

Professional Troubleshooting Solutions, con't.

#6 Clog in hose.

- A. Reverse the hose at inlet on power unit. Suck it out.
- B. Drop kitchen knife or heavy object thru hose - sling it or squeeze hose and twist to get through.
- C. Shove garden hose thru vac hose (don't turn water on!).

#7 Unit is good, pipes have leaks.

- A. Recent work done on house?
- B. Recent wallpapering or paneling? Inlet removed or re-installed wrong?
- C. Inlet lid broken?
- D. Hidden or forgotten inlet?
- E. Inlets installed in floor; pipe fell down or loose.
- F. Turn unit on and walk around house listening for leak.
- G. Inlet roughed in but not found on finish?
- H. Pipe running underground has break in it.
- I. Recent gardening or tree has strangled it.

#8 The Power unit has bad suction.

- A. If multi-motored unit: are both working?
- B. Check power unit gaskets and cracks in housing.
- C. Improper voltage into power unit.
- D. Loose wires.
- E. Mini-breaker has malfunctioned.
- F. On cyclonic unit: 1) Unit and debris in motor fan blades; 2) Lint and debris on screen on intake; 3) Too much back pressure from exhaust run being far. Something is blocking exhaust line.
- G. On bag type unit: Excessive amount of very fine plaster dust clogging primary or secondary filter.
- H. Motor loose. Lid not tight/filter in the way.

#9 Short in power unit.

- A. Directly isolate low voltage leads alone (disconnect all auxiliary switches).
- B. Short in relay (very rare).

#10 Short in low voltage system.

- A. Recent attic work or someone in crawlspace?
- B. Rats chewed through wire?
- C. Disconnect any splices you can find and check continuity of short.
- D. Worst case: re-route wire from any other working inlet or wire. (Possibly running wire behind baseboards, under carpet, in closets, or in air ducts.)

#11 Relay or circuit board getting power but not starting unit.

- A. Most likely motor brushes.
- B. Isolate motor and see if it works.
- C. Check wiring from relay or circuit board to motor.
- D. Motor can fail even with brand new brushes.

#12 The power unit is not getting electricity.

- A. Check house circuit breaker.
- B. Try vacuum in another outlet.
- C. Is the circuit breaker the right size for the power unit?
- D. See what is on the circuit - is it overloaded?
- E. Continually recheck the system after you get power to see if it was the vac that had tripped the circuit.
- F. If necessary, have an electrician look at it.

#13 Transformer and motor not getting power.

- A. Bad circuit board? Bad cord (rare)?
- B. Bad transformer, check for spark between two low voltage wires out of transformer.
- C. Bad relay, check points: arc across to see if it solves it.

#14 Low voltage in hose is not working.

- A. If switch feels "mushy" then it needs to be replaced.
- B. Remove hose from wall and take apart the handle end. Look for lint or other debris in contact points.
- C. Make sure hose is being fully inserted into inlet.
- D. Hose may need to be replaced.



CENTRAL VACUUM ACCESSORY

OWNER'S MANUAL

BlackHawk Hose & Tool Kit

from M.D. Manufacturing, Inc.

www.builtinvacuum.com

BlackHawk Kit Includes:

- | | |
|--|---|
| <ul style="list-style-type: none">• BlackHawk Power Brush• Crushproof Hose• Floor Brush• Deluxe Dusting Brush• Upholstery Tool | <ul style="list-style-type: none">• Crevice Tool• 21" Chrome Wands (2)• Deluxe Nylon Tool Caddy• PVC Hose Hanger |
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Available Accessories:

- Mini Carpet Brushes
- Garage Hose & Tool Kit
- Miniblind Tool
- Ceiling Fan Tool
- Micro Attachments
- Pet Brushes
- and much more....

