



CENTRAL VACUUM SYSTEMS

INSTALLATION INSTRUCTIONS

Review this manual before installing the central vacuum system

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Table of Contents

Items and Tools required for installation	3
Introduction to the Dynovac Central Vacuum System.....	3
Determine location for inlet valves.....	4
Grounding method.....	4
Planning the tubing system	5
Installing wall inlet valves	7
Planning the electrical wiring system	7
Installing the built-in system	7
Installing mounting plates.....	8
Installing floor inlet valves	9
Installing tubing system	10
Installing main line	10
Installing electrical system	11
Mounting power unit	11
Installing optional exhaust system	12
Final systems check	12
Wiring Instructions for Electrified Central Vacuum Inlet Valve	13

Items and Tools required for installation

DYNOVAC CENTRAL VACUUM IS SOLD AS A SYSTEM *OR* AS THREE SEPARATE KITS:

1. A **power unit**, which will be permanently mounted.
2. An **installation kit** of tubing and wiring to connect the power unit to the wall inlets.
3. An **accessory kit** consisting of hose, nozzle and tools.

Items needed for installation:

1/4" to 1/2" electric drill*

Steel tape measure

Wire cutters

Hammer

Masonry drill

Pocket Knife

2 1/2 hole saw or cutter

Phillips screwdriver

Slotted screwdriver

Hacksaw

Key hole saw

Wood chisel

Coat hanger (metal)

2" hose clamps

2- 1/4" x 1" lag bolts

Electrical tape

Right angle drill*

Drill extensions (5 1/2", 12", 18")*

* These tools can be rented.

Introduction to the Dynovac Central Vacuum System

Before attempting to install your Dynovac Central Vacuum System, read these instructions thoroughly. Understanding the built-in system will simplify the installation.

A preliminary survey of the home will help determine the best location for the power unit which determines the best path for the tubing system. A thorough study will reveal the location of heating ducts, plumbing lines, electrical wiring and other obstructions which might hinder installation. Plan ahead!

Planning the built-in system

Determine location for power unit. The power unit can be mounted in the basement, utility room, garage or any other remote area, except where exposed to weather. The unit requires ventilation. **Do not** install in a heat producing or confined area such as the attic, furnace room etc. If desired, the **power unit** can be exhausted to the outside.

CAUTION: DO NOT install unit in any area where dust could harm sensitive equipment, delicate furnishings or other items.

The top of the unit should be no less than 12" from the ceiling and no less than 12" from any side wall (excluding the wall on which model is mounted). For ease of removing the dust container, the bottom of the unit should be at least 18" above the floor.

Central Vacuum Power Units require a separate/dedicated 120 volt, 60 Hz., 15 Amp, 3 wire grounded power circuit, protected by a 120 volt, 60 Hz., AC, 15 Amp time delay fuse or circuit breaker and a 120 volt, 60 Hz., 15 Amp grounded receptacle.

If a 120 volt, 60 Hz., 15 Amp grounded receptacle is not available, have a qualified electrician install one for you. The receptacle should be no more than 5 feet from the Power Unit.

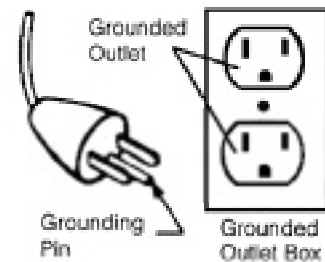
Grounding method

Do not, under any circumstances, remove the power supply cord grounding pin.

In the event of malfunction or breakdown, grounding will reduce the risk of electric shock by providing a path of least resistance for electric current. This appliance is equipped with a cord having an equipment-grounding conductor and a grounding plug. The plug must be inserted into an appropriate outlet that is properly installed and grounded in accordance with all local codes and ordinances.

Danger-Improper connection of the equipment-grounding conductor can result in a risk of electric shock. Check with a qualified electrician or serviceman if you are in doubt as to whether the appliance is properly grounded.

Do not modify the plug provided with the appliance - if it will not fit the outlet, have a proper outlet installed by a qualified electrician.



Determine location for inlet valves

Inlet valves placed next to doors or in hallways generally provide maximum cleaning coverage, making it possible to clean three or four rooms from a single inlet valve. (Figure 1.)

