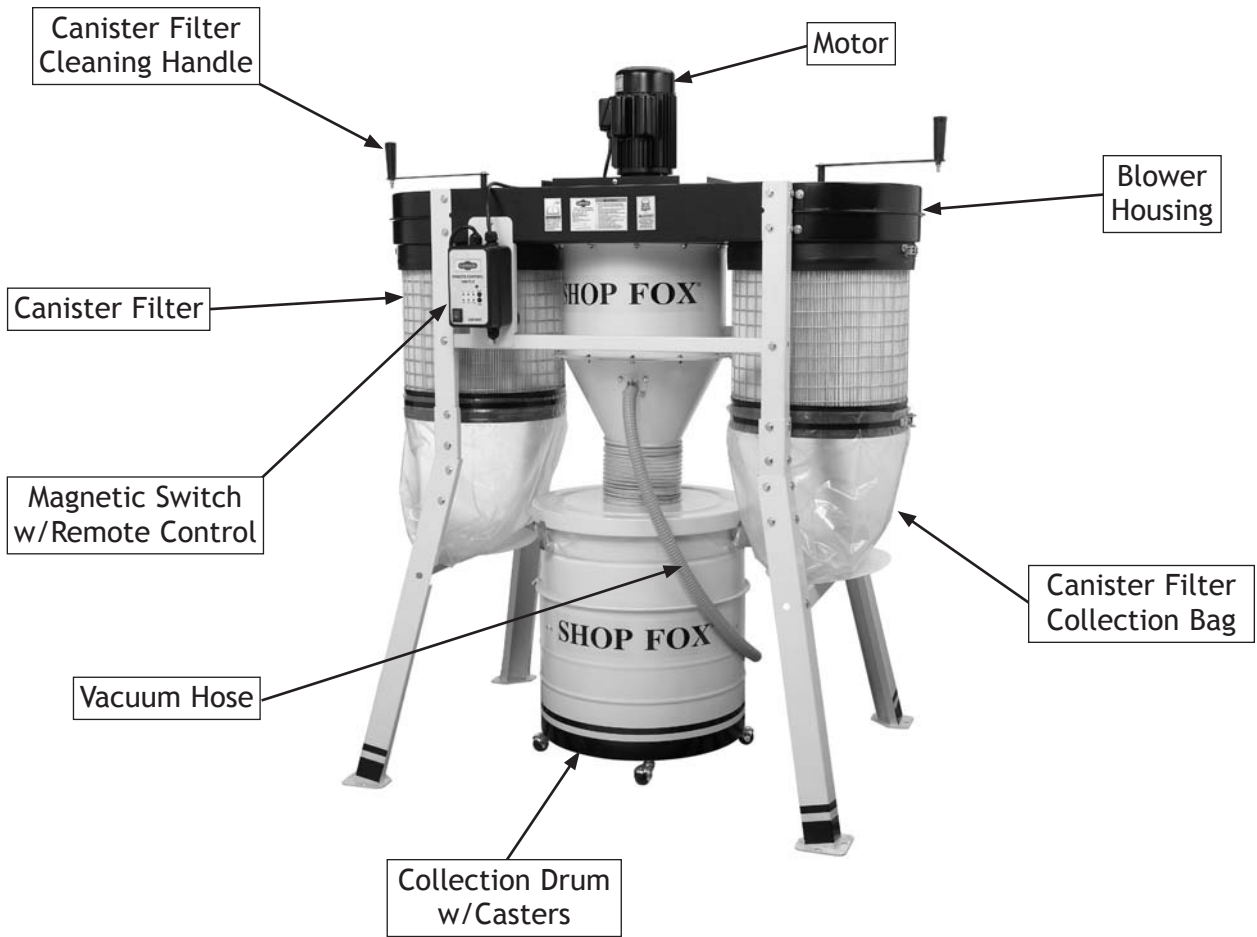


Max CFM	Max SP	HP	Volts	Inlet	Impeller
1489	10.2	3	220	8"	14½"

Restrictor Plate Size	8"	7"	6"	5"	4"
Static Pressure (Inch/H ² O)	2.2	3.8	5.1	6.8	8
Air Suction Capacity (CFM)	1489	1407	1319	1246	1090

The airflow test probe is located 1.5 x duct diameter upstream from the air inlet. Test pipe length is a minimum of 10 x duct diameter.

Controls and Features



Rear View

SAFETY

**READ MANUAL BEFORE OPERATING MACHINE.
FAILURE TO FOLLOW INSTRUCTIONS BELOW WILL
RESULT IN PERSONAL INJURY.**

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 Safety Instructions

1. **READ THROUGH THE ENTIRE MANUAL BEFORE STARTING MACHINERY.** Machinery presents serious injury hazards to untrained users.
2. **ALWAYS USE ANSI APPROVED SAFETY GLASSES WHEN OPERATING MACHINERY.** Everyday eye-glasses only have impact resistant lenses—they are **NOT** safety glasses.
3. **ALWAYS WEAR A NIOSH APPROVED RESPIRATOR WHEN OPERATING MACHINERY THAT PRODUCES DUST.** Wood dust is a carcinogen and can cause cancer and severe respiratory illnesses.
4. **ALWAYS USE HEARING PROTECTION WHEN OPERATING MACHINERY.** Machinery noise can cause permanent hearing damage.
5. **WEAR PROPER APPAREL.** **DO NOT** wear loose clothing, gloves, neckties, rings, or jewelry which may get caught in moving parts. Wear protective hair covering to contain long hair and wear non-slip footwear.
6. **NEVER OPERATE MACHINERY WHEN TIRED, OR UNDER THE INFLUENCE OF DRUGS OR ALCOHOL.** Be mentally alert at all times when running machinery.
7. **ONLY ALLOW TRAINED AND PROPERLY SUPERVISED PERSONNEL TO OPERATE MACHINERY.** Make sure operation instructions are safe and clearly understood.
8. **KEEP CHILDREN AND VISITORS AWAY.** Keep all children and visitors a safe distance from the work area.
9. **MAKE WORKSHOP CHILD PROOF.** Use padlocks, master switches, and remove start switch keys.

10. **NEVER LEAVE WHEN MACHINE IS RUNNING.** Turn power **OFF** and allow all moving parts to come to a complete stop before leaving machine unattended.
11. **DO NOT USE IN DANGEROUS ENVIRONMENTS.** DO NOT use machinery in damp, wet locations, or where any flammable or noxious fumes may exist.
12. **KEEP WORK AREA CLEAN AND WELL LIT.** Clutter and dark shadows may cause accidents.
13. **USE A GROUNDED EXTENSION CORD RATED FOR THE MACHINE AMPERAGE.** Undersized cords overheat and lose power. Replace extension cords if they become damaged. DO NOT use extension cords for 220V machinery.
14. **ALWAYS DISCONNECT FROM POWER SOURCE BEFORE SERVICING MACHINERY.** Make sure switch is in OFF position before reconnecting.
15. **MAINTAIN MACHINERY WITH CARE.** Keep blades sharp and clean for best and safest performance. Follow instructions for lubricating and changing accessories.
16. **MAKE SURE GUARDS ARE IN PLACE AND WORK CORRECTLY BEFORE USING MACHINERY.**
17. **REMOVE ADJUSTING KEYS AND WRENCHES.** Make a habit of checking for keys and adjusting wrenches before turning machinery **ON**.
18. **CHECK FOR DAMAGED PARTS BEFORE USING MACHINERY.** Check for binding and alignment of parts, broken parts, part mounting, loose bolts, and any other conditions that may affect machine operation. Repair or replace damaged parts.
19. **USE RECOMMENDED ACCESSORIES.** Refer to the instruction manual for recommended accessories. The use of improper accessories may cause risk of injury.
20. **DO NOT FORCE MACHINERY.** Work at the speed for which the machine or accessory was designed.
21. **SECURE WORKPIECE.** Use clamps or a vise to hold the workpiece when practical. A secured workpiece protects your hands and frees both hands to operate the machine.
22. **DO NOT OVERREACH.** Keep proper footing and balance at all times.
23. **MANY MACHINES WILL EJECT THE WORKPIECE TOWARD THE OPERATOR.** Know and avoid conditions that cause the workpiece to "kickback."
24. **ALWAYS LOCK MOBILE BASES (IF USED) BEFORE OPERATING MACHINERY.**
25. **BE AWARE THAT CERTAIN DUST MAY BE HAZARDOUS** to the respiratory systems of people and animals, especially fine dust. Make sure you know the hazards associated with the type of dust you will be exposed to and always wear a respirator approved for that type of dust.

Additional Safety for Dust Collectors

SAFETY



!WARNING
 READ and understand this entire 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!

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

1. **IMPELLER/INLET SAFETY:** Do not place your hands or tools near the open inlet during operation for any reason. The power suction of the rotating impeller could cause accidental contact, resulting in serious personal injury or damage to the machine.
2. **MACHINE USE:** The machine is intended to only collect wood dust and chips. Do not use the dust collector as a vacuum or with machines producing dust/chips from metal, asbestos products, lead paint, silica, or any products that are not natural wood or man-made products manufactured from wood fiber, such as plywood or particle boards.
3. **WEAR RESPIRATOR:** This machine may blow fine dust particles into the air during operation causing a hazard to the lungs. Always wear an ANSI approved respirator during dust collector operation and for a short time after as the dust settles.
4. **SUSPENDED DUST PARTICLES & IGNITION SOURCES:** Do not operate the dust collector in areas where dust explosion risks are high, such as near pilot lights or open flames.
5. **ALLERGIC REACTION:** Be aware that certain woods may cause an allergic reaction in people and animals, especially when exposed to fine dust. To avoid an allergic reaction, make sure you know what type of wood dust you will be exposed to.
6. **AVOIDING FIRES:** Do not allow metal particles to strike the impeller! This may produce a spark, which can smolder in the wood dust for a long time before the fire or flame is detected. If you accidentally collect metal during operation, immediately turn the dust collector **OFF**, disconnect it from power, and wait for the impeller to stop. Then, remove the collection bags and empty them into an approved air-tight metal container. Prevent any chance of accidental collection of metal again before resuming operations.
7. **EMPTYING DUST:** When emptying dust from the collection bags, wear an ANSI approved respirator and safety glasses to avoid lung or eye hazards caused by fine dust. Empty the dust away from ignition sources and into an approved container, then dispose of it properly.
8. **SAFE MAINTENANCE & SERVICE:** Disconnect the dust collector from power and allow the impeller to come to a complete stop on its own before performing maintenance, service, adjustments, or emptying collection bags.

ELECTRICAL

⚠️ 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 so in the "Test Run" portion of this manual.

220V Operation

The Model W1816 is wired for 220V single-phase operation. The power supply circuit used for this machine **MUST** be grounded and rated for the amperage given below. Never replace a circuit breaker with one of higher amperage without consulting a qualified electrician to ensure compliance with wiring codes. This machine must be connected to a grounded circuit!

A plug is not supplied with this machine. See below for the recommended plug type for this machine.

If you are unsure about the wiring codes in your area or you plan to connect your machine to a shared circuit, you may create a fire or circuit overload hazard—consult a qualified electrician to reduce this risk.

Extension Cords

We do not recommend using an extension cord; however, if you have no alternative, use the following guidelines:

- Use a cord rated for Standard Service (S).
- Do not use an extension cord longer than 50 feet.
- Ensure that the cord has a ground wire and pin.
- Use the gauge size listed below as a minimum.

Electrical Specifications

Operating Voltage	Phase	Amp Draw	Min. Circuit Size	Recommended Plug	Extension Cord
220V Operation	Single	22 Amps	30 Amps	NEMA L6-30	10 Gauge, 3 Wire

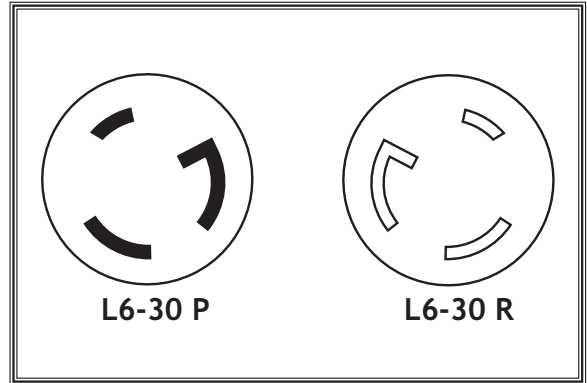


Figure 1. NEMA L6-30 plug & receptacle.

⚠️ WARNING

DO NOT work on your electrical system if you are unsure about electrical codes and wiring! Seek assistance from a qualified electrician. Ignoring this warning can cause electrocution, fire, or machine damage.

