



H-P PRODUCTS, INC.

Power Unit *SERVICE* *GUIDE*

Measuring System Performance
Testing Low Voltage Wiring
Servicing Power Units

PLUS...
Useful Tools
Replacement Parts

H-P PRODUCTS SERVICE GUIDE

The H-P Products Service Guide is designed as a reference tool to help you easily pinpoint areas of the Central Vacuum System that require service.

The Service Guide is arranged in three sections:

1) MEASURING SYSTEM PERFORMANCE *(pages 4 - 6)*

This section deals primarily with the causes of poor performance at the valves and the power unit.

2) TESTING LOW VOLTAGE WIRING *(page 7)*

Addresses units that will not turn off and how to use a multimeter.

3) SERVICING POWER UNITS *(pages 8 - 10)*

Use these instructions when the power unit is not starting. Walks you through the process of bypassing motor components to determine problem location.

SERVICE TOOLS

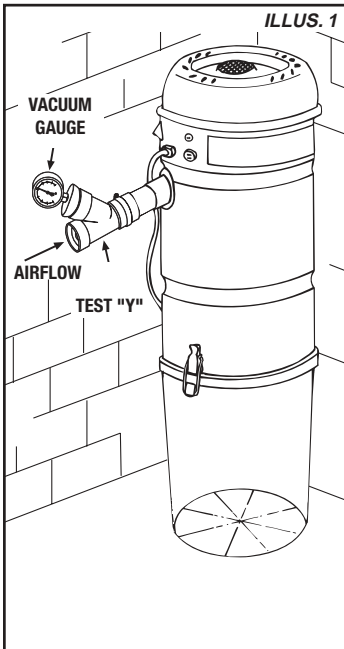
Using the proper tools will make servicing the Central Vacuum Systems and Power Units easy.

- **Screwdrivers** - Standard and Phillips
- **Needle Nose Pliers**
- **Multimeter**
(used to test electrical continuity, volts and amps)
- **Vacuum Gauge** (P/N 1247)
- **Test Y** (P/N 4448)

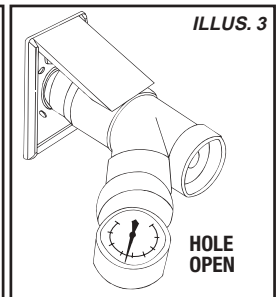
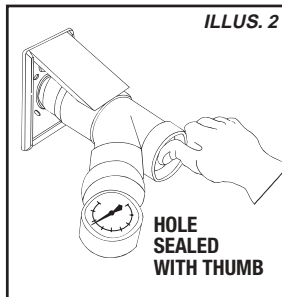
MEASURING VACUFLO SYSTEM PERFORMANCE

- Measure and record the sealed and working vacuum for each valve and the power unit. (See Illustrations 1, 2 and 3 Below)
- **Remember:**
 - Low sealed vacuum readings indicate leaks are present (system not sufficiently sealed.)
 - Low working vacuum readings indicate there may be clogs in the system. (Note: a few other conditions may cause low readings.)

READING LOCATION	<h2 style="margin: 0;">SAMPLE CHART ONLY</h2> <p style="margin: 0;">USE CHART ON THE BACK COVER TO RECORD YOUR READINGS</p>	
VALVE 1 LIVING ROOM		
VALVE 2 HALL		
VALVE 3 MASTER B.R.		
POWER UNIT		



- To measure performance at the power unit, disconnect the tubing from the intake side of the power unit. Place the Test "Y" into the rubber coupling on the power unit and turn unit on. (ILLUS. 1)
- SEALED VACUUM is measured like this with the power unit running. (ILLUS. 2)
- WORKING SUCTION is measured like this with the power unit running. (ILLUS. 3)
- Compare your readings with the minimum values shown in the chart on back cover.



If you determine the system has low working vacuum or low sealed suction, the outline below can help identify the problem:

POOR SEALED VACUUM

AT THE POWER UNIT

•**Look for leaks at Power Unit (see ILLUS. 4)**

- Check inlet tube seal.
- Check dirt pan gasket.
- Check motor plate seal.
- Check gasket under motor.
- Check motor for excessive arcing. Normal motor operation has a small blue spark at the brushes.