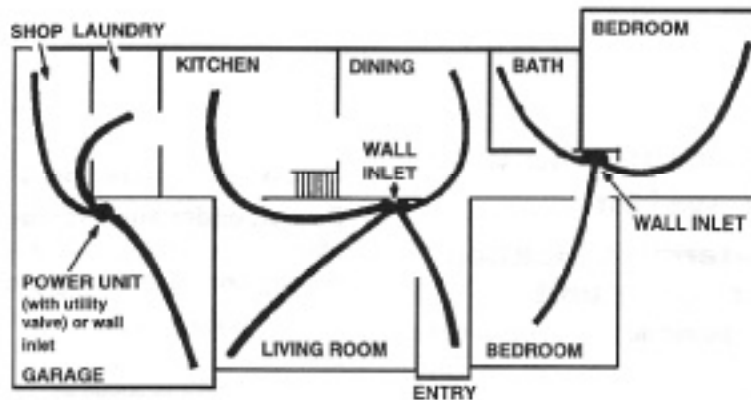


Figure 1

To determine the location for the first inlet valve, stand in an area farthest away from the power unit with a 25' or 30' length of string or cord. Use a 25' length if standard accessory set will be used (or 30' for the deluxe set). Check to see that the intended location will give access to all corners in the area, keeping in mind that the cleaning hose must negotiate furniture and other obstructions.

Work back toward power unit, adding inlet valves as needed following the same procedure. Wall inlet valves are most often used and should be placed about the same height and within two feet of an electrical outlet. If for some reason tubing cannot be installed in the wall, the same inlet valve can be installed in the floor.

Planning the tubing system

The tubing system consists of two sections - the main vacuum line which runs from the farthest inlet valve to the power unit and the branch vacuum line to the other inlet valves.

When planning tubing routes, determine the easiest way to reach the inlet valve locations from above or below. Drops and risers will usually be installed inside partition walls (Figure 2) and a hole will need to be drilled for the tubing in the header or the floor plate.

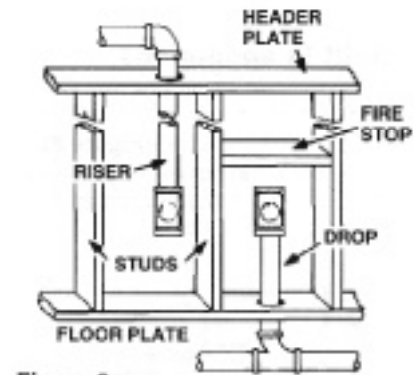


Figure 2

One story with basement

The main vacuum line can be installed in the basement at ceiling height with branch lines running through the floor plate of partitioned walls to inlet valves. (Figure 3.)

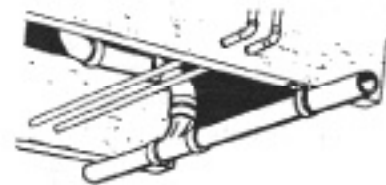


Figure 3

One story with no basement

The main vacuum line can be run through the attic with branch line connections made in the attic and dropped down through the header plate of partitioned walls to inlet valves. Care must be exercised when drilling through fire stop transverse partitions. In an attic without a floor, the main line can be laid across the ceiling joists and strapped in place. (Figure 4.)

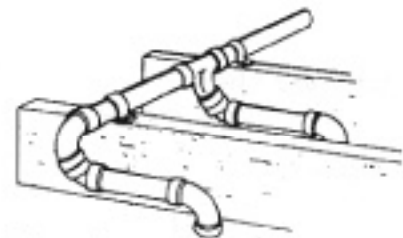


Figure 4

Multi-level homes

Where possible, it may be easier to drop second floor branch lines through closets, a laundry chute, cold air return or behind built-in appliances.

Closets

When an upstairs closet has a closet below it, the tubing can run through the closets and be left exposed. **(Figure 5.)**

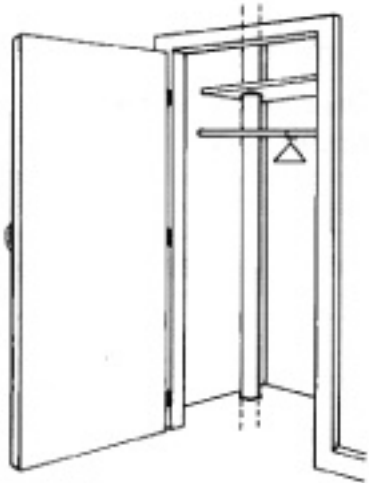


Figure 5

Laundry Chute

Tubing can run the entire length of a laundry chute if necessary. **(Figure 6.)**