ELECTRICAL

SETUP

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 components shipped with the Model W1816. 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.*

Inventory (Figures 2-3)	Qty
A. Blower Housing Assembly	1
– Motor	1
– Blower Housing	1
– Impeller	1
– Canister Filter Assemblies	2
– Canister Filter Clamps.....	2
– Intake Cylinder	1
B. Lower Stand Legs.....	4
C. Upper Stand Legs.....	4
D. Lower Rear Stand Brace	1
E. Stand Side Braces	2
F. Stand Leg Connectors.....	4
G. Upper Stand Braces	2

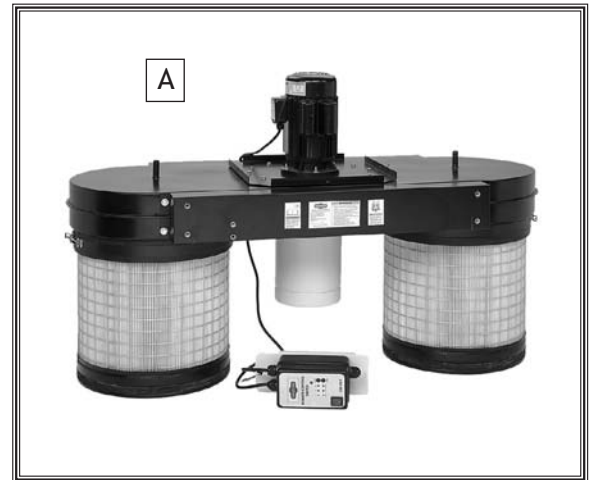
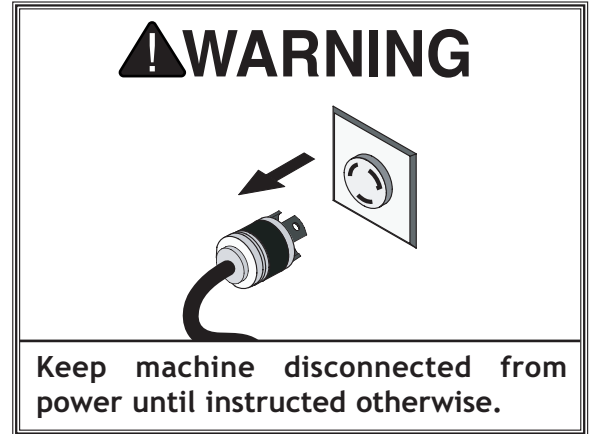


Figure 2. Blower housing assembly.

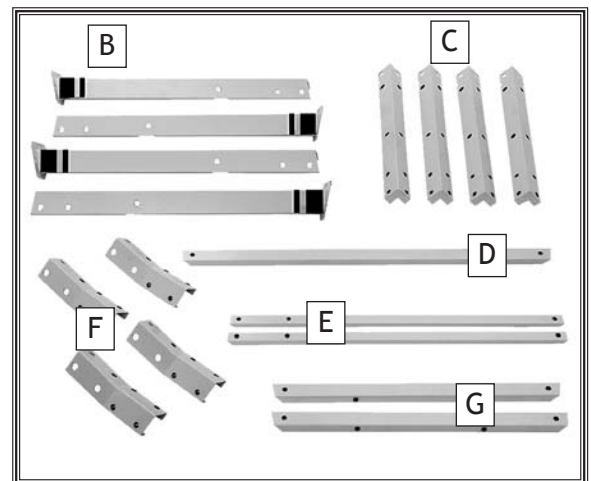


Figure 3. Stand components.

SETUP

Inventory (Figure 4)	Qty
H. Cyclone Funnel.....	1
I. Clear Flexible Hose 9" Dia.	1
J. Intake Barrel	1
K. Flexible Vacuum Hose 1 1/4" Dia.	1
L. Cyclone Funnel Vacuum Pipe	1
M. Canister Cleaning Handle Assemblies	2
N. Dust Bag Shelves.....	2

Inventory (Figure 5)	Qty
O. Upper Collection Drum	1
P. Lower Collection Drum	1
Q. Collection Drum Vacuum Pipe	1
R. Collection Drum Lid	1
S. Collection Drum Vacuum Plate	1
T. Drum Clamp Assembly	1

Hardware & Miscellaneous Items (not shown):

– Hose Clamps 9"	2
– Hose Clamps 1 1/4"	2
– Plastic Canister Collection Bags 510 x 600mm	2
– Plastic Drum Collection Bags 640 x 1000mm.....	3
– Roll of Foam Tape 3 x 6mm	1
– Collection Drum Lid Seal	1
– Drum Lid Latch Assemblies	3
– Phillips Head Screws #10-24 x 3/8" (Latches).....	6
– Hex Nuts #10-24 (Latches).....	6
– Casters 2"	4
– Hex Bolts 5/16"-18 x 3/4"	34
– Flat Washers 5/16"	46
– Hex Nuts 5/16"-18	12
– Hex Bolts 3/8"-16 x 3/4"	65
– Flat Washers 3/8".....	69
– Lock Washers 3/8" (Casters)	4
– Hex Nuts 3/8" (Casters).....	4

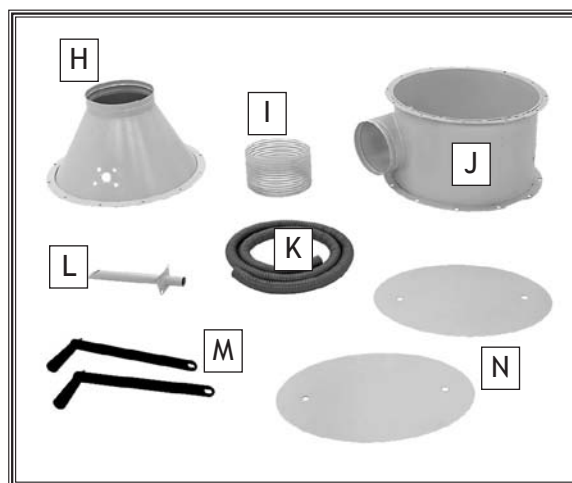


Figure 4. Additional inventory.

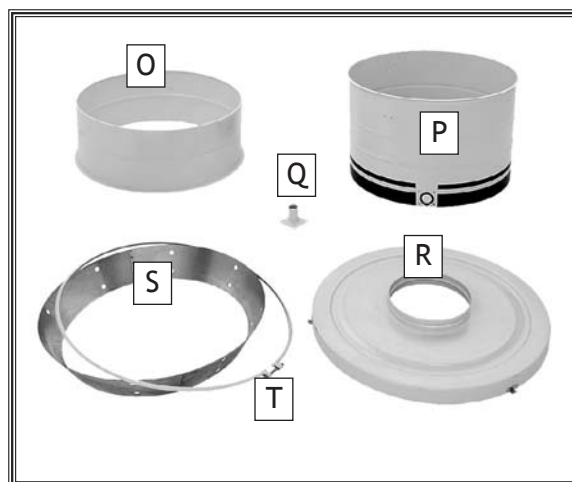
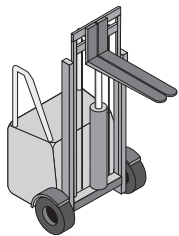


Figure 5. Additional inventory.

Machine Placement

- **Floor Load:** This machine distributes a heavy load in a small footprint. Some residential floors may require additional bracing to support both machine and operator.
- **Lighting:** Lighting should be bright enough to eliminate shadow and prevent eye strain.
- **Electrical:** Electrical circuits must be dedicated or large enough to handle amperage requirements. Outlets must be located near each machine, so power or extension cords are clear of high-traffic areas. Follow local electrical codes for proper installation of new lighting, outlets, or circuits.



! WARNING

USE helpers or power lifting equipment to lift this dust collector. Otherwise, serious personal injury may occur.



! CAUTION

MAKE your shop "child safe." Ensure that your workplace is inaccessible to children by closing and locking all entrances when you are away. NEVER allow untrained visitors in your shop when assembling, adjusting or operating equipment.

Mounting to Shop Floor

Although not required, we recommend that you mount your new machine to the floor. Because this is an optional step and floor materials may vary, floor mounting hardware is not included.

We also recommend that you use a precision level to level your dust collector for smooth operation of the motor and impeller.

Bolting to Concrete Floors

Anchor studs and lag screws and anchors (Figure 6) are two popular methods for anchoring an object to a concrete floor. We suggest you research the many options and methods for mounting your machine and choose the best that fits your specific application.

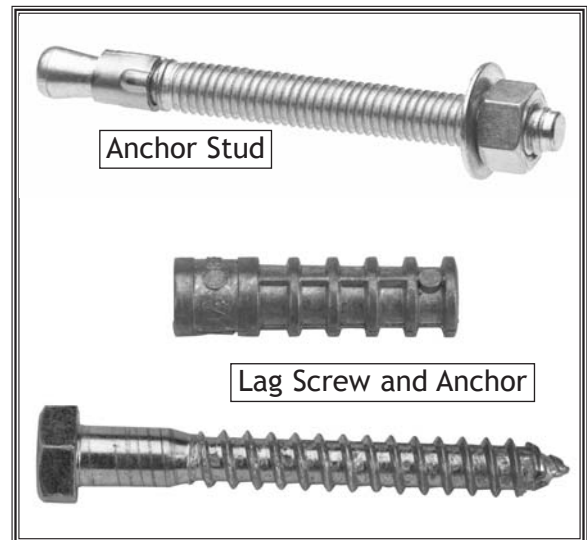


Figure 6. Typical fasteners for mounting to concrete floors.

NOTICE

Anchor studs are stronger and more permanent alternatives to lag shield anchors; however, they will stick out of the floor, which may cause a tripping hazard later if you decide to move your machine.

Assembly

NOTICE

Using air tools to tighten the fasteners in the assembly of your dust collector may crack or chip the paint because of their high torque. We recommend that you use hand tools or an electric tool with a low clutch setting.

The safest and most efficient method of assembling your dust collector is to turn the blower housing assembly upside down and attach the parts upward, as instructed in the following steps.

Tools & Items Needed	Qty
Wrench 8mm.....	1
Wrench 12mm	2
Wrench 14mm	1
Phillips Screwdriver #2	1
Shop Scissors or Knife	1
Stable Platforms (at least 18" high).....	2

To assemble your dust collector, do these steps:

1. After removing the crate from the shipping pallet, set the smaller items aside in a safe location.
2. With help from other people, place the blower housing assembly upside down on two saw horses that are at least 18" from the floor and that can fully support the weight (see Figure 7 for an example).

Note: Take care not to damage the attached switch assembly and electrical cords as you turn the blower housing assembly over, and make sure that the motor is not supporting any weight.

3. Attach the 3 x 6mm foam tape to the top of the intake barrel and cyclone funnel, as shown in Figures 8-9.

Note: The intake barrel top is the edge closest to the intake port.



Figure 7. An example of the blower housing assembly upside down for further assembly steps.



Figure 8. Intake barrel foam tape attached.



Figure 9. Funnel foam tape attached.

SETUP

Note: In Steps 4-5 below, tighten the fasteners in an alternating star pattern to obtain an even sealing pressure on the foam tape.

4. Orient the intake barrel on the blower housing as shown in **Figure 10**, then secure it in place with (12) $\frac{5}{16}$ "-18 x $\frac{3}{4}$ " hex bolts and (12) $\frac{5}{16}$ " flat washers.

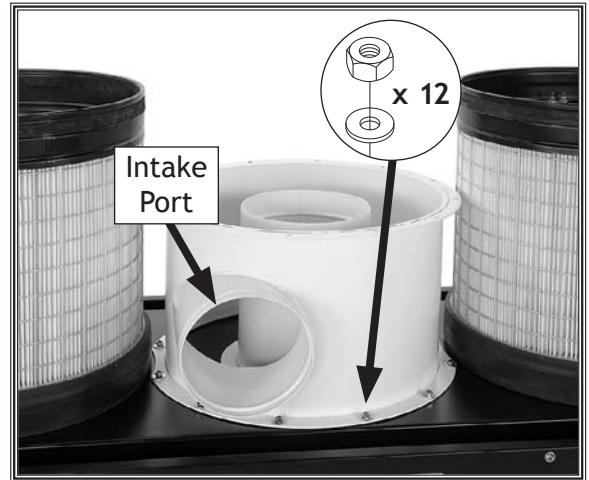


Figure 10. Intake barrel attached to the blower housing.

5. Attach the cyclone funnel to the intake barrel with (12) $\frac{5}{16}$ "-18 x $\frac{3}{4}$ " hex bolts, (24) $\frac{5}{16}$ " flat washers, and (12) $\frac{5}{16}$ "-18 hex nuts, as shown in **Figure 11**.
6. Install the funnel vacuum pipe into the hole provided on the side of the funnel with (4) $\frac{5}{16}$ "-18 x $\frac{3}{4}$ " hex bolts and (4) $\frac{5}{16}$ " flat washers, as shown in **Figure 11**.

Note: The vacuum pipe can only be positioned in one way that will allow the mounting holes to align.

The vacuum pipes and connecting vacuum hose keeps the drum collection plastic bag from collapsing during operation.

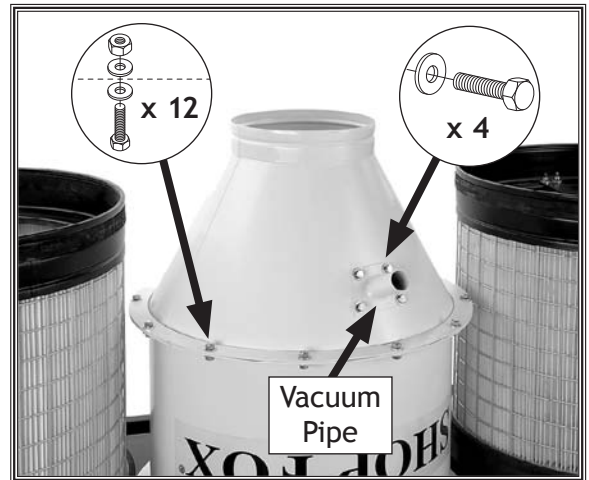


Figure 11. Cyclone funnel attached and the funnel vacuum pipe installed.