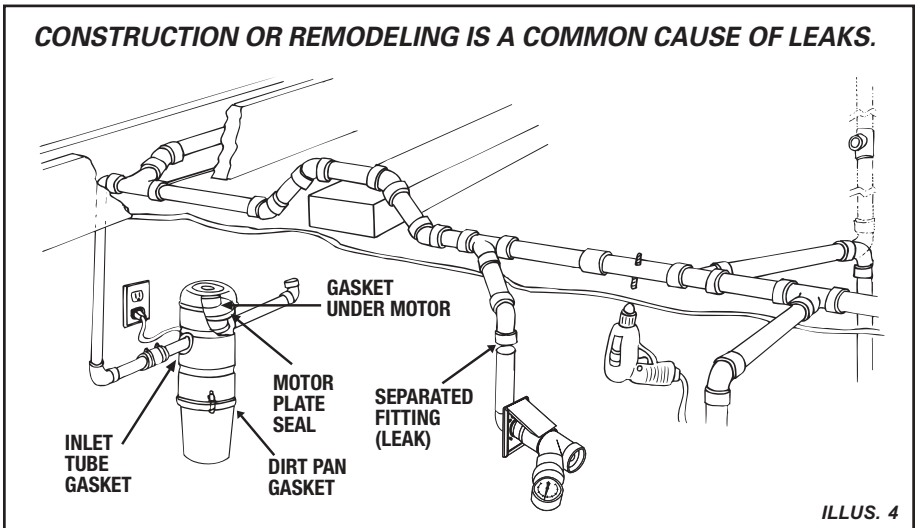
AT INLET VALVES

•**Tubing system has leak (see ILLUS. 4)**

•**Has work been done on the house recently?**

- Has someone drilled, sawed or nailed through the PVC tubing?
- Has one of the fittings separated from the tubing?
- Is a valve cracked or unsealed?
- Was a valve roughed-in but missed in completion?

•**Turn Power Unit on** by shorting low voltage terminals together. All valves must be closed while power unit is running. Listen for air leaks as you walk around house. *NOTE: Limit this test to 10 minutes at a time because motor bearings depend on air flow for cooling.*



POOR WORKING VACUUM

AT POWER UNIT

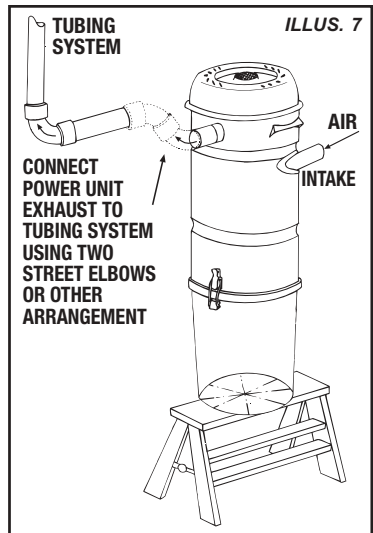
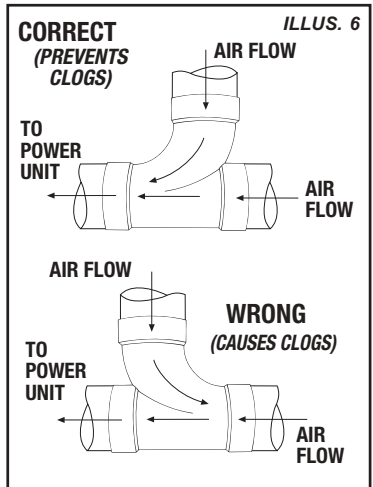
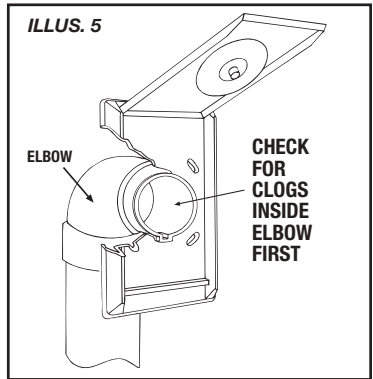
- **Power Unit should be on individual branch circuit.**
 - Check for low voltage at electrical outlet (*Minimum of 105 Volts*).
 - Clean screen inside unit, (*True Cyclonic*) or replace filter (*Filtered Cyclonic*).
 - Look for clogs at inlet AND exhaust
 - Check exhaust for excessive long run (*30 ft. Max*).
 - Check motor for excessive arcing. Normal motor operation has a small blue spark at the brushes.