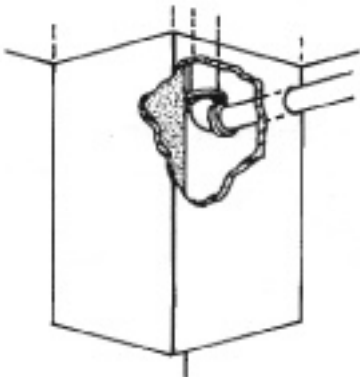


Figure 6

Cold Air Return

An opening can be cut through a cold-air return for the tubing, Be sure to seal around the opening after installation. **(Figure 7.)**

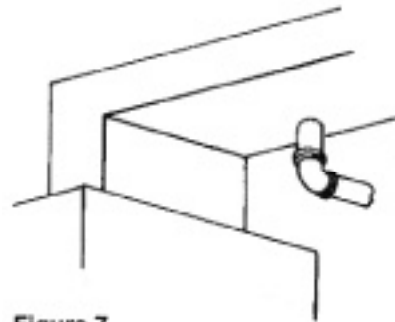


Figure 7

Built-in appliances

There is often an empty space behind built-in appliances where tubing can be placed. **(Figure 8.)** If necessary, run the exposed tubing through built-in cupboards as suggested in closets.



Figure 8

Planning the electrical wiring system

The planning of the low voltage wiring system is established at the same time the inlet valve locations and tubing path are determined. All low voltage wires are taped to vacuum tubes as they are installed. Leave approximately 6" of wire where connections or splices are required.

Note: All wiring instructions must conform to the electrical code of the area in which the installation is being made.

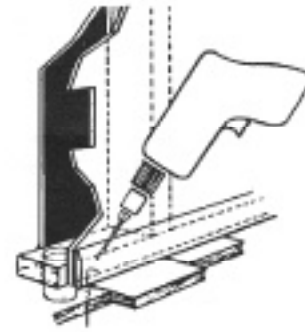


Figure 9

Installing the built-in system

CAUTION: Before drilling any holes or making cuts in wall or floors, extreme care should be taken to determine the locations of electrical wires, plumbing or other obstructions that could create a hazard.

Insert a coat hanger wire or equivalent into hole so that it projects below floor boards. From underneath floor measure from coat hanger to center of 2" x4" plate, allowing for thickness of plate, allowing for thickness of baseboard and wall covering. Drill 2-1/2" hole directly in the center of the 2"x4" (Figure 10). A half to three-quarter inch inspection hole is advisable before drilling the 2-1/2" hole to ensure there is no obstruction present.

Installing wall inlet valves

(Finished house)

Be sure of all dimensions before drilling holes or cutting wall opening. After determining the location of the first inlet valve, check the area in which the tubing will enter to be sure there are no obstructions.

Drilling holes for tubing

To find an un-obstructed section in wall (between studs) tap with your finger on wall until it sounds hollow. Using a 1/8" drill bit, drill a pilot hole right through floor directly below the selected location of the inlet valve and as close to the baseboard as possible. (Figure 9.)

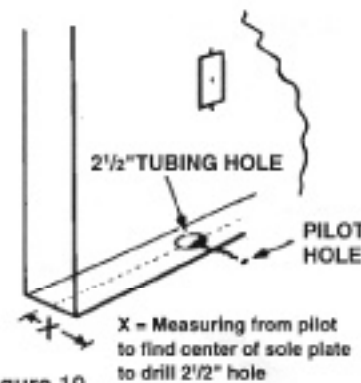


Figure 10

Look up through the inspection hole, using a flashlight, to be sure there are no electrical wires or other obstructions in the wall.

Right angle drill and drill extensions

In confined areas it may be necessary to use a right angle drill (**Figure 11**) or drill extensions to reach the desired area (**Figure 12**). When boring through a firebreak, make sure the hole is in line with the hole through the header or floor plate.