7. Attach the four upper stand legs to the blower housing brackets with (16) $\frac{3}{8}$ "-16 x $\frac{3}{4}$ " hex bolts and (16) $\frac{3}{8}$ " flat washers, as shown in **Figure 12**.

Note: Make sure the open ends of the stand legs are facing down and even with the top of the brackets.

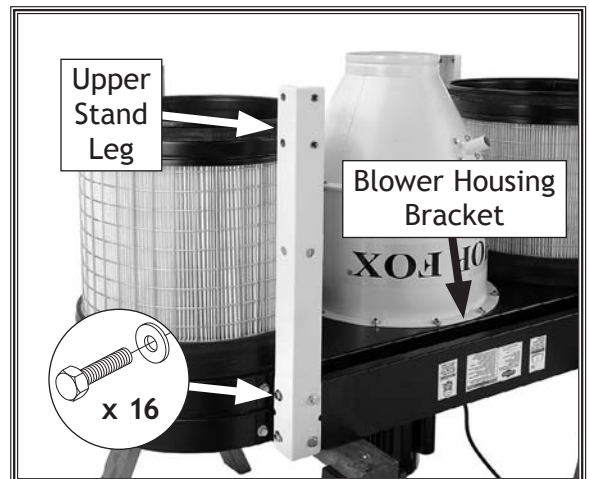


Figure 12. Upper stand leg properly attached to the blower housing bracket.

- Connect the two upper stand braces to the upper stand legs with (4) $\frac{3}{8}$ "-16 x $\frac{3}{4}$ " hex bolts and (4) $\frac{3}{8}$ " flat washers, as shown in **Figure 13**.

Note: Orient the braces so that the off-center third hole is aligned with the two mounting holes in the blower housing bracket, as shown in **Figure 13**. These mounting holes are for attaching the remote magnetic switch in the next step.

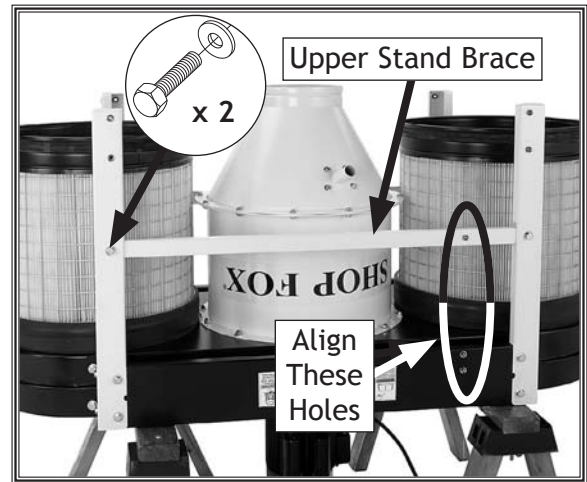


Figure 13. Upper stand brace connected to the upper stand legs.

- Attach the remote switch assembly to the blower housing bracket and upper stand brace with (3) $\frac{3}{8}$ "-16 x $\frac{3}{4}$ " hex bolts and (3) $\frac{3}{8}$ " flat washers, as shown in **Figure 14**.

Note: You may attach the switch assembly to either side of the blower housing. Keep in mind that you must have a line-of-sight between the remote controller and the switch for proper operation. Refer to **Remote Control** on **Page 24** for additional information.



Figure 14. Remote magnetic switch attached.

- Slide the four stand leg connectors onto the upper stand legs, then connect them with (16) $\frac{3}{8}$ "-16 x $\frac{3}{4}$ " hex bolts and (16) $\frac{3}{8}$ " flat washers, as shown in **Figure 15**.

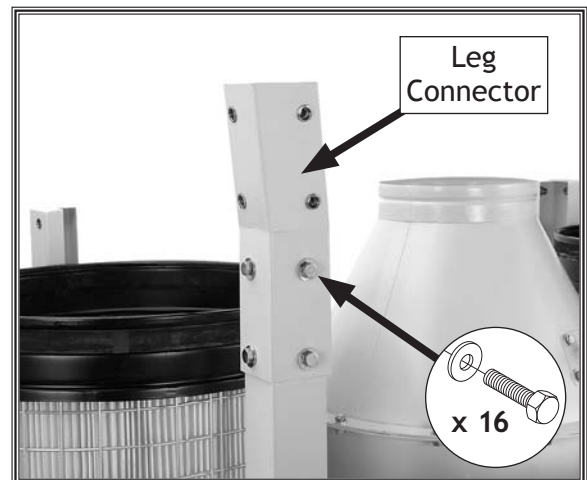


Figure 15. Stand leg connector attached to the upper stand leg.

SETUP

- Slide the four lower stand legs onto the leg connectors, then connect them with (16) $\frac{3}{8}$ "-16 x $\frac{3}{4}$ " hex bolts and (16) $\frac{3}{8}$ " flat washers, as shown in **Figure 16**.

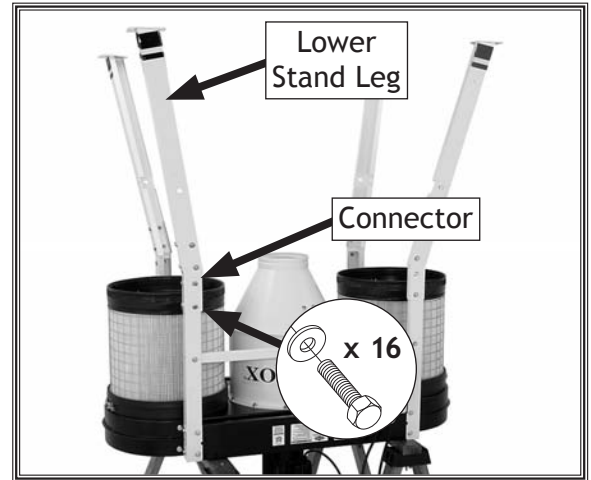


Figure 16. Lower stand leg attached to the leg connector.

- Attach the lower rear stand brace to two of the lower stand legs with (2) $\frac{3}{8}$ "-16 x $\frac{3}{4}$ " hex bolts and (2) $\frac{3}{8}$ " flat washers, as shown in **Figure 17**.

Note: Choose which side of the machine you will be rolling the collection drum away from to empty it, then install this lower rear stand brace on the opposite side.

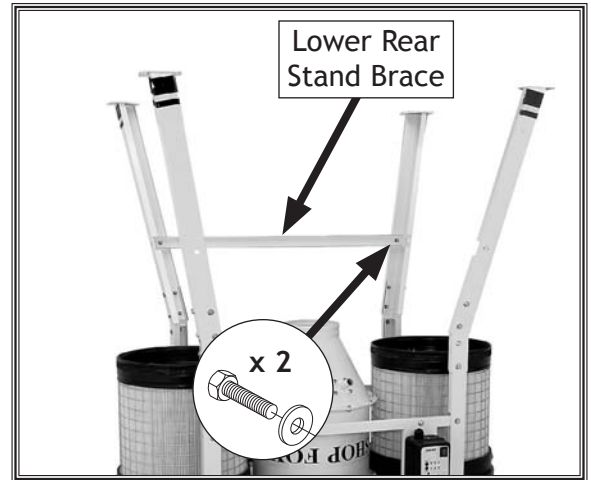


Figure 17. Lower rear stand brace attached to the lower stand legs.

- Connect the two side stand braces to the lower stand legs with (4) $\frac{3}{8}$ "-16 x $\frac{3}{4}$ " hex bolts and (4) $\frac{3}{8}$ " flat washers, as shown in **Figure 18**.
- With the help from several other people, tip the dust collector right-side-up onto the legs.

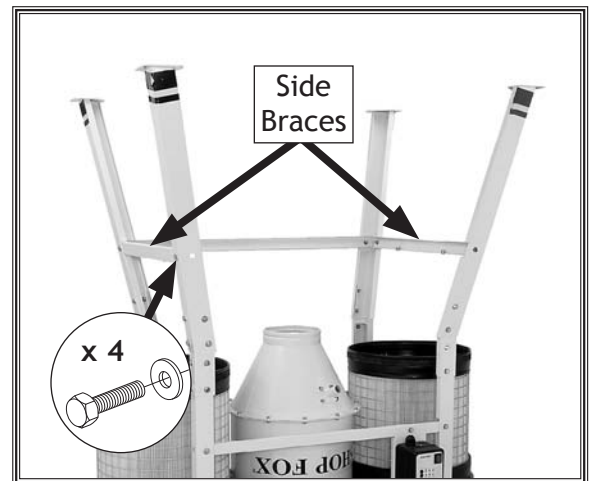


Figure 18. Side stand braces attached.

15. Attach the two bag platforms to the side stand braces with (4) $\frac{3}{8}$ "-16 x $\frac{3}{4}$ " hex bolts and (4) $\frac{3}{8}$ " flat washers, as shown in **Figure 19**.

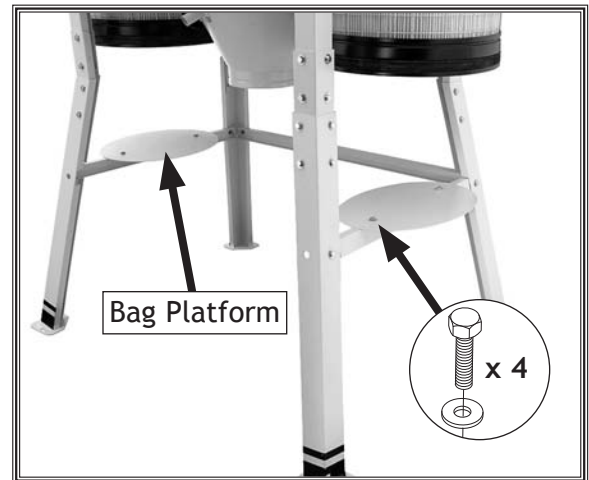


Figure 19. Bag platform connected to the side stand brace.

16. Insert the two filter cleaning handle assemblies onto the cleaning shafts, then secure them with (2) $\frac{5}{16}$ "-18 x $\frac{3}{4}$ " hex bolts and (2) $\frac{5}{16}$ " flat washers, as shown in **Figure 20**.

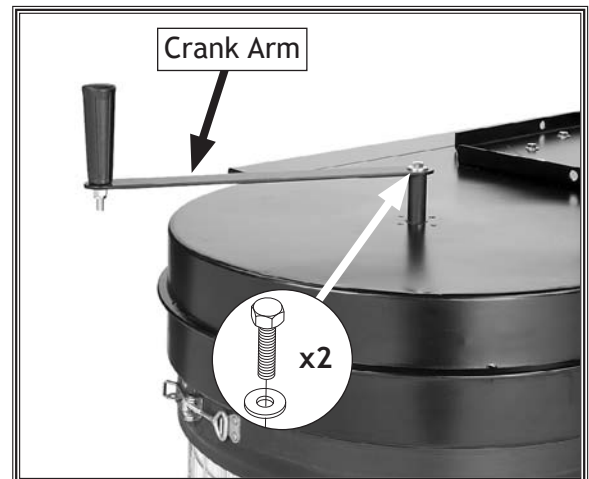


Figure 20. Filter cleaning handle assembly installed.

17. Attach the four 2" casters to the bottom collection drum with (4) $\frac{3}{8}$ "-16 hex nuts, (4) $\frac{3}{8}$ " lock washers, and (4) $\frac{3}{8}$ " flat washers (see **Figure 21**).

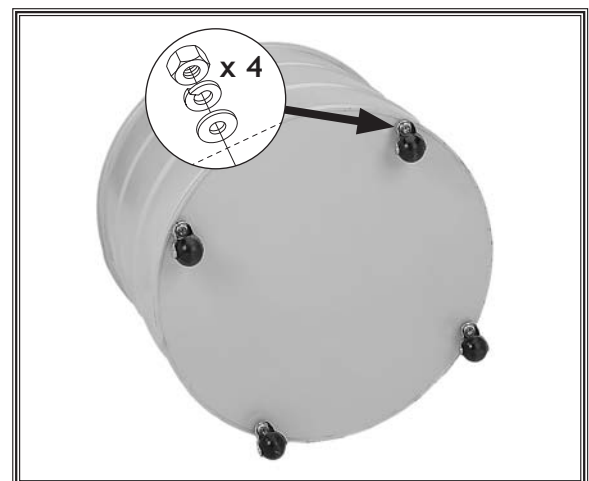


Figure 21. Collection drum casters installed.

SETUP

18. Place the top collection drum on top of the bottom collection drum, then secure them together with the drum clamp assembly, as shown in **Figure 22**.



Figure 22. Clamping the top and bottom collection drums together.

19. Slide the drum lid seal over the top of the collection drum rim, as shown in **Figure 23**. Pay special attention to the direction of the seal.