Check them out at
builtinvacuum.com

Full Two-Year Warranty on Attachments

M.D. Manufacturing, Inc., warrants the BlackHawk Power Brush and attachment kit from defects in material and workmanship under normal household usage for a period of two 2-years from date of purchase. This warranty does not include damage to the product resulting from accident, misuse, commercial applications or if repairs have been performed by unauthorized personnel. Ordinary wear and tear is also not covered under this warranty for parts such as belts. If the product should become defective within the warranty period, or for questions regarding the warranty or service, first call the original Authorized Dealer from whom the purchase was made. If that dealer is not available within a reasonable period of time, please call MD Customer Service at (800) 997-2278. A return authorization number will be required for items sent to M.D. Manufacturing, Inc. The customer is responsible for the cost of sending any item to M.D. Manufacturing, Inc. Returned items that are repaired under warranty will be repaired and returned for free. MD reserves the right to replace the product with one of equal or greater value.

WHEN USING AN ELECTRICAL APPLIANCE, BASIC PRECAUTIONS SHOULD ALWAYS BE FOLLOWED, INCLUDING THE FOLLOWING:

IMPORTANT SAFETY INSTRUCTIONS

Read these operating instructions carefully.

<ul style="list-style-type: none"> • Be sure hose is inserted securely into the inlet valve before attempting to vacuum • Always keep hands, feet, hair and clothes away when vacuuming. • Do not use on any wet surfaces. • Do not leave the vacuum unattended and do not allow the vacuum to be used as a toy. • Do not leave hose plugged in when not in use or during servicing of your central vacuum unit • Do not put any objects into openings. Do not use with any openings blocked: keep free of dust, lint, hair, and anything that may reduce air flow 	<ul style="list-style-type: none"> • Do not suck up matches, ash or cigarettes that are still burning. • Do not suck up flammable liquid materials or any other liquid material. • Avoid vacuuming hard or sharp objects or damage may result. • Do not vacuum over electrical cord. It can become tangled and create an electrical hazard. • Do not handle hose, outlets or vacuum unit with wet hands. • Use only as described in this manual. Use only manufacturer's recommended attachments.
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**Contact your local dealer for any questions.
Find your local dealer at builtinvacuum.com**

Professional Troubleshooting Solutions

#1 Electrical failure.

- A. If the inlets are Supervalves, plug the power brush directly into the valve. If the power brush works, the problem is in the high voltage lines in the hose – likely a blown fuse in the hose. Also see #14.
- B. Check brush for bad neck tilt switch or reset button.
- C. Put power directly to brush motor to see if the motor is bad.
- D. Check cord connections from hose to brush.
- E. Check to see that Supervalves/Electravalves have 110 volts.

#2 Clog somewhere else in the system.

- A. Check power brush.
- B. Check wands.

#3 Clog in vacuum tubing.

- A. Check fitting just inside inlet and just inside of power unit for debris.
- B. Isolate exactly where clog is — by running 1 styro-foam ball (each numbered) thru each inlet. Find which balls made it to the power unit.
- C. Reverse vacuum with other portable vacuum or built-in vacuum (first disconnect built-in vacuum from vacuum lines.) Suck from the inlet that is bad.
- D. Run electrician's fish-tape thru and try to hook object.
- E. Plug into inlet, put hand over hose end to build pressure, then suddenly release. Try this multiple times from various inlets.
- F. Run paper towel thru as a "pig" towards motor unit, then reverse suck with a portable to jar it.
- G. Run paper towel thru from motor unit toward portable at nonfunctioning inlet.
- * Very important: Now run paper towel thru all inlets and make sure they all arrive in power unit. If they don't, repeat steps A thru F.
- * If these solutions will still not free up the line - approximate where clog is and locate if accessible. (attic, crawlspace, closet...)
- G. Cut pipe and feel suction and visually inspect.
- H. Run paper towel through and listen for humming or vibration - possible nail in pipe or picture hung with toggle bolt into pipe.
- I. Run small string thru from motor unit to inlet w/ portable then tie heavier string – attach large object to heavier string. (Always tie a safety line to large object to pull it back if needed).
- J. Locate exact location by creating noise with ping-pong ball. Insert in inlet and turn on unit (remove inlet to get ball in). (Find least obvious way of lifting flooring or cutting into back of cupboard or ceiling to access