AT INLET VALVES

- **Look for a clog in the tubing system.**
 - Most clogs occur at a tubing intersection or tight bend.
 - First, check the Adapter Elbow (ILLUS.5) inside each valve for clogging.
 - Check for TY's which have been installed improperly (ILLUS. 6).
- **Locate clog**
 - Run a one inch styrofoam ball through each valve. Number each ball for identification. See which balls make it through to the dirt pan.
 - Balls not reaching the power unit indicate a clog near that valve.

•To remove clog

- Disconnect power unit from tubing system.
- Connect power unit EXHAUST to tubing system (ILLUS. 7)
- Tape properly working valves closed w/ good quality tape like duct tape.
- Prop open the valve door at the clogged end.
- Turn on power unit (**CAUTION: Be prepared for dust and dirt to blow out of the open valves.**)
- Some clogs may need to be removed with a snake or electrical fish tape.
- As a last resort cut the tubing for visual inspection. Turn on power unit to evaluate tubing performance where you cut it. Use the Test "Y". Is the clog before or after the cut? Clear Clog and reassemble tubing with slip coupling and glue.



TESTING LOW VOLTAGE WIRING

If the power unit turns on but will not turn off, there may be a problem with the low-voltage wiring. Follow the steps below to make this diagnosis.

- **Disconnect the low-voltage wires**

from the outside of the power unit (ILLUS. 8)

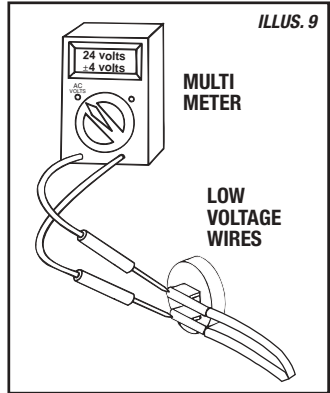
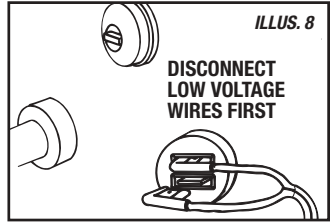
- If power unit continues to run, replace circuit board.
- If power unit shuts off, check the following:
 - Do valve doors close completely?
 - Are valve switches working properly?
 - Has a staple been driven through the wire, shorting the conductors together?
 - Have two wires been connected together which should be separate?
 - Have low voltage wires been bent so they are touching?

- **All H-P Central Vacuum Systems use 24 volts AC in the low voltage system.**

Low Voltage can be quickly checked at the unit with a multimeter. (ILLUS. 9)

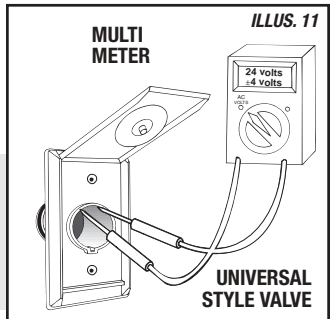
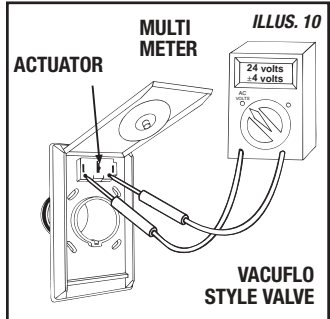
- **All valve connections must be wired in parallel.**

- **There is no polarity of wires** with AC current.



Remember to measure **AC Voltage** at the valve (ILLUS. 10 & 11). Voltmeter should read 24 volts \pm 4 volts when valve actuator is pushed in. Reading should be less than one volt when actuator on valve is allowed to spring out.