Note: *To keep the seal in place, you can apply an adhesive to the drum rim approximately every 2".*



Figure 23. Installing the drum seal.

20. Install the three drum lid latch assemblies with (6) #10-24 x $\frac{3}{8}$ " Phillips head screws and (6) #10-24 hex nuts, as shown in Figure 24.

Note: To avoid snagging the plastic collection bag in the future, insert the screw from inside the drum.

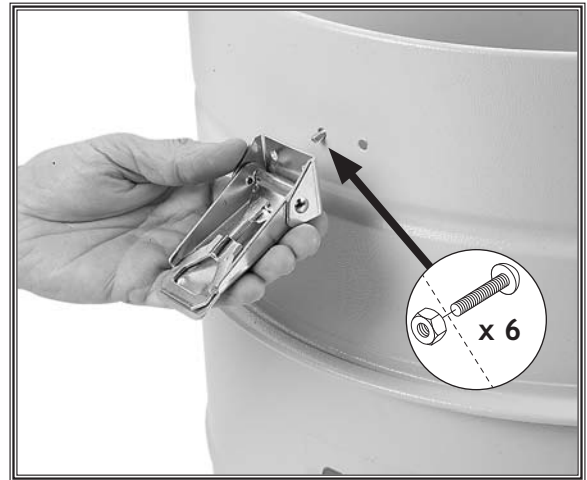


Figure 24. Installing the collection drum latch assemblies.

21. Insert the collection drum vacuum pipe through the side of the bottom drum, as shown in Figure 25, then secure it in place with (4) $\frac{5}{16}$ "-18 x $\frac{3}{4}$ " hex bolts and (4) $\frac{5}{16}$ " flat washers.

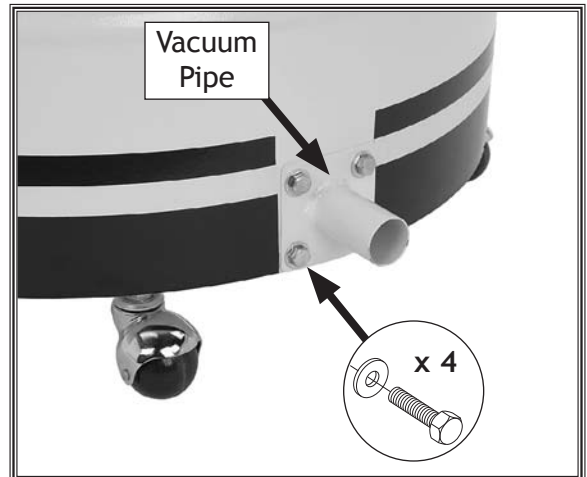


Figure 25. Collection drum vacuum pipe installed.

22. Place the collection drum vacuum beveled plate on the bottom of the drum assembly with the widest diameter of the plate facing up (see Figure 26).



Figure 26. Inserting the collection drum vacuum plate.

SETUP

23. Insert the plastic drum collection bag into the collection drum, as shown in **Figure 27**.



Figure 27. Inserting the plastic collection bag.

24. Place the collection drum lid on the drum assembly, then pull all three latches up and onto the hooks of the lid, as shown in **Figure 28**.
25. When the latches are correctly positioned, pull up on the latch handles, as shown in **Figure 28**.

Note: Make sure that all the latches exert enough similar pressure to create a tight drum lid seal all the way around the rim. If necessary, rotate the latches to change their length.

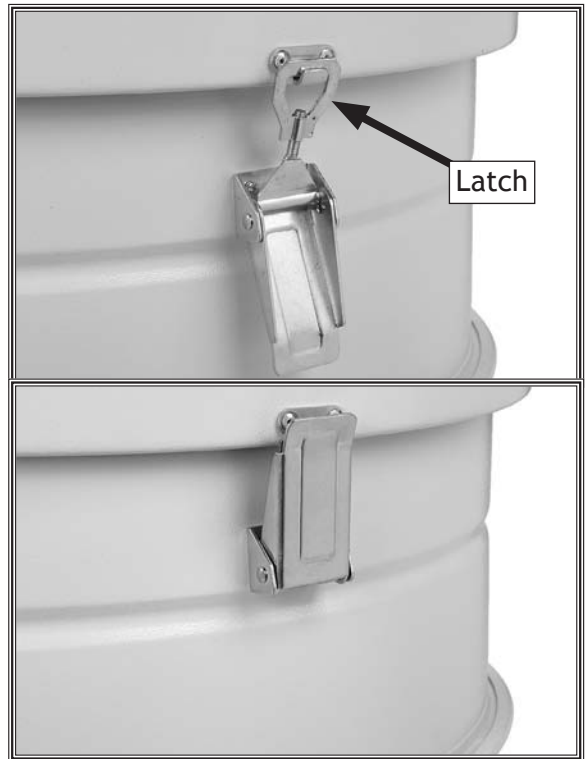


Figure 28. Drum lid latch operation.

26. Roll the collection drum underneath the cyclone funnel, then connect the 9" clear flexible collection hose between the funnel and the drum lid with the two 9" hose clamps, as shown in **Figure 29**.
27. Connect the 1 1/4" flexible vacuum hose between the vacuum pipes of the funnel and the collection drum with the two 1 1/4" hose clamps, as shown in **Figure 29**.



Figure 29. Collection and vacuum hoses installed.

28. Remove the bag clamps from the bottom of the canisters, position the plastic canister bags around the canister bottoms, then secure them with the bag clamps, as shown in **Figure 30**.

Note: To make this process easier, use tape to hold the bags in place before securing them with the clamps, as shown in **Figure 30**.

Congratulations! You have completed the assembly of your new cyclone dust collector. Next, successfully perform the **Test Run** procedure as instructed in the next subsection before placing this machine into operation.

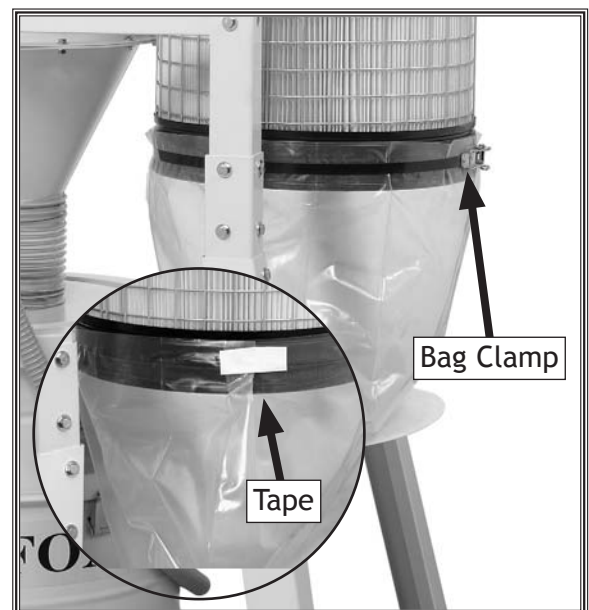


Figure 30. Canister bag installed.

SETUP

Test Run

Once the assembly is complete and before you connect to any duct lines, test run your machine to make sure it runs properly.

If, during the test run, you cannot easily locate the source of an unusual noise or vibration, stop using the machine immediately, then review the **Troubleshooting** guide on **Page 39**.

If you still cannot remedy a problem, contact our Tech Support at (360) 734-3482 for assistance.

Note: Without any inlet flow constriction, the motor will work the hardest and draw maximum amps. If this condition should trip the circuit breaker, connect the inlet port to your duct system or a duct hose with a blast gate closed half-way.

To test run the machine, do these steps:

1. Make sure you have read the safety instructions at the beginning of the manual and that the machine is setup properly.
2. Make sure all tools and objects used during setup are cleared away from the machine.
3. Review the **Electrical** requirements on **Page 9** and connect the machine to the power source.
4. Press the start switch to allow power to flow to the magnetic switch—the power light will illuminate (see **Figure 31**). Refer to **Basic Controls** on **Page 24** for additional details on the controls for your dust collector.
5. Press the ON/OFF button to turn the machine **ON**—the run light will come on. Make sure your hand is poised over the start switch in case you need to quickly turn the machine **OFF**.

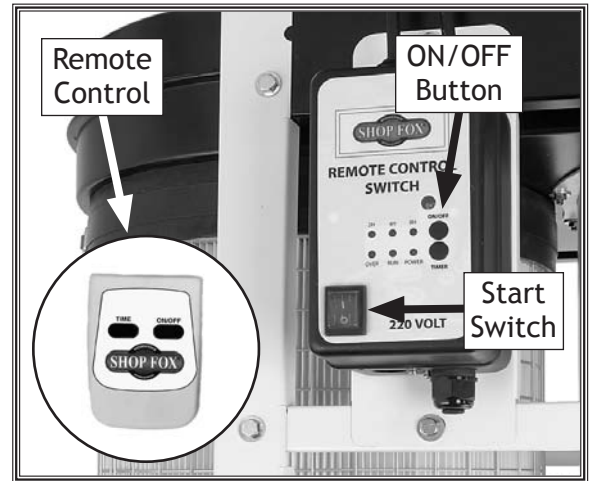


Figure 31. Machine controls.

6. Listen and watch for abnormal noises or actions. The machine should run smoothly with little or no vibration or rubbing noises.
 - If you suspect any problems, immediately turn the machine **OFF** and disconnect the machine from power. Refer to the **Troubleshooting** guide on **Page 39** to identify and fix any problems.
 - If you cannot solve the problem with the use of the **Troubleshooting** guide, contact our Tech Support at (360) 734-3482 for assistance.
7. Press the timer button on the magnetic switch and cycle through each of the times to make sure the appropriate indicators light.
8. Press the timer button on the remote control and cycle through the times in the same manner as **Step 7**.
9. Toggle the ON/OFF button on both the magnetic switch and the remote control to make sure they are working properly.

OPERATIONS

General

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!**

!WARNING



Always wear ANSI approved safety glasses and respirator when operating this machine. Failure to comply may result in serious personal injury.

!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



DO NOT investigate problems or adjust the machine while it is running. Wait until the machine is turned **OFF**, unplugged and all working parts have come to a complete stop before proceeding!

Basic Controls

Magnetic Switch

Refer to **Figure 32** and the descriptions below to become familiar with the operation of the magnetic switch.

- A. **Timer Indicator Lights:** Turns **ON** when that timer setting is selected.
- B. **Infrared Port:** Receives infrared communication from the remote control.
- C. **ON/OFF Button:** Starts/stops the dust collector motor.
- D. **Timer Button:** Cycles through the available timer settings.
- E. **Power Light:** Indicates when there is power flowing to the magnetic switch.
- F. **Run Light:** Illuminates when the dust collector motor is operating.
- G. **Start Switch:** Enables/disables the power flow to the magnetic switch and must be turned **ON** before using ON/OFF button.
- H. **Overload Light:** Turns **ON** when the dust collector is overloaded and the motor has stopped.

Note: If the overload light illuminates and the motor stops, you must disconnect the machine from power and allow the motor to cool. The overload relay should reset automatically and the light will go out.

If this is a persistent problem, open the magnetic switch and make sure the amperage dial on the face of the overload relay is set at 25 (refer the **Wiring Diagram** illustration on **Page 41** for location). If necessary, resolve any other cause of the problem (refer to the **Troubleshooting** section on **Page 39** for additional help).

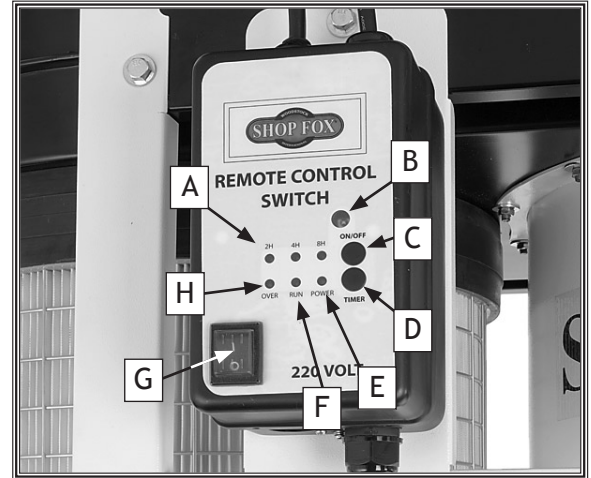


Figure 32. Magnetic switch controls.

Remote Control

The remote control for the Model W1816 (see **Figure 33**) uses infrared (IR) to communicate with the magnetic switch rather than radio frequency (RF). This prevents accidental startup of the dust collector by other common devices that use radio frequencies, such as garage door openers. Because the remote control must have a direct line-of-sight path between the devices, you must point the remote control directly at the switch to make it operate.

If you plan on placing your dust collector in a different room or outside of your shop, you must mount the switch in the shop and wire it through the wall to the dust collector to make use of the remote control.

Note: The remote control requires two AA batteries for operation.



Figure 33. Remote control.

Ducting Materials

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 a short length 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 the manual. Another problem with using plastic is that it is less efficient per foot than metal.

Metal Duct

Advantages of metal duct (see **Figure 34**) is its conductivity 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 quite 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 clamps, is very quick and easy to assemble, and can be dismantled and re-installed with no problems. 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. Another disadvantage is the rough internal seams and crimped ends that unavoidably increase static pressure.