- logged spot. Cut pipe, remove clog, patch back access.)
- K. Again run paper towel thru each inlet.
- L. If only one inlet is clogged and cannot be fixed, relocate new pipe via existing installation method.
- M. Pipes that run underground can sometimes coagulate with debris from moisture.
 - i. Route out with long blunt object.
 - ii. Run 10 pounds of rice thru system into unit, repeat.
 - iii. Trench old lines and replace.
 - iv. If lines run under concrete driveway, relocate power unit in area where accessible to locate.
- N. Re-route pipes from section that does work to section that does not work. Abandon any unnecessary lines.
- O. Check for "wrong way" Y's or T's.
- P. Any recent construction or workers who might have driven nail into pipes (esp. closet organizers, phones, or alarms)?

#4 Bad inlet - replace inlet & plug hose in again.

- A. Check to see if old inlet is same type with contact points. If not; it may have a push button that requires a latching relay.
- B. When replacing inlet look to see if old one had tape on inlet neck, if so: put tape in approximate same location on new inlet. When re-installing vacuum, test for air leak. If slight hissing coming from inlet; additional tape is required on inlet neck.

#5 Low voltage wire cut.

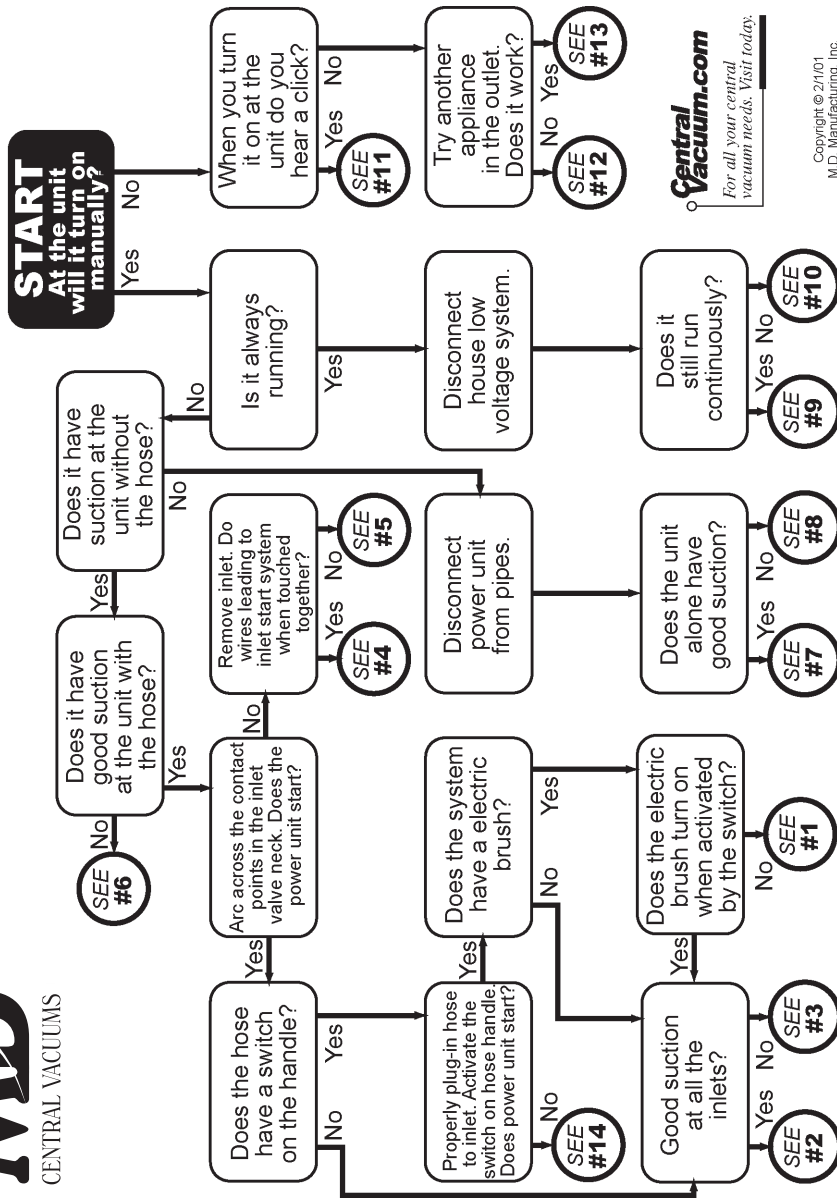
- A. Recent construction done?
- B. Rats?
- C. Detached garage with unit located in garage? Recent digging?
- D. Re-splice broken wire (coppers together and tins together).
- E. Wires disconnected at unit. (some units only.) 4 coming from unit plus at least 2 coming from house. Should be (1 black, 1 red, 1 from house) and (1 black, 1 yellow or red, 1 from house).
- F. Re-route wire from any working inlet or power unit to any section of wire of the inlet that does not work. (Run under carpet, behind baseboards, stapled in corners or closets or down inside of walls. Try to tie it to existing bad wire and pull it through).

