

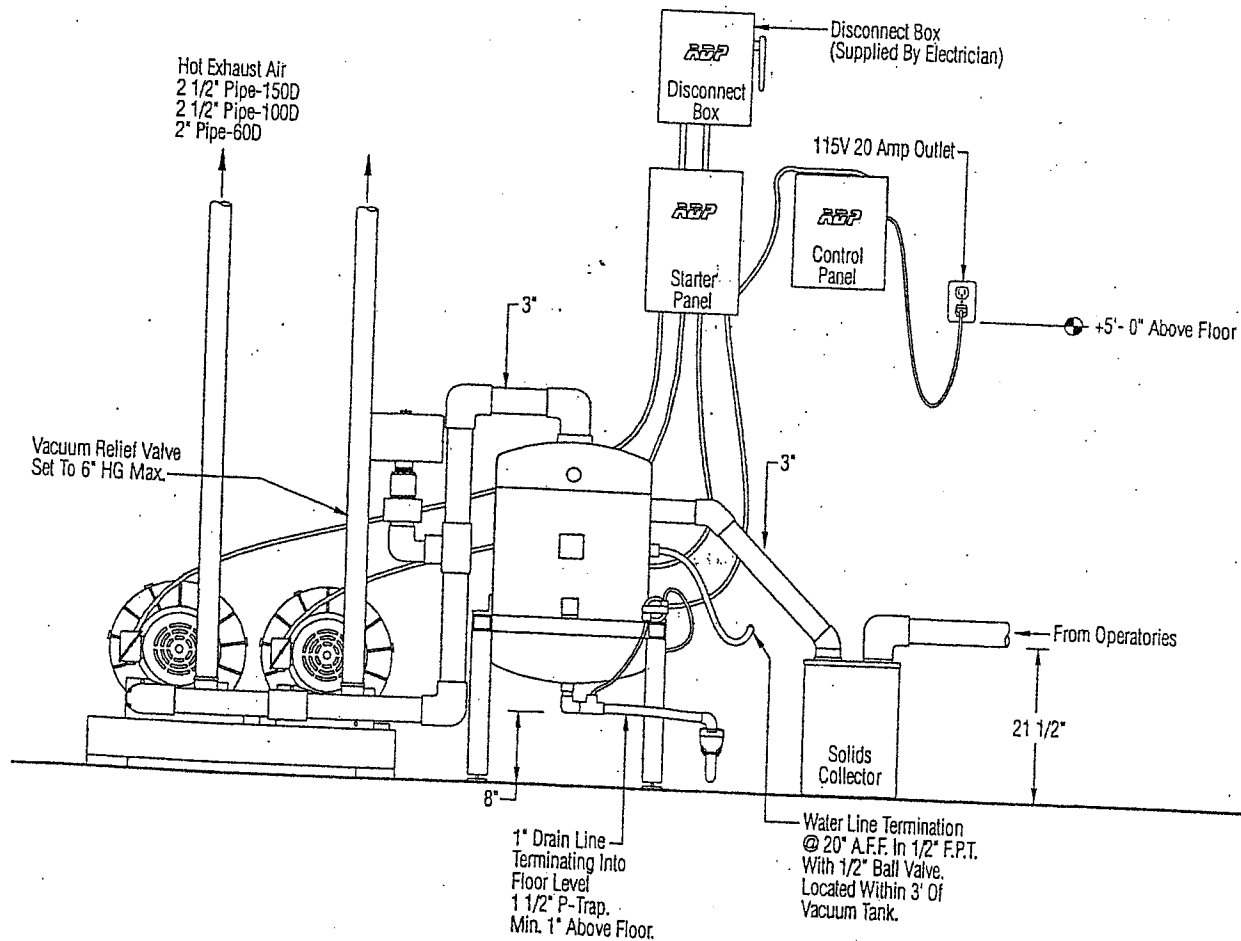
**Installing The Vacuum System:**

1. Place the vacuum on a solid level floor within 3' of the floor sink.
2. Connect solids collector to separation tank using the provided PVC assembly.
3. Connect vacuum line from operatories to the solids collector using PVC and necessary fittings.
4. Attach, glue and route 1" drain hose assembly.
5. Connect 1/2" water line to solenoid valve using the provided flexible water hose.
6. Connect steel exhaust piping to outlet side of each pump.