- If meter does not read 24 volts \pm 4 volts AC, check:
 - Wire connection on back of valve. A slight tug on wires will show if they are locked in place. A wire strip length gauge is molded into the valve
 - Has someone driven a staple through the wire or cut it?
 - As a last resort, run new wiring.



- **When reinstalling valve, DO NOT over tighten mounting screws.**

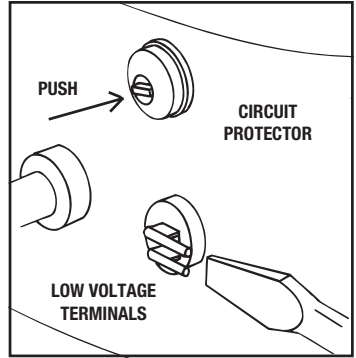
Overtightening screws will prevent valve door from closing completely.

SERVICING THE POWER UNITS

If the power unit will not turn on, you can quickly diagnose the problem by using the following process of elimination.

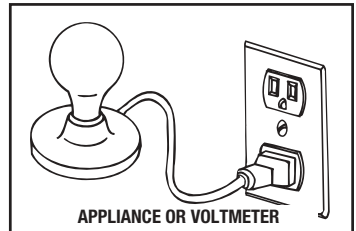
TRIPPED CIRCUIT PROTECTOR

- **UNIT IS PLUGGED IN.**
- Push in circuit protector button on side of power unit to reset it.
- Short low voltage terminals together by touching them with a screwdriver blade.
 - If motor runs, you're finished with these instructions.
 - If motor does not run, move onto next step.
- **NOTE:** A circuit protector that trips repeatedly may be a sign that another problem exists which causes the tripping.



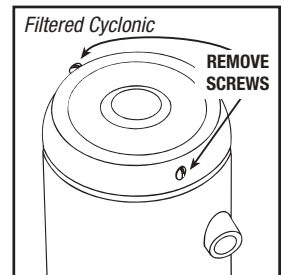
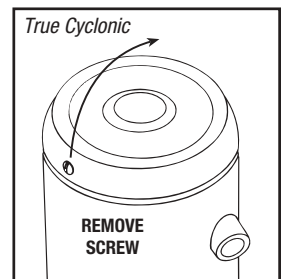
CORRECT POWER SOURCE

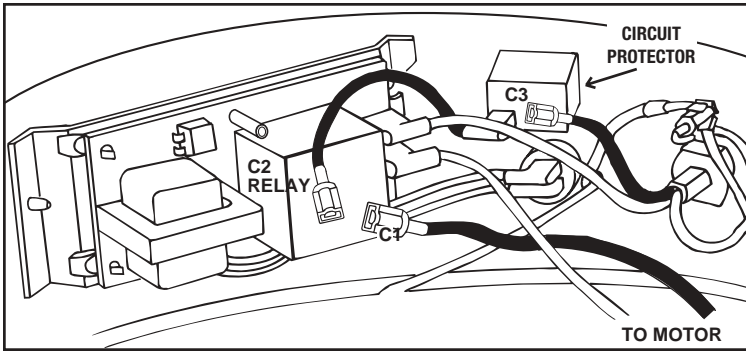
- **UNPLUG UNIT.**
- Test electrical outlet by plugging in an appliance that you know works, or use a voltmeter.
- If electrical outlet has no power, check the house breaker box for a tripped breaker or call a qualified electrician.
- If outlet has power, move to next step.