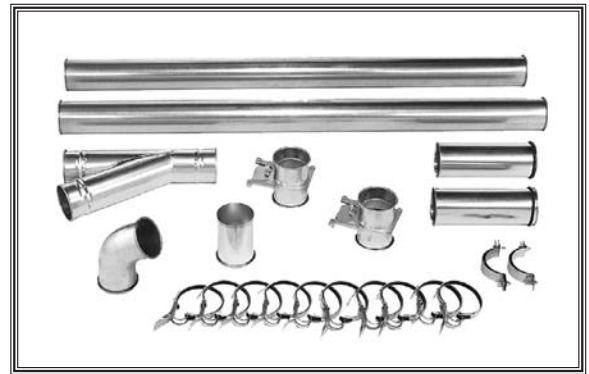


Figure 34. Examples of metal duct.

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 (see **Figure 35**) 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, you should choose one of the many types that are designed specifically for the movement of solid particles, i.e. dust, grains and plastics. However, the cost of specifically designed flexible duct can vary greatly. Polyethylene hose is well suited for the removal of particulate matter, especially sawdust, since it is durable and completely flexible. Polyethylene is also very economical and available in a wide variety of diameters and lengths for most applications.

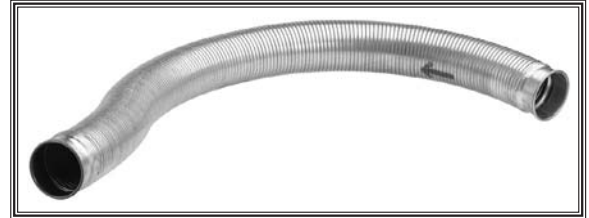


Figure 35. Example of a metal flexible duct.

Plastic Duct

The popularity of plastic duct (see **Figure 36**) 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 36. Shop Fox W1055 Dust Collection Accessories Kit #2.

System Design

Step 1: 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 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 that you do additional research beyond this manual, or that you seek the help of an expert.

Step 2: 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.

Your sketch only needs the basic details of the shop layout, similar to **Figure 37**, including all your current/planned machines and your planned placement of the dust collector.

Step 3: 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 **Figures 38-39** for ideas of good duct layouts versus bad duct layouts.

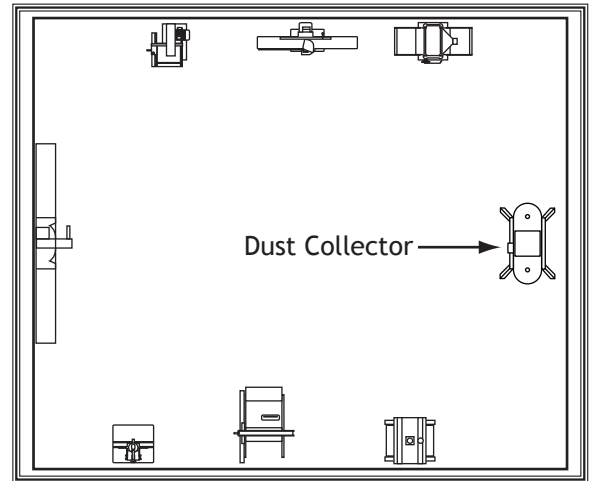


Figure 37. Example of initial shop layout sketch.

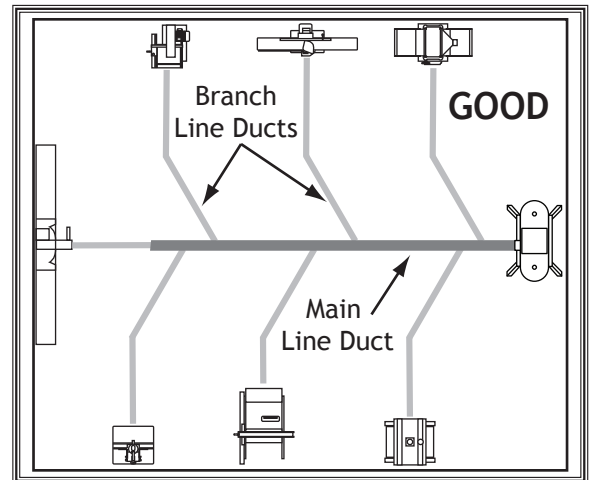


Figure 38. Example of a *good* basic duct layout.

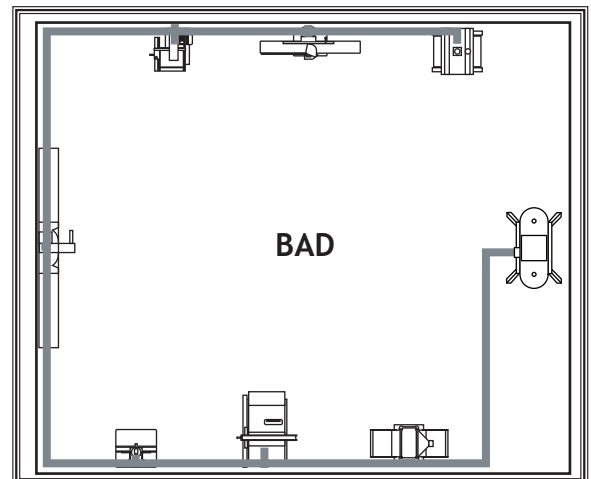


Figure 39. Example of a *bad* basic duct layout.

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.

Step 4: Determine CFM of Each Machine

Since each machine produces a different amount of sawdust, the requirements for the minimum amount of air flow or CFM (cubic feet per minute) 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.

The chart in **Figure 40** will give you a close estimation of the airflow your 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.

Machine Dust Port Size	Approximate Required CFM
2"	98
2.5"	150
3"	220
4"	395
5"	614
6"	884
7"	1203
8"	1570
9"	1990
10"	2456

Figure 40. Approximate required airflow (CFM) based on machine dust port diameter.

If your machine doesn't have a built in dust port, use **Figure 41** as a guide to determine which size of dust port to install on your machine.

Write the required CFM for each machine on your sketch, as shown in **Figure 42**.

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" single head)	2 x 6"
Widebelt Sander (24"-51" double head)	5 x 4"

Figure 41. Typical dust port diameter and quantity per machine type.

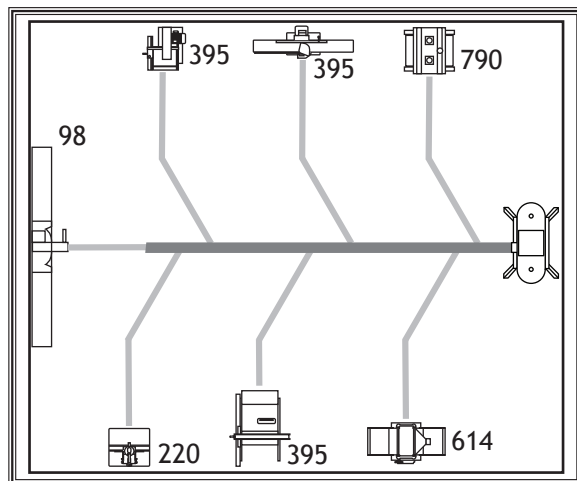


Figure 42. Example of the duct layout sketch with each machine with its CFM.

Determining Main Line Duct Diameter

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

Use the inlet size of the dust collector as a starting point for the main line. Neck the main line down 1" for every 10' of length. This 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 in **Figure 43**, but using the inlet size for your dust collector as the main line.

Determining Branch Line Duct Diameter

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 down 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 **Figure 44**.

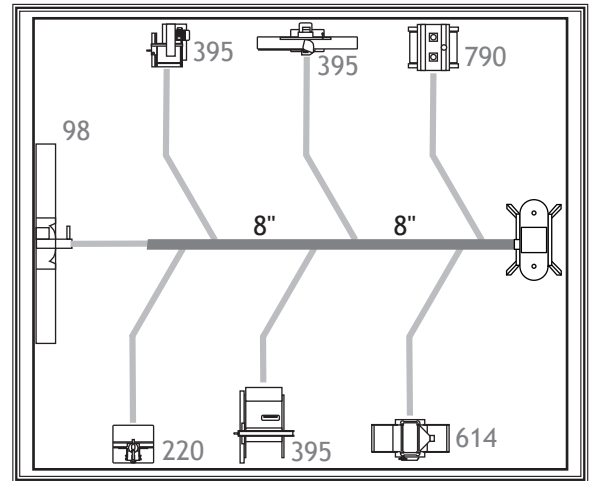


Figure 43. Sketch example with the main line duct diameter labeled.

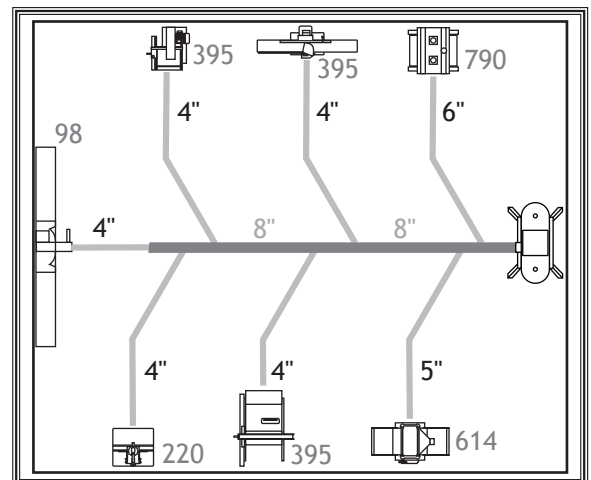


Figure 44. Sketch example with branch line diameters labeled.

Multiple Dust Ports

If your machine has multiple dust ports, add the total CFM given for each dust port size from **Figure 40**. Refer to the chart in **Figure 45** and find the CFM that is closest to your total to determine the correct branch size. Split the branch line just before the dust ports with matching duct sizes.

Two Machines on Same Branch Line

If both machines will be running at the same time, add the total CFM given for each dust port size from **Figure 40**.

If both the machines will never be run at the same time, reference the machine with biggest dust port to **Figure 45** and add blast gates after the Y-branch to open/close the line to each machine.

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 charts in **Figure 46** to calculate the resistance of duct work.

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

Figure 45. Branch line sizing chart by total CFM (for use when multiple machines share the line).

Duct Dia.	Approximate Static Pressure Loss Per Foot of Rigid Pipe		Approximate Static Pressure Loss Per Foot of Flex Pipe	
	Main Lines @ 3500 FPM	Branch Lines @ 4000 FPM	Main Lines @ 3500 FPM	Branch Lines @ 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

Fitting Dia.	90° Elbow	45° Elbow	45° Y	90° 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 46. Airflow resistance (static pressure loss) charts.

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 **Figure 46**.
2. List each type of elbow or branch and multiply the quantity (if more than one) by the static pressure loss given in **Figure 46**.
3. Add the additional factors from **Figure 47** to your list.
4. Total your list as shown in the example in **Figure 48** 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 right when the filter is clean.

Additional Factors	Static Pressure
Seasoned (well used) Dust Collection Filter	1"
Entry Loss at Large Machine Hood	2"

Figure 47. Additional factors that affect static pressure loss (airflow resistance).

Main Line	
6" Rigid Pipe (0.037) at 20'.....	0.740
Branch Line	
4" Rigid Pipe (0.075) at 10'.....	0.750
4" Flex Pipe (0.28) at 5'.....	1.400
Elbows/Branches	
6" 45° Y-Branch.....	0.329
4" 45° Elbow.....	0.225
Additional Factors	
Seasoned Filter.....	<u>1.000</u>
Total Static Pressure Loss.....	4.444

Figure 48. Example of calculating the total static pressure loss.

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 closest CFM given in the **Performance Curve** section on the **Machine Data Sheet** for your dust collector on **Page 4**.

Example: The Model W1816 Data Sheet

Performance Curve is illustrated in **Figure 49**.

Find 4.4 on the Static Pressure axis (the amount of total static pressure loss calculated in **Figure 48**), then refer to the closest value on the CFM axis—approximately 1380 CFM.

The 1380 CFM for the static pressure loss of the line connected to the router table is well above the 220 CFM requirement of that machine.

- If the CFM for your static pressure loss is above the requirement of the machine connected to the end of that branch line, then dust collection will most likely be successful. Congratulations! You've just designed your own dust system.
- 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

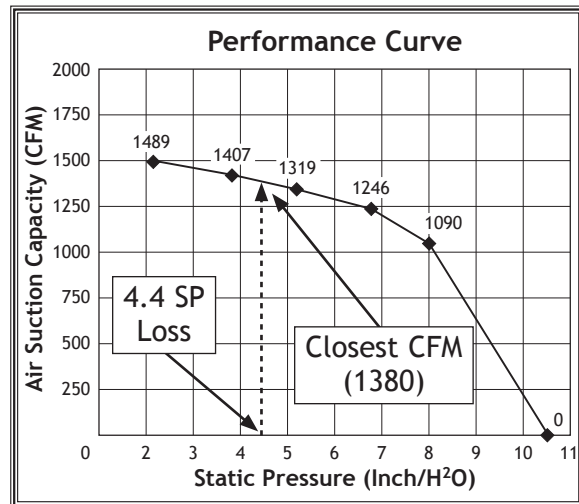


Figure 49. Example of CFM for static pressure loss for the duct line connected between the dust collector and a router (220 CFM).