**Note: Exhaust air may reach +200 degrees Fahrenheit. Exhaust piping must be supported.**

7. Connect high voltage electrical supply line to the pump as indicated in the electrical diagram. See Page 3.
8. For low voltage remote control, connect low voltage wires to wires of corresponding number from the ADP Master Control Panel vacuum switch. **See following diagram for sample installation.**

**Installation Diagram**



**Initial Start-Up:**

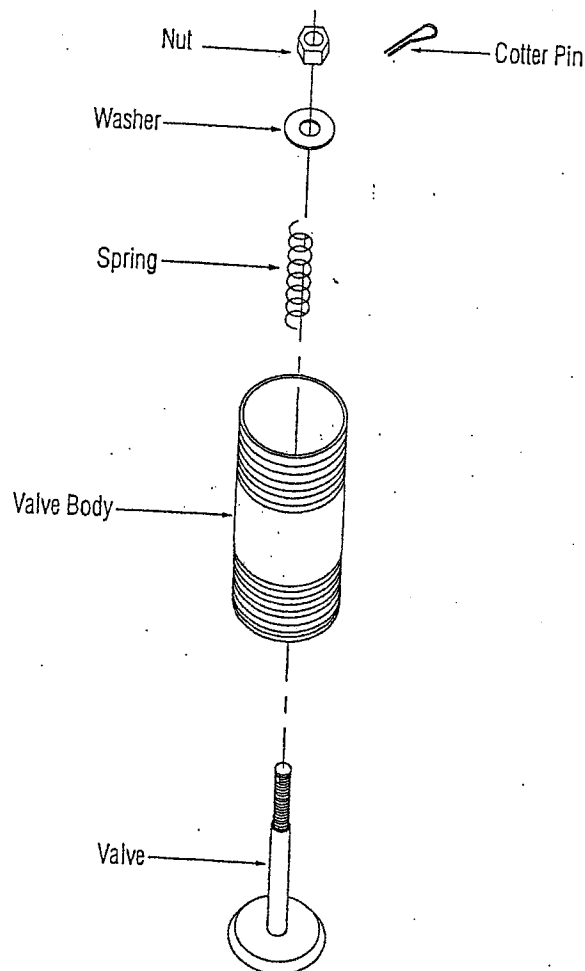
1. Check that the water supply valve is **OPEN**.
2. Start the pump via voltage switch or main circuit breaker.
3. Check vacuum gauge to ensure that the pump is functioning properly. Vacuum relief is factory preset for 6" Hg Vacuum.
4. Check for system leaks.
5. Momentarily turn power "**OFF**" then back "**ON**". The system should then go through a three minute delay before it restarts.

**Vacuum Level Adjustment:**

The vacuum level is adjustable in the range of 3" to 6" Hg. All of the vacuum relief regulator valves should be set for the same relief operating vacuum level. With vacuum "**ON**" and all evacuators **CLOSED**:

1. Remove cotter pin. **See drawing below.**
2. Turn adjustment nut **clockwise for higher** vacuum level, **counter-clockwise for lower** vacuum level.
3. Replace cotter pin.