continued on page 8



Professional Troubleshooting Guide

Solutions on following pages.



Congratulations,

On the purchase of your new M.D. central vacuum cleaning system. This manual covers safety, operations and maintenance of your hose and tool kit. All information in this publication is based on the latest product information available at the time of printing. M.D. Manufacturing, Inc. reserves the right to make changes at any time without notice and without incurring any obligation.

No part of this publication may be reproduced without prior written permission.

This manual should be considered a permanent part of your vacuum system and should remain with the vacuum system after purchase and installation.

If any problems should arise, or if you have any questions about your hose and tool kit, consult your local authorized M.D. Manufacturing, Inc. dealer, call us direct at (661) 283-7550, or visit our comprehensive website:

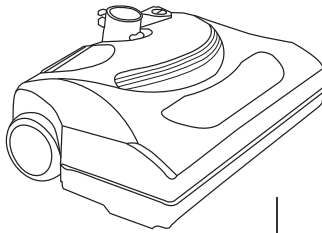
www.builtinvacuum.com
email: mdservice@builtinvacuum.com

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USING YOUR HOSE AND TOOL KIT

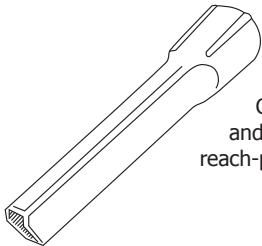
BlackHawk Power Brush

This is an electric beater brush. When both this and the vacuum unit are turned on, slowly glide the brush along the carpet. Turn the brush by slightly twisting the hose handle.



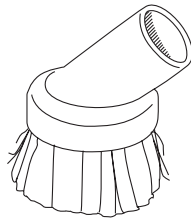
Crevice Tool

Great for door tracks, and for narrow, hard-to-reach-places.



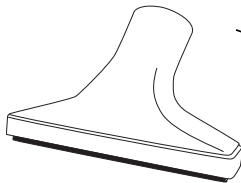
Dusting Brush

Use for baseboards, window sills, and more. Attach to wands to get cobwebs.



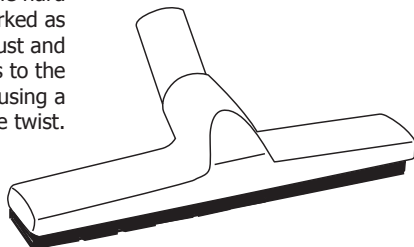
Upholstery Brush

Excellent for the sofa, car, drapes, and narrow places on the floor.



Floor Brush

The soft bristles along the bottom keep the hard floor surface unmarked as you vacuum up dust and debris. Attach this to the end of the wands using a gentle twist.



Installing your hose hanger

Install your hose hanger close to your general use area. The most common place is in an entry or utility closet. Install at shoulder/chest height. Locate a 2x4" stud near the center of the closet wall. Using the top middle screw hole and the bottom screw hole, secure the hanger to the wall. If the stud is not in a good location utilize the top left and right screw holes. Simply mark the wall, drill holes for plastic screw mounts, hammer them in, then secure the hose hanger with two screws.

Installing your tool caddy

After the hose hanger is mounted, simply slide the caddy's handle over the large, front-facing part of the hose hanger. You can also hang the caddy on a door knob as you are using the attachments.