Figure 11

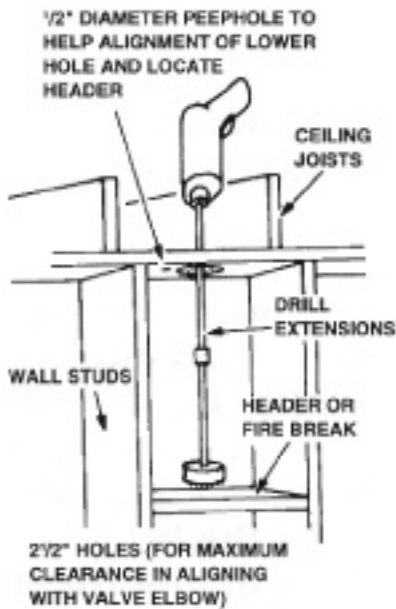


Figure 12

Installing mounting plates

(For electrified valve mounting plates see page 14)

If kit comes with a **plastic plate**, cut mounting plate along lines (**Figure 13**) with a hacksaw or score with a razor knife and break flange off.

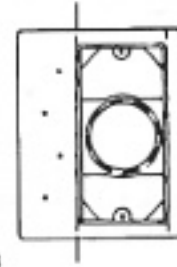


Figure 13

If kit comes with a metal mounting plate, snip off the four plastic tabs and remove the metal plate. (**Figure 13A**).



Figure 13A

Use a coat hanger pushed through the pilot hole (**Figure 10**) to be sure opening for inlet valve will be in line with the 2-1/2" tubing hole.

Using **raised edge** (**Figure 14**) of mounting plate as a template, trace exact opening on wall (about the same height as electrical outlet). Cut opening.



Note: Trace this edge only

Figure 14

Note: Be exact in cutting opening as there is very little overlap on the mounting plate. Installation of mounting plates and inlet valves may vary with other manufacturers.

Insert tubing and low voltage wire up through hole in floor plate to inlet valve opening. Leave approximately eight (8) inches of wire at inlet valve opening. Secure wire to prevent it from falling back through the hole.

Continued next page

Installing mounting plates *continued*

Glue short 90° elbow over projecting socket on back of mounting plate matching lines on elbow with those on plate for correct angle. Grasp mounting plate between first two fingers and thumb and put plate through wall opening (**Figure 15**). Pull wire through opening in upper part of mounting plate.

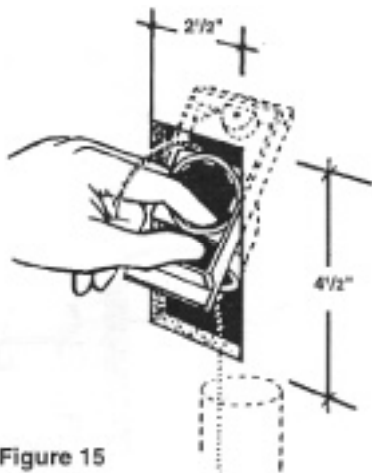


Figure 15

Pull plate forward, positioning it snugly into opening (**Figure 16**).

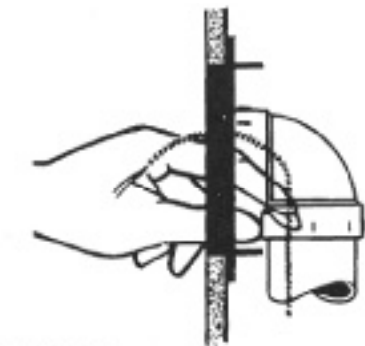


Figure 16

While mounting plate is being held in place, another person should remove tubing from hole and apply adhesive to end. Reinsert tube and push it firmly into the elbow. Tube can be guided into place with fingers inserted into valve opening.

Attaching inlet valves

(For electrified valve mounting plates see page 14)

Connect low voltage wires to screws on back of inlet valve. (**Figure 17**). Hold entire assembly in place with coat hanger wire while twisting the inlet valve into the mounting plate.

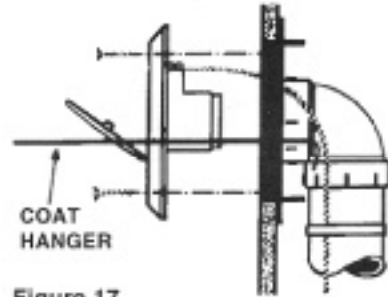


Figure 17

Note: Do not glue, as rubber seal ring provides maximum air tightness.

Line up mounting screw holes and screw inlet valve to mounting plate.

Installing floor inlet valves

For areas where a wall mounted inlet valve is impossible a floor mounted inlet may be used. The same mounting plate and inlet valve is used. Floor inlet valves should be installed in an out of the way location.