**Note: Never adjust vacuum level over 6" Hg.**



## Operation:

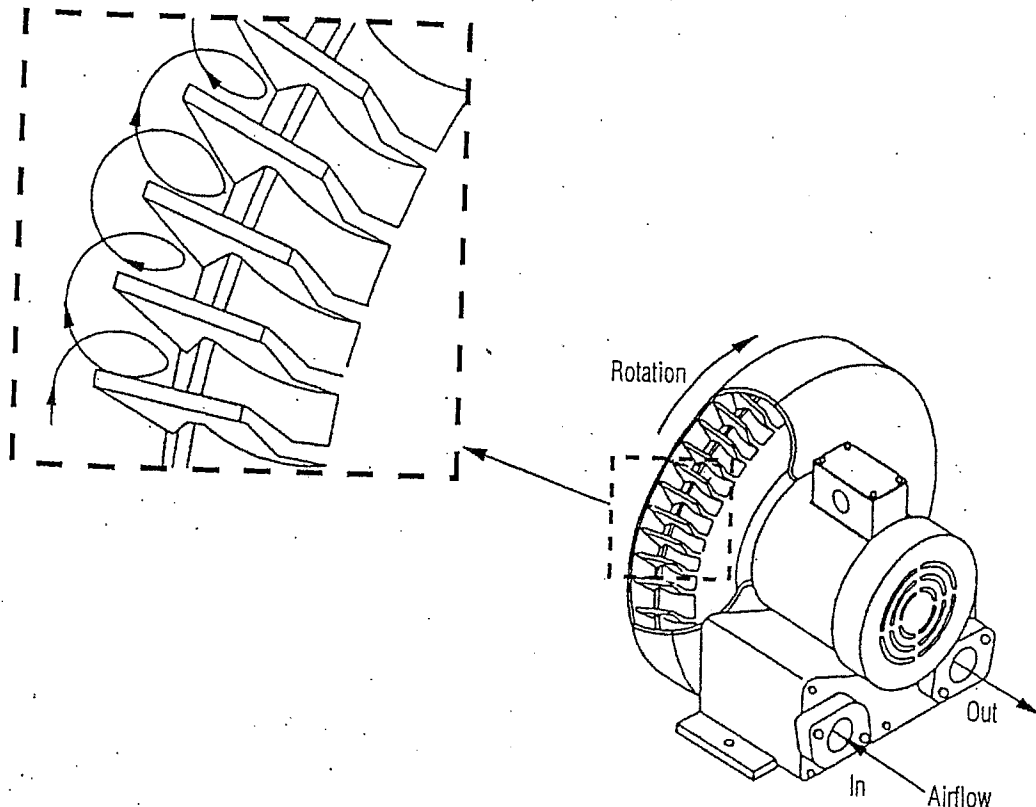
### General Description

The ADP Centrifugal Vacuum Pump is a non-positive displacement pump that provides high flow rates, low power consumption and vacuum level up to 6" of mercury.

The pump is designed to run continuously and can therefore be left "ON" over the course of the workday.

### Principles Of Operation

As the impeller rotates, the blades pass over the inlet port and draw air into the housing. Centrifugal force moves the air from the base of each blade to the tip, the air then impacts the walls of the housing and is reflected back down to the base of the succeeding blade. This process is repeated several times during each revolution of the impeller compressing the air on each cycle, until it reaches the outlet port where the housing diameter is reduced, diverting the air out of the housing.



## Automatic Liquid Level Safeguard System

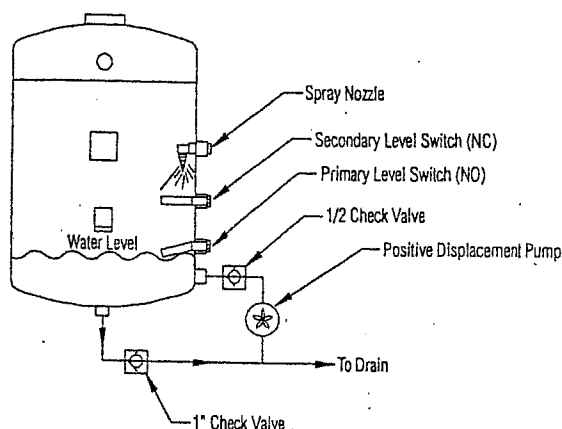
### Description

The ADP Centrifugal Vacuum Systems come equipped, as standard, with an Automatic Liquid Safeguard System. The Automatic Liquid Level Safeguard System protects the pump(s) from accidental liquid ingestion without interrupting system operation.

### Operation

As the liquid level reaches a set point inside the tank, the primary float switch closes and energizes the positive displacement pump which in turn expels liquid waste. This cycle is repeated only as needed through the course of the workday. If the liquid level should ever exceed the primary level switch boundary, the secondary level switch will be employed to shut the system down for a three minute period, allowing the liquid waste to drain.

Note: The three minute shut-down will also occur if there is momentary loss of power to the system.



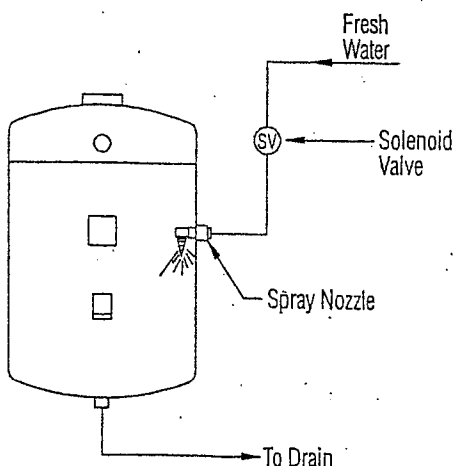
## Automatic Tank Flush Cycle

### Description

The ADP Centrifugal Vacuum Systems come equipped, as standard, with an Automatic Tank Flush Cycle. The Automatic Tank Flush Cycle rinses the tank every night after shut-down. Water consumption is kept to a minimum with 4.2 gallons/cycle.

### Operation

Upon shut-down the