Coiling your hose

Either place one end of the hose on the ground or on the hose hanger. Grabbing large sections of hose, twist it as you lay it down in circles. For best results, disconnect attachments before coiling the hose.

Assembling and starting

Step 1: Slide wands together fitting the smaller tapered end into the larger knurled end of the second wand aligning the button lock with the button hole.

Step 2: Slide the neck of the BlackHawk onto the tapered end of the chrome wand aligning the button lock into the locking tract.

Step 3: Wrap the cord once around the wands leaving the slack in the lower section, below the cord channel on the bottom wand.

Step 4 (diagram A): Insert the cord into the top channel by putting the pronged end in first. Insert the hose handle into top of wand. Push until the button lock clicks in place (the electric prongs will go into place as well).

Step 5: Insert the short metal end of your hose into the inlet valve. The electrical connection must be on the very top or bottom (diagram B). The vacuum unit comes on as you insert the hose end. If your hose has a cord on it, plug it into the nearest electrical outlet. Turn the vacuum brush on using the switch on the hose handle.

DETACHING: Simply push the button lock in and pull apart.

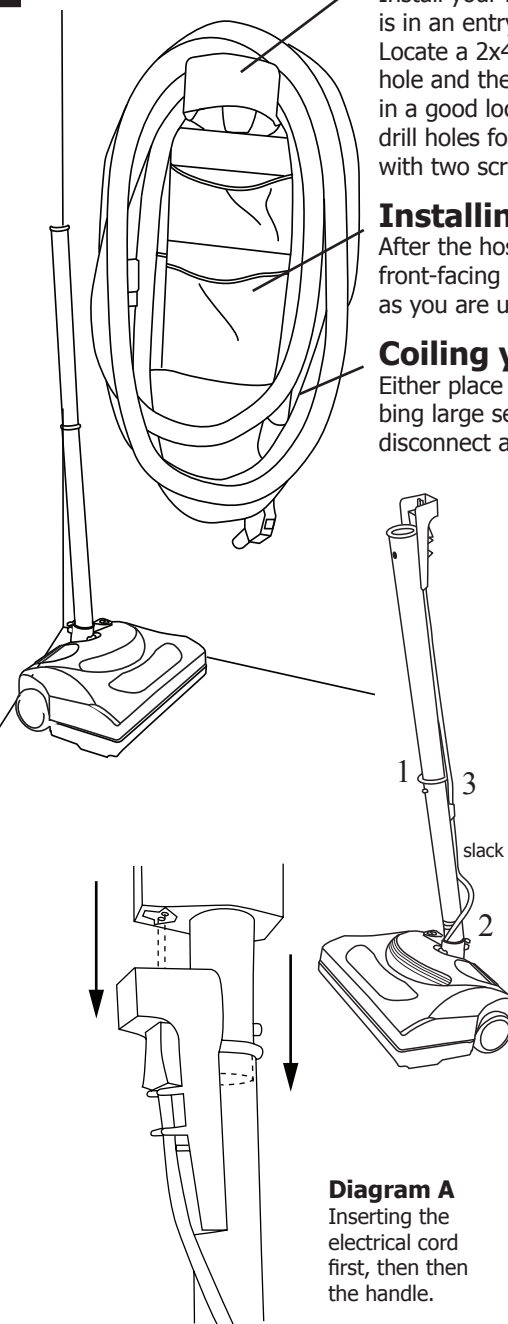
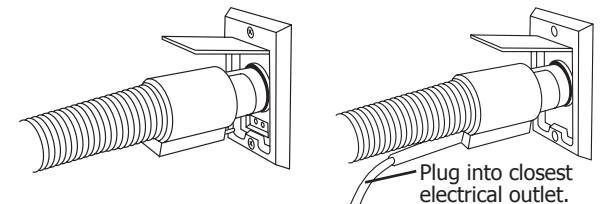


Diagram A
Inserting the electrical cord first, then then the handle.



Direct electrical connection Corded electrical connection
Inlet valves may be installed with the lid in other positions.

Diagram B