Vinyl or Linoleum

Cut hole (2-1/4" x 4-1/2") into floor at desired location and screw mounting plate from below to underside of floor (**Figure 18**).

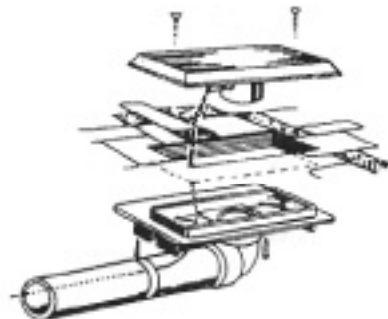


Figure 18

Connect tube to mounting plate with a short 90° elbow and connect low voltage wire to screw on inlet valve; screw inlet valve into mounting plate.

Carpeting

Cut hole (2-1/4"x4-1/2") into floor at desired location and screw mounting plate on top under carpet. Use a coupling and a one (1) inch piece of tube (shown as dotted line **Figure 19**) between mounting plate and the short 90° elbow, connected to the tube.

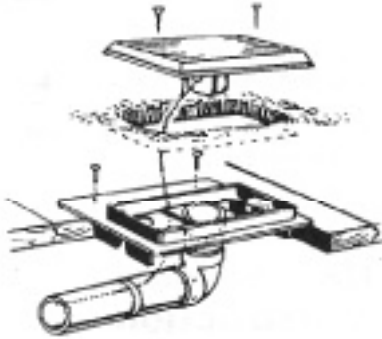


Figure 19

Installing tubing system

Cut tubing as straight as possible, preferably with a tube cutter or hacksaw and miter box. Inside and outside edges of cut should be free of burrs to insure leakproof joints.

Connecting tubing

Tubing and fittings are designed for slip fit connections with 3/4" of pipe projecting into the fitting. It is advisable to assemble two or three sections together to check fit and position of fittings before cementing.

Use couplings to join straight lengths of tubing (**Figure 20**). Push the tubing a full 3/4" into each fitting to ensure strength and to avoid having a gap that could fill with dust and lint.

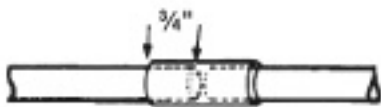


Figure 20

It is important that the directional flow of fittings always be toward the power unit to ensure a clogfree system.

When certain of the fit and direction of tubing, **apply cement to the male surface of the parts being joined**, and then slip the fitting in place (**Figure 21**). This method will avoid forming a ridge of adhesive inside the tubing which may allow dirt to collect. Work quickly when using the cement, as it hardens in 30 seconds.



Figure 21

Installing main line

With inlet valves and branch vacuum lines installed, proceed with the installation of the main vacuum line. The run should be as short and direct as possible, and the tubing should be supported with the pipe straps.

Start at the most distant inlet valve and work back toward the power unit. Sweep tees should be used to connect branch lines to the main line. Be sure fittings are properly oriented so that air flow is always back toward the power unit (**Figure 22**).

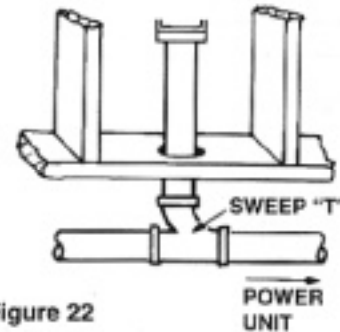


Figure 22

Use 45° elbows in the main or branch lines to run tubing around obstructions (**Figure 23**). Branch lines should run out of the side or top of the main vacuum line, never the bottom.

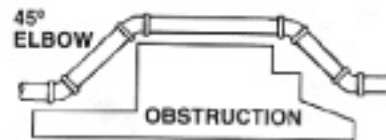


Figure 23

Tubing installation hints

1. Start tubing installation at farthest inlet and work toward power unit.
2. Connect all fittings and air flow toward power unit.
3. Connect branch lines into sides and top of trunk lines.
4. Make sure tubing is clear of obstructions..
5. Secure tubing to joists or studs for support.

IMPORTANT: All branch lines must be connected into top or sides of main trunk line. Do not bring branch lines into bottom of main trunk line.