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. 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 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 50**) 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 51**. Ensure that each machine is continuously grounded to the grounding terminal in your electric service panel.

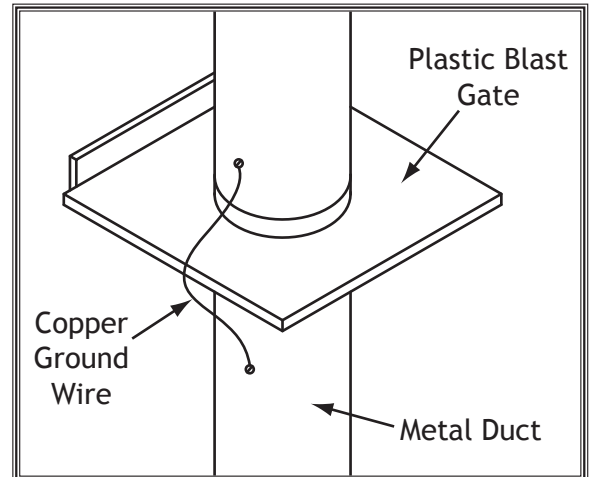
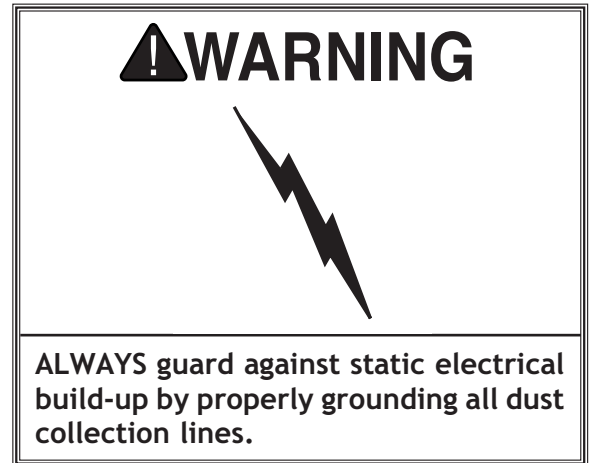


Figure 50. Jumper wire connected to both sides of a plastic blast gate and metal ducts.

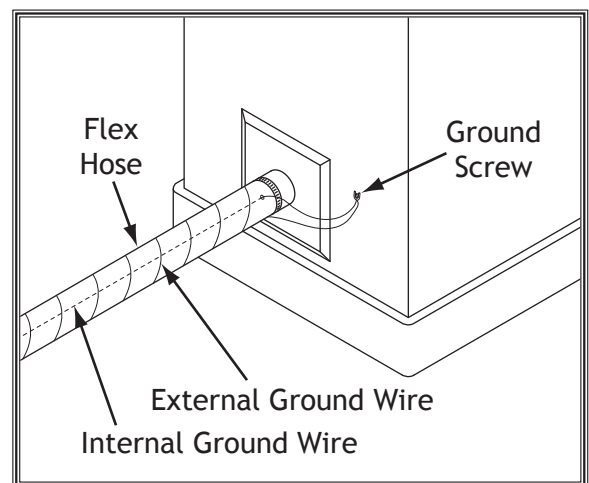


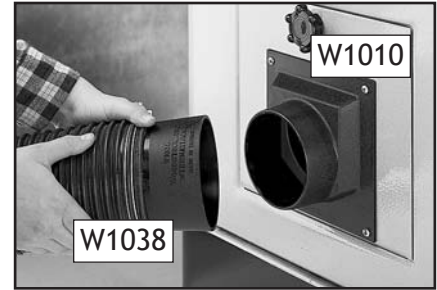
Figure 51. Example of a plastic flexible hose grounded to the machine.

ACCESSORIES

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.

The Shop Fox **W1010 Universal Dust Hood** fits over a 4½" dust port and can be adapted to fit many woodworking tools. Use it on table saws, bandsaws, shapers, sanders, etc., by simply attaching it directly to the machine, or by using a custom-built cabinet. It's a very cost-effective way to solve a messy problem.



The Shop Fox **W1038 Quick Connect** is designed to attach to the end of a 4" flexible hose and then press-on to any 4" diameter dust hood for a quick and easy friction fit. Eliminates the need to connect and disconnect a hose clamp each time a new woodworking machine is used. Stays secure and airtight.

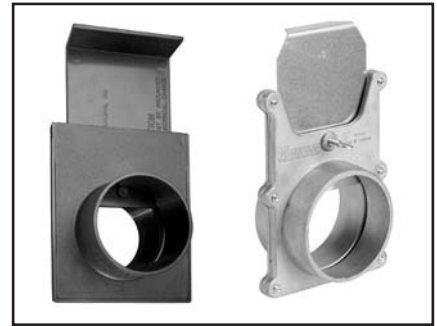
The Shop Fox **D2267 Dust Collection Nozzle On Stand** is fully adjustable and fits any 4" flexible hose attached to a dust collector. This accessory provides a quick and easy pick-up source for dust producing machines, even if they have a built-in dust port. 1⅛" x 12½" wide nozzle rotates 360° and can be angled 180° in any position between straight up and straight down. Stable stand adjusts from 24" to 43½", making it ideal for portable power tools!



The Shop Fox **W1055 Dust Collection Accessories Kit #2** provides the necessary hoses, clamps, hoods, and fittings to connect two woodworking machines to a dust collector duct line. 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. Kit includes: (2) 4" blast gates (W1007), (2) 4" x 10' flexible hose (W1031), (1) table saw dust hood (W1004), (1) universal dust hood (W1010), (1) 4" Y-fitting (W1015), and (10) 4" wire hose clamps (W1317). Shipping weight: approximately 16 lbs.



The Shop Fox **Blast Gates** are used in every dust collection system to control air flow from one machine to another, which maximizes system efficiency. We offer blast gates in both black ABS plastic and aluminum. Plastic blast gates are economically priced, and have a 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.



Plastic Blast Gates:

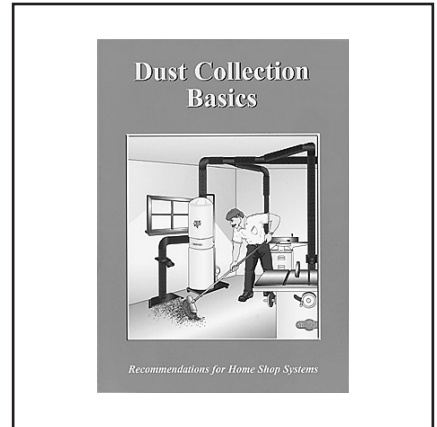
- W1006—3" OD*
- W1007—4" OD*
- W1008—5" OD*
- W1009—6" OD*

Metal Blast Gates:

- W1141—3" OD*
- W1142—4" OD*
- *Outside Diameter

Shop Fox W1050 Dust Collection Basics Handbook

Many do-it-yourselfers trying to designing and set up a central dust collection system lack the information needed to build such a system! This book skillfully guides the woodworker through all the steps necessary in the design and construction of an efficient system and provides tips for easy installation. With sixty pages of concise information, including photographs and illustrations, this handbook is a "must." This book is key to promoting a complete line of dust collection products.



OPERATIONS

Shop Fox W1003 Floor Sweep

This is one of the handiest items to have in the shop! Use it in conjunction with our 4" blast gate (W1007) to clean up floor messes. Sweep dust in, and it's gone! Close the blast gate when the floor sweep is not in use. Attaches easily to the floor with double-side tape.



MAINTENANCE

General

Regular 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.
- Any other condition that could hamper the safe operation of this machine.

Emptying Drum

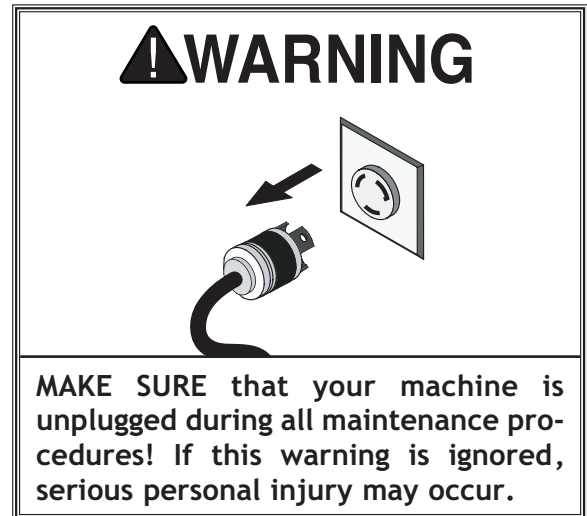
Empty the collection drum when it is no more than $\frac{3}{4}$ full. If the drum is overfilled, dust will be sucked into the inlet cylinder and pass through to the filter.

How quickly the drum will fill up is based on the type of work being done at that time.

A machine that produces fine dust, such as a sander or table saw, will slowly fill the drum.

A machine that produces curly shavings, such as a planer or jointer, will quickly fill the drum.

In the beginning, check your drum regularly to get an idea of how often it needs to be emptied.



Lubrication

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

Removing Canister Filter

The canister filter assemblies can be easily removed for replacing or cleaning.

Tools Needed	Qty
Wrench or Socket 12mm.....	1

To remove a canister filter, do these steps:

1. DISCONNECT MACHINE FROM POWER!
2. Remove the bag clamp and the collection bag from the canister bottom.
3. With the help of another person to support the canister filter, remove the hex bolt and fender washer from the center shaft shown in **Figure 52**.
4. Slide the filter off the cleaning assembly, making sure not to damage the cleaning flaps.

Note: The upper filter seal that mates with the blower housing assembly is very tight. It may be necessary to wiggle the filter back and forth with a downward pressure to remove it.

To replace the canister filter, perform the above steps in reverse.

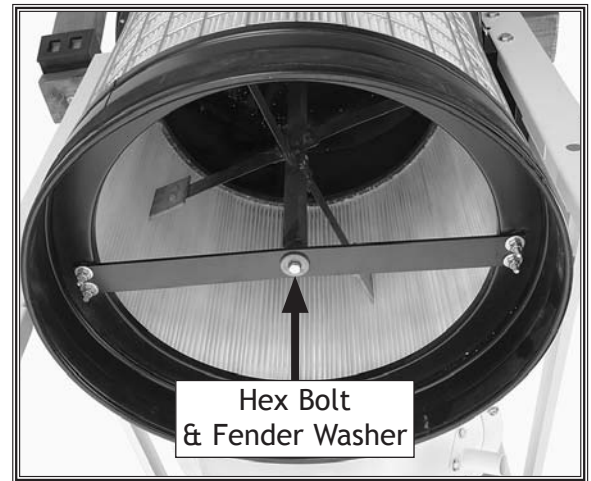


Figure 52. Hex bolt and fender washer that secure the canister filter.

Cleaning Canister Filter

Your cyclone dust collector is equipped with easy-to-use canister filter cleaning mechanisms that are controlled by the cleaning handles on the tops of the canisters (see **Figure 53**). To clean the filters, rotate the cranks 3-4 revolutions to knock the caked dust from the inside filter pleats into the attached collection bag.

Empty the canister collection bag when it is no more than $\frac{3}{4}$ full. If the bag becomes overfilled, the dust collector will become ineffective in removing the fine dust from the lines.

Rinsing Canister Filter

For a thorough cleaning, the filter can be removed and rinsed off. However, make sure to clean the filter with the cleaning mechanisms first. Allow the filter to air dry, but do not leave it out in the sun or use compressed air—both could damage the filter fabric.

NOTICE

To avoid damaging the filter fabric, do not leave it in the sun or use compressed air in the cleaning process.

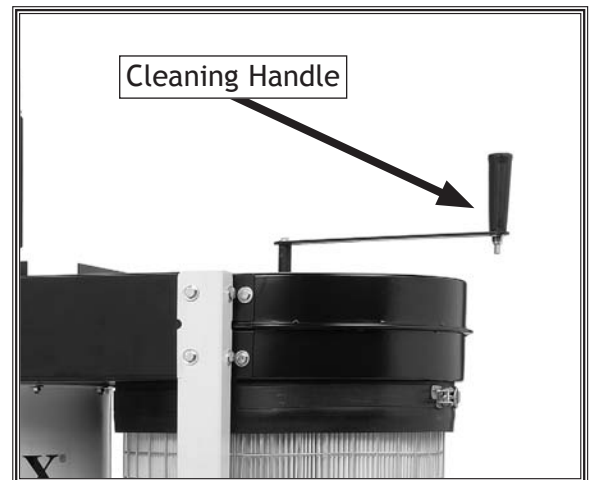


Figure 53. Canister cleaning handle.