CORRECT WIRING

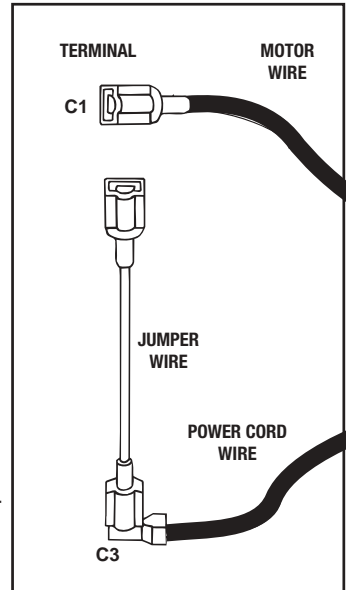
- **UNIT IS UNPLUGGED.**
- Remove screw on front of top cover (*True Cyclonic*), or from sides (*Filtered Cyclonic*), pull cover up and off power unit.
- Remove FOAM RING. (*If present*)
- Check the wiring to be certain it is like the illustration. (See Wiring Diagram on page 9.)
- Check all "terminal" connectors. There are eight of them. They must be pushed completely onto the terminals.
- Plug power unit in. **Remember wires inside unit are now HOT.**
- Short low voltage terminals together by touching them with a screwdriver blade.
- If motor runs, you are finished.
- If motor does not run, move to next step.





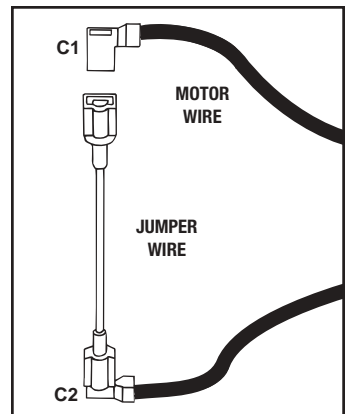
WORKING MOTOR

- **UNPLUG UNIT.**
- Refer to Wiring Diagram above.
- Locate and remove connectors C1 and C3. These connectors may be tight. Be careful not to damage them. Use needle nose pliers to remove, or pry them off with a screwdriver blade.
- Study illustration to right.
- Connect one end of JUMPER WIRE to C1 (Motor Wire) and other end to C3 (Power Cord).
- **You have just bypassed the CIRCUIT BOARD and CIRCUIT PROTECTOR.**
- Clear loose objects from inside motor compartment.
- Plug in unit. **Remember wires inside unit are now HOT.**
- If motor does NOT run, replace it.
- If motor runs, unit has either faulty CIRCUIT BOARD or CIRCUIT PROTECTOR.
- Remove jumper wire. Reconnect wires in original positions.



FAULTY CIRCUIT PROTECTOR

- **UNPLUG UNIT.**
- Refer to Wiring Diagram above.
- Locate and remove connectors C1 (Motor Wire) and C2 (Circuit Board).
- Use JUMPER WIRE to connect C1 and C2.
- **You have just bypassed the CIRCUIT BOARD.**
- Clear loose objects from inside motor compartment.
- Plug in unit. **Remember wires inside unit are now HOT.**
- If motor runs, replace CIRCUIT BOARD.
- If motor does NOT run, replace CIRCUIT PROTECTOR.



FINISHING THE JOB

- **ALWAYS** reposition the Sound Absorbing Foam (if present) in the top of the unit. Replace the Top Cover after service is complete.
- **NEVER** leave an open unit unattended.
- **ALWAYS TEST** the H-P Central Vacuum system at the inlet valves for proper operation and vacuum after servicing the unit.
- Warranted Parts may be returned by calling Customer Service for a return number. Please complete the Warranty Repair Form (S-103-0561) and attach Product Return Tag for items being returned. *Remember to include Serial Numbers and Date Codes.*

Part Number	Description
3511-01	Motor for 26
7365-01	Motor for 260
7399	Motor (left) 860
7426	Motor (right) 860
7694-01	Motor for 360
7720-01	Motor for 460/760
8545-01	Motor for 466Q
7803-01	Motor for 560/960
8395-01	Motor for 566Q
8224	Motor for FC300
8113-01	Motor for FC530
8575-01	Motor for FC550
8111-01	Motor for FC610
8576-01	Motor for FC650
8153-01	Motor for FC1550
7107-01	Circuit Protector for all 120V Models
7107-02	Circuit Protector for all 240V Models
7090	PC Board for Models 260, 360, 460 & 560
7416	PC Board for Models 760, 860 & 960
8125-01	PC Boards for Models FC530, FC550, FC610 & FC650
8173-01	PC Board for Model FC1550