Installing electrical system

All low voltage wires should be taped to vacuum lines as they are installed. Leave approximately 6" of wire at each point where connections are required and approximately 12" of wire at each valve opening. Wire should be run from inlet and back to the Power Unit without any connections in between.

New house construction

In new construction, installation is basically the same as in existing homes and overhead or under floors are equal in ease of installation. However, in all installations it is advisable to use the under floor installation if possible.

The Inlet Valve Mounting Plates in new or open wall construction can be tacked directly to either side of the stud with nails or screws. (For electrified Inlet Valves see instructions on pages 14-15.)

A plaster guard or plug should be placed over the valve opening in the mounting plate to prevent debris from entering the vacuum lines during construction. The balance of the system may be installed after the home is completed.

Mounting power unit

1. Determine if the wall you will be mounting the power unit to is block, concrete, or plaster/drywall.

2. Block or Concrete Wall

You will need (2) 1-1/2" x 1/4" lead plugs and (2) 1-1/2" x 1/4" lag bolts. Drill a 1/2" dia. x 1-3/4" deep hole with a masonry drill bit. Insert a lead plug into the hole. Mount the bracket from its top hole with a lag bolt. Mark the lower hole of the bracket. Make sure that the bracket is straight. Slide the bracket away from the mark and drill a hole directly above the mark. Insert a lead plug into the hole. Align the bracket over the hole and tightly fasten with a lag bolt.

3. Drywall or Plaster Wall

You will need (2) 1 1/2"x1/4" wood screws. Locate a stud and drill a 1/8" dia. x 1-3/4" pilot hole. Mount the bracket from its top hole with a wood screw. Make sure that the bracket is straight. Drill a second pilot hole and fasten tightly with the other wood screw.

4. Mount the power unit on the bracket.
5. Route the tubing to the power unit.
6. Insert the tubing into the power unit inlet no more than 2-1/2".
7. Do not cement pipe to the plastic inlet.
8. Connect the low voltage wires to the power unit.
9. Plug the unit in.
10. Assuming that the wall inlet valves are connected, the system is now ready for use.

Installing optional exhaust system

The exhaust from the power unit may be vented to the outside, if desired. Do not vent exhaust close to a door or window or where it will disturb the neighbors.

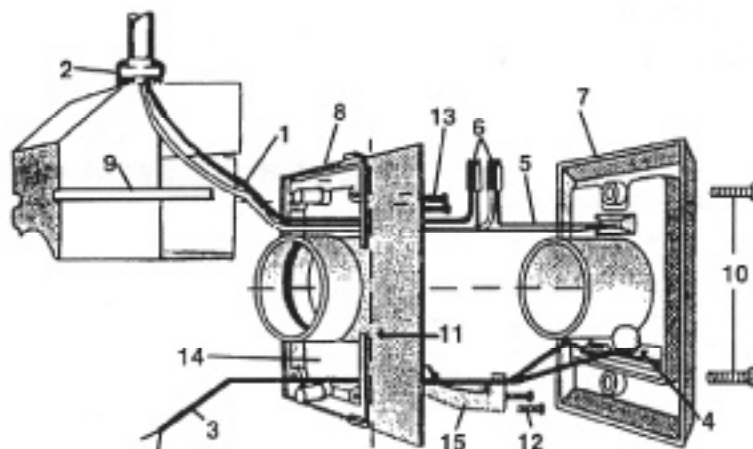
The outside vent should go through the wall about 2 feet above the floor or ground level. A sharp 90° elbow should then be attached outside as close to the wall as possible with 6" of tubing added to direct exhaust downward.

When power unit is located in a room below ground level, the exhaust can usually be vented outside between or at joist level. Measure carefully the location desired. If the exterior is brick, carefully chisel away brick and mortar to create an approximate 2-1/2" diameter hole. Then drill hole into house, install vent pipe and caulk around pipe and brick to seal opening.

Final systems check

Check each wall outlet to be sure contacts activate power unit when hose is inserted. A short piece of wire can be used to short contacts in a wall inlet together to activate power unit. Check each wall inlet and tubing connection for air leaks. Check power unit for leaks around inlet tube and dirt receptacle.