MAINTENANCE

SERVICE

Troubleshooting



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

PROBLEM	POSSIBLE CAUSE	CORRECTIVE ACTION
Motor will not start or it growls on start up.	<ol style="list-style-type: none"> 1. Power supply fuse or circuit breaker has tripped. 2. Magnetic switch components are at fault. 3. Start capacitor is at fault. 4. Motor fan cover is dented. 5. Motor is at fault. 	<ol style="list-style-type: none"> 1. Make sure machine is connected to properly designed duct line; inspect circuit for electrical shorts and repair; replace circuit breaker. 2. Disconnect power, and check/replace magnetic switch components. 3. Replace start capacitor. 4. Replace motor fan cover (and fan, if damaged). 5. Replace motor.
Motor runs slower than normal.	<ol style="list-style-type: none"> 1. Poor electrical connection. 2. Low power source voltage. 3. Motor is at fault. 	<ol style="list-style-type: none"> 1. Inspect the power supply for loose, corroded, or overheated electrical connection; repair wiring. 2. Have the power source voltage checked; reduce the length of the extension cord. 3. Replace motor.
Overload light illuminates and motor stops.	<ol style="list-style-type: none"> 1. Machine is overloaded. 	<ol style="list-style-type: none"> 1. Allow to motor to cool; make sure canister filters are properly installed and the duct line is connected. (Note: If machine is not connected to a properly designed duct line, the load on the motor is at its greatest and may trip the overload relay).
Loud, repetitious noise, or excessive vibration coming from dust collector.	<ol style="list-style-type: none"> 1. Machine is not secure on a flat surface and wobbles. 2. Impeller fan is damaged and unbalanced; motor fan cover is damaged. 3. The motor mount is loose. 4. Impeller is loose on the motor shaft. 	<ol style="list-style-type: none"> 1. Stabilize and secure the machine to a flat surface. 2. Replace fan/motor fan cover. 3. Re-tighten all fasteners on the dust collector. 4. Re-tighten; replace the motor and impeller as a set if the motor shaft or impeller hub is damaged.
Dust collector does not adequately collect dust or chips; poor performance.	<ol style="list-style-type: none"> 1. Collection bag(s) full. 2. Canister filter is dirty. 3. Duct line blockage. 4. Dust collector is too far away from machine(s), or there are too many sharp bends in the duct line. 5. Lumber is wet and the debris is not flowing through the lines. 6. There are leaks in the duct line, or too many open ports. 7. Not enough open branches at one time causing a velocity drop in the main line. 8. Duct lines and ports are incorrectly sized. 9. Machine dust collection design is inadequate. 10. Dust collector capacity is too small for the dust collection system. 	<ol style="list-style-type: none"> 1. Empty the collection bag(s). 2. Clean the filter. 3. Remove dust line from dust collector inlet and unblock the restriction in the duct line. A plumbing snake may be necessary. 4. Relocate dust collector closer to the point of suction, and rework duct line without sharp bends. Refer to System Design on Page 27 for more solutions. 5. Process lumber with less than 20% moisture content. 6. Rework duct line to eliminate all leaks. Close dust ports for lines not being used. Refer to System Design on Page 27 for more solutions. 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 on Page 27 for more solutions. 9. Use a dust collection nozzle on a stand. 10. Install a larger dust collector to power your dust collection system.

SERVICE

Electrical Safety Instructions

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. Study this diagram carefully. If you notice differences between your machine and these wiring diagrams, call Woodstock International Technical Support at (360) 734-3482.

WARNING

1. **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!
2. **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.
3. **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.
4. **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.
5. **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.
6. **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.
7. **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.
8. **ELECTRICAL REQUIREMENTS.** You **MUST** follow the electrical requirements at the beginning of this manual when connecting your machine to a power source.
9. **EXPERIENCING DIFFICULTIES.** If you are experiencing difficulties understanding the information included in this section, contact our Technical Support at (360) 734-3482.

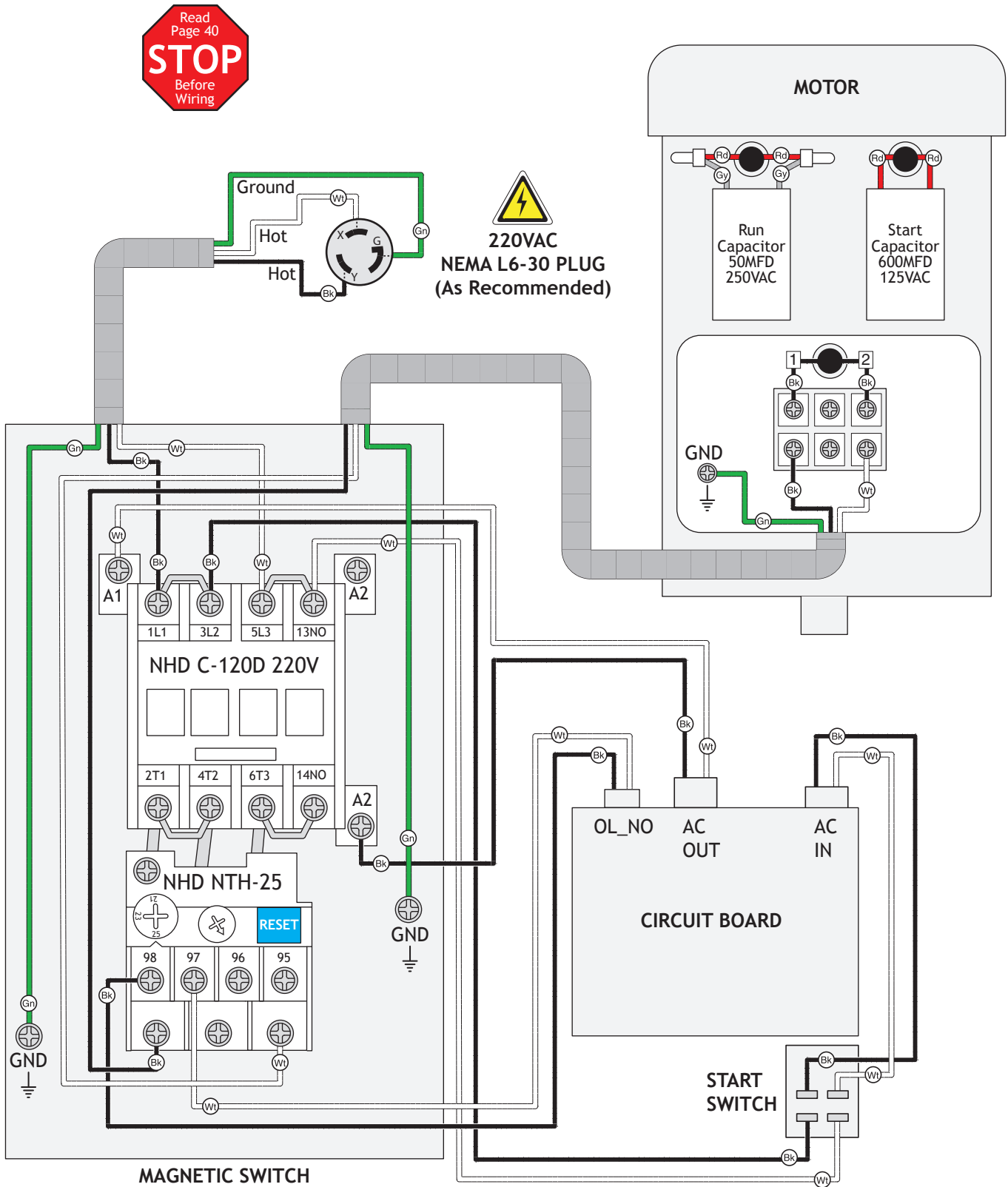
NOTICE

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

Wiring Diagram



SERVICE

Wiring Components

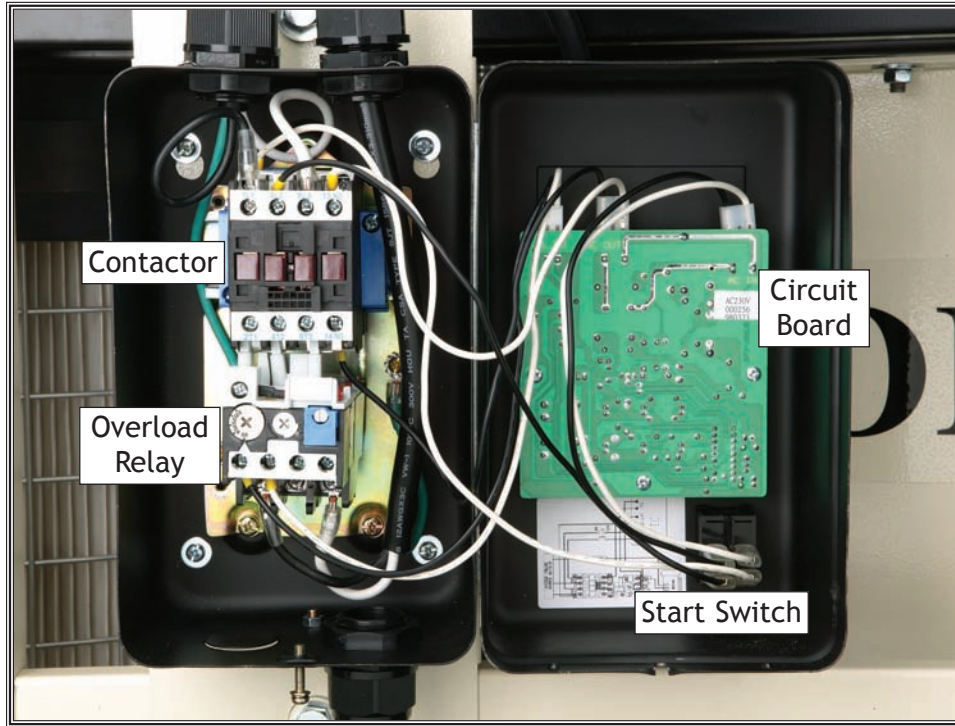


Figure 54. Magnetic switch wiring.

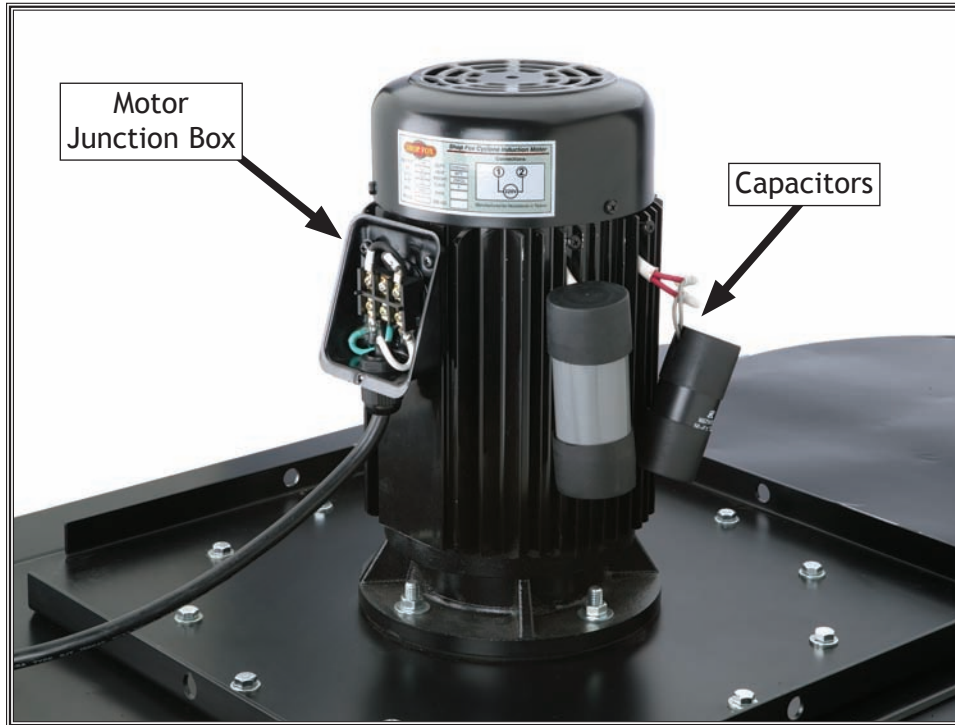
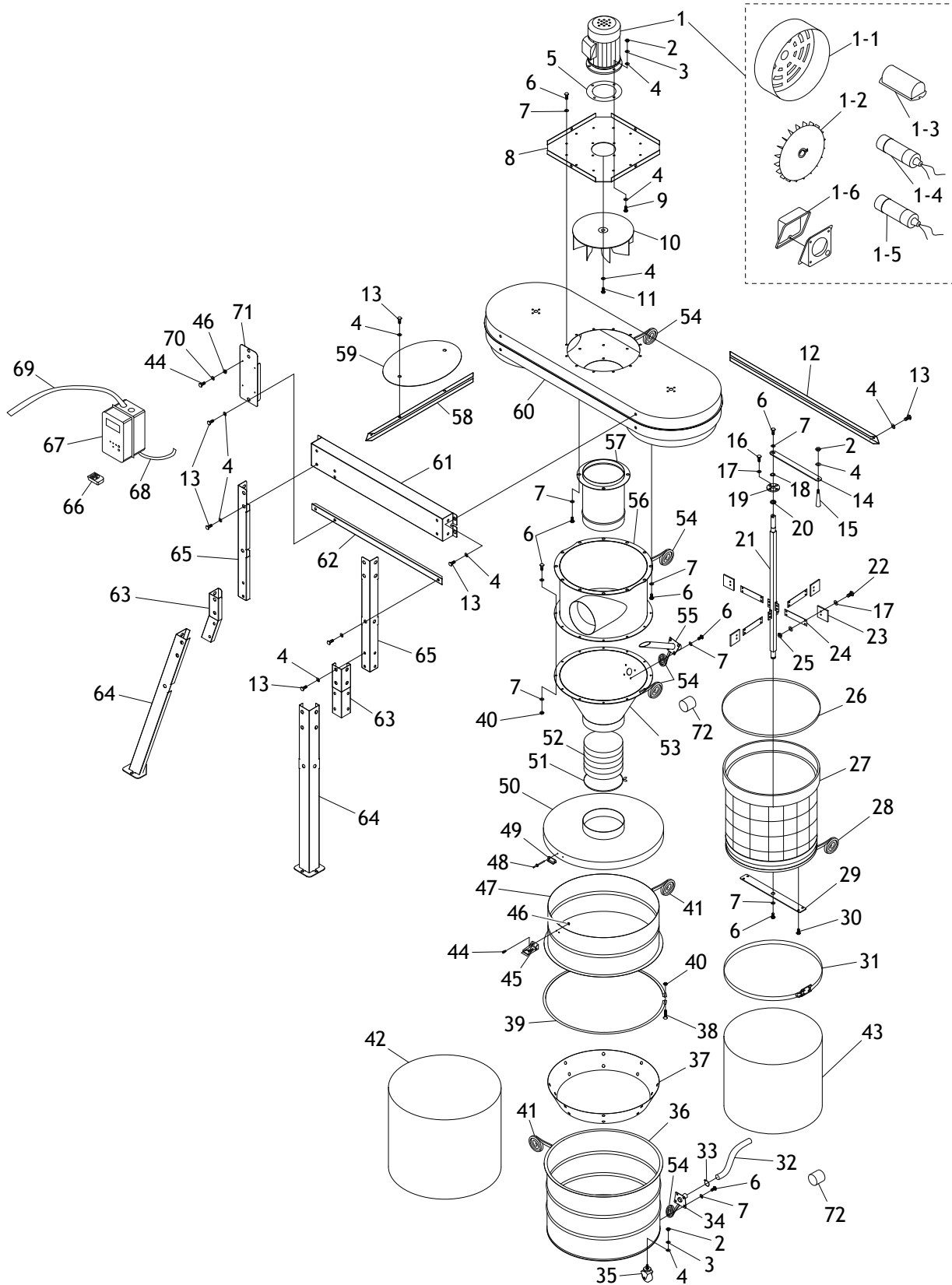