NOTES:



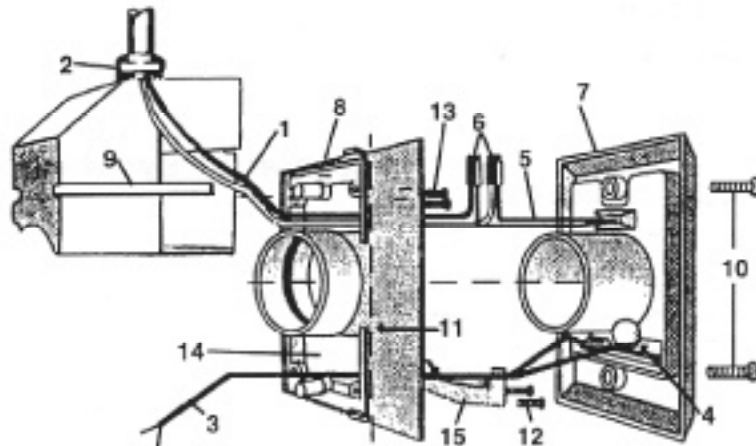
Wiring Instructions for Electrified Central Vacuum Inlet Valve

(For HOUSEHOLD USE only, non-metallic wiring systems)

New Construction

1. Nail or screw Mounting Plate (8) to a support column (2"x 4") at about the same height as an electrical outlet. Assembly can be mounted to the right or left side of support by removing Wiring Compartment (9) and bottom. Cover Plate (14) (marked "DO NOT REMOVE") and reattaching them with Wiring Compartment (9) on top and Cover Plate (14) on the bottom.
2. Glue 90° elbow over projecting socket on the back of Mounting Plate (8) (as on page 9.)
3. Position tubing and Low Voltage Wires up to valve height and then glue tubing to 90° elbow (as on page 9.)
4. Push Low Voltage Wires (3) through hole in lower Cover Plate (14) from back side.
5. Install Building Wire Conductors (1) (A.C.Power) through the approved type electrical box connector (2) until they protrude approximately 6" through connector into the Wiring Compartment (9).
6. Splice wires from Inlet valve Receptacle (5) to the protruding Building Wire Conductors (1) with #31 twist or wire connectors (6) (not supplied). **Note:** White wire to white wire and black wire to black wire. If there is a ground wire, connect per Local Wiring Codes.
7. Connect Low Voltage Wires (3) under Contact Screws (4) of Inlet Valve face Plate.
8. Push Inlet Valve Face Plate (7) to Mounting Plate (8). At the same time push Building Wire Conductors (1) and connectors (6) into Wiring Compartment (9).
9. Secure Inlet Valve Face Plate (7) to Mounting Plate (8) using the 2 supplied color matched screws. (10).

Finished Construction



After pipe, Low voltage Wire (3) Electrical Building Wire (1) (A.C. Power) are in place and opening in wall has been carefully exactly cut (page 9).

1. Remove mounting plate nailing flange (11) (see page 9).

2. Glue 90° elbow over projecting socket on the back of Mounting Plate (8) (as on page 9.) (Position with wiring compartment on top.)

3. Push Low Voltage Wires (3) through hole in lower Cover Plate (4) from back side.

4. Install Building Wire Conductors (1) (A.C.Power) through the approved type electrical box connector (2) until they protrude approximately 6" through connector into the Wiring Compartment (9)

5. Loosen the screws (12) that hold the bottom Cover Plate (14) (marked "DO NOT REMOVE") so that slotted tabs of finished Wall Clip (15) can be placed behind the screw heads.

6. Position the modified Mounting Plate with the short elbow glued on and the Low Voltage and Building Wires (3) and (1) protruding through it, into the wall opening, and then glue it to the tubing (as on page 9-10).

7. Slip tabs of Finished Wall Clip (15) behind screw heads (12) and then tighten screws.

Note: this Clip will retain Mounting Plate in wall and allow for easier electrical connections.

8. Splice wires from Inlet valve Receptacle (5) to the protruding Building Wire Conductors (1) with #31 twist or wire connectors (6) (not supplied).

Note: White wire to white wire and black wire to black wire. If there is a ground wire, connect per Local Wiring Codes.

9. Connect Low Voltage Wires (3) under Contact Screws (4) of Inlet Valve face Plate.

10. Push Inlet Valve Face Plate (7) to Mounting Plate (8). At the same time push Building Wire Conductors (1) and connectors (6) into Wiring Compartment (9).

11. Secure Inlet Valve Face Plate (7) to Mounting Plate (8) using the 2 supplied color matched screws. (10).



Dynovac is a registered trademark

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