Figure 55. Motor wiring.

PARTS

Main



Main Parts List

REF PART #	DESCRIPTION
1	X1816001 MOTOR 3HP 220V 1PH 60HZ
1-1	X1816001-1 MOTOR FAN COVER
1-2	X1816001-2 MOTOR FAN
1-3	X1816001-3 CAPACITOR COVER
1-4	XPC050C R CAPACITOR 50M 250V 1-1/2 X 2-1/2
1-5	XPC600 S CAPACITOR 600M 125V 1-3/4 X 3-5/16
1-6	X1816001-6 MOTOR JUNCTION BOX
2	XPN08 HEX NUT 3/8-16
3	XPLW04 LOCK WASHER 3/8
4	XPW02 FLAT WASHER 3/8
5	X1816005 MOTOR MOUNT GASKET
6	XPB07 HEX BOLT 5/16-18 X 3/4
7	XPW07 FLAT WASHER 5/16
8	X1816008 MOTOR MOUNT
9	XPB16 HEX BOLT 3/8-16 X 1-1/2
10	X1816010 IMPELLER 14-1/2"
11	XPB103 HEX BOLT 3/8-16 X 1 LH
12	X1816012 LOWER REAR STAND BRACE
13	XPB21 HEX BOLT 3/8-16 X 3/4
14	X1816014 CLEANING CRANK ARM
15	X1816015 PLASTIC HANDLE BOLT
16	XPB31 HEX BOLT 1/4-20 X 1
17	XPW06 FLAT WASHER 1/4
18	XPR83M INT RETAINING RING 20MM
19	X1816019 CLEANING SHAFT CAP 70MM
20	X1816020 SHAFT CAP SEAL
21	X1816021 FILTER CLEANING SHAFT
22	XPB02 HEX BOLT 1/4-20 X 5/8
23	X1816023 FILTER CLEANING FLAPPER
24	X1816024 FLAPPER ARM
25	XPN05 HEX NUT 1/4-20
26	X1816026 FILTER CLAMP
27	X1816027 CARTRIDGE FILTER
28	X1816028 FOAM TAPE 3 X 25MM
29	X1816029 CLEANING SHAFT BASE
30	XPS02M PHLP HD SCR M4-.7 X 12
31	X1816031 DUST BAG CLAMP
32	X1816032 FLEXIBLE VACUUM HOSE 1-1/4" DIA
33	X1816033 HOSE CLAMP 1-1/4"

REF PART #	DESCRIPTION
34	X1816034 COLLECTION DRUM VACUUM PIPE
35	X1816035 COLLECTION DRUM CASTER 2"
36	X1816036 LOWER COLLECTION DRUM
37	X1816037 COLLECTION DRUM VACUUM PLATE
38	XPB04 HEX BOLT 5/16-18 X 3
39	X1816039 DRUM CLAMP
40	XPN02 HEX NUT 5/16-18
41	X1816041 COLLECTION DRUM SEAL
42	X1816042 PLASTIC DRUM BAG 640 X 1000MM
43	X1816043 PLASTIC FILTER BAG 510 X 600MM
44	XPS06 PHLP HD SCR 10-24 X 3/8
45	X1816045 DRUM LID LATCH ASSEMBLY
46	XPN07 HEX NUT 10-24
47	X1816047 UPPER COLLECTION DRUM
48	XPRIV004M STEEL BLIND RIVET 4 X 10MM
49	X1816049 DRUM LID HOOK
50	X1816050 COLLECTION DRUM LID
51	X1816051 HOSE CLAMP 9"
52	X1816052 CLEAR FLEXIBLE DRUM HOSE 9"
53	X1816053 CYCLONE FUNNEL
54	X1816054 FOAM TAPE 3 X 6MM
55	X1816055 FUNNEL VACUUM PIPE
56	X1816056 INTAKE BARREL
57	X1816057 INTAKE CYLINDER
58	X1816058 STAND SIDE BRACE
59	X1816059 DUST BAG SHELF
60	X1816060 BLOWER HOUSING
61	X1816061 BLOWER HOUSING BRACKET
62	X1816062 UPPER STAND BRACE
63	X1816063 STAND LEG CONNECTOR
64	X1816064 LOWER STAND LEG
65	X1816065 UPPER STAND LEG
66	X1816066 REMOTE CONTROL
67	X1816067 REMOTE MAG SWITCH ASSY 220V
68	X1816068 MOTOR CORD 3W/12G/220V
69	X1816069 POWER CORD 3W/12G/220V
70	XPW03 FLAT WASHER #10
71	X1816071 SWITCH MOUNTING BRACKET
72	X1816072 PLASTIC HOSE PLUG 1-1/4"

Machine Labels - Front

100

WARNING!
READ and UNDERSTAND MANUAL to avoid serious injury! If a manual is not available, DO NOT use machine! Instead, go to www.shopfox.biz or call (800) 840-8420.

101

SHOP FOX
W1816 3 HP LOW-PROFILE CYCLONE DUST COLLECTOR
Motor: 3 HP, 220V, Single-Phase
Motor Speed: 3450 RPM
Max. Suction Capacity: 1654 CFM
Static Pressure @ 1654 CFM: 2.2
Inlet Size: 8"
Impeller Size: 14-1/2"
Canister Filter Surface Area: 90.42 R²
Weight: 375 lbs.

Date _____
Serial Number _____
Manufactured for Woodstock in Taiwan

WARNING
To reduce risk of serious injury when using this machine:
1. Read and understand owner's manual before starting.
2. Never place hands near inlet when machine is connected to power.
3. Disconnect machine from power and make sure impeller has come to a complete stop before performing maintenance, service, or changing bags.
4. Always wear ANSI approved eye protection and respirator when changing bags.
5. Connect power cord to grounded outlet only.
6. Do not wear loose clothing, gloves or jewelry. Secure long hair and button long sleeves.
7. Never collect glass, water, or metal with dust collector. Only collect wood fiber dust and chips.
8. Do not expose to rain or dampness.
9. Do not modify dust collector in any way.
10. Always make sure ducting is properly grounded.
11. Dispose of collected material in approved containers.
12. Never leave dust collector running unattended.

102

103

WARNING!
READ OPERATING INSTRUCTIONS BEFORE LEASE! Improper installation or application of motor may result in fire, explosion, electric shock or personal injury.
MOTOR CONTAINS NO THERMAL PROTECTION! Additional overcurrent protection must be provided to prevent burnout and possible fire hazard from overload or stalled motor.
Turn OFF power before servicing or connecting. Ground the motor frame with grounding cord, green ground screw or green wire. Insulate any exposed lead wires immediately. Thermal cover must be installed during operation. Failure to comply may result in serious injury.
DO NOT place your fingers or objects near while the motor is connected to a power source.

104

SHOP FOX Shop Fox Cyclone Induction Motor

OUTPUT	3HP	DUTY	Continuous
HZ	60	HEAT	40°C
VOLT	220	WEIGHT	29Klbs
AMP	12	CLASS	F
RPM	3450	DATE	
PHASE	1	SER. NO.	

Connections:

Manufactured for Woodstock in Taiwan

105

CAUTION!
ALWAYS WEAR A DUST MASK WHEN OPERATING DUST COLLECTOR OR EMPTYING BAGS!

106

SHOP FOX®
W1816

107

REMOTE CONTROL SWITCH

ON/OFF
2H 4H 8H
OVER RUN POWER
TIMER

220 VOLT

SHOP FOX®

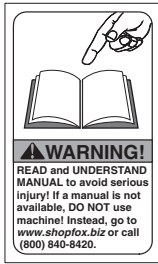
W1816

!WARNING

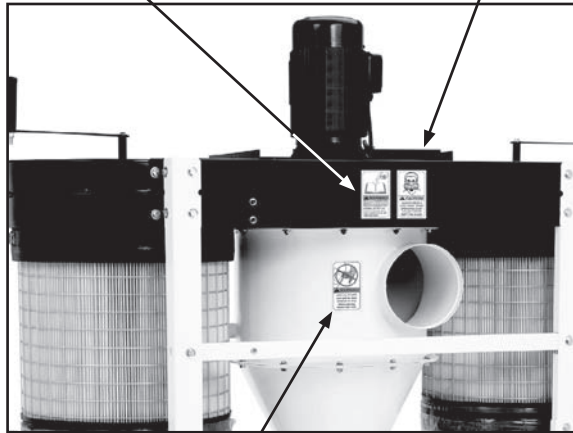
Safety labels warn about machine hazards and how to prevent machine damage or injury. The owner of this machine **MUST** maintain the original location and readability of all labels on this machine. If any label is removed or becomes unreadable, **REPLACE** that label before allowing the machine to enter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

Machine Labels - Rear

100



105



108



109



REF	PART #	DESCRIPTION
100	XPLABEL-12	READ MANUAL LABEL
101	X1816101	MACHINE ID LABEL
102	XPLABEL-14	ELECTRICITY LABEL
103	X1816103	MOTOR WARNING LABEL
104	X1816104	MOTOR SPECIFICATIONS LABEL

REF	PART #	DESCRIPTION
105	X1816105	DUST MASK LABEL
106	X1816106	MODEL NUMBER/LOGO LABEL
107	X1816107	REMOTE CONTROL SWITCH LABEL
108	X1816108	REMOTE CONTROL LABEL
109	X1816109	INTAKE WARNING LABEL



Warranty Registration

Name _____
 Street _____
 City _____ State _____ Zip _____
 Phone # _____ Email _____ Invoice # _____
 Model # _____ Serial # _____ Dealer Name _____ Purchase Date _____

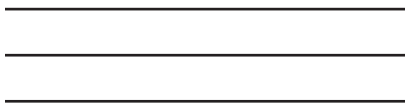
The following information is given on a voluntary basis. It will be used for marketing purposes to help us develop better products and services. Of course, all information is strictly confidential.

- How did you learn about us?
 Advertisement Friend Local Store
 Mail Order Catalog Website Other:
- How long have you been a woodworker/metalworker?
 0-2 Years 2-8 Years 8-20 Years 20+ Years
- How many of your machines or tools are Shop Fox?
 0-2 3-5 6-9 10+
- Do you think your machine represents a good value? Yes No
- Would you recommend Shop Fox products to a friend? Yes No
- What is your age group?
 20-29 30-39 40-49
 50-59 60-69 70+
- 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+
- 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 or replace, at its expense and at its option, the Shop Fox machine or machine part, which in normal use has proven to be defective, provided that the original owner returns the product prepaid to a Shop Fox factory service center 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 or acts. In no event shall Woodstock International, Inc.'s liability under this 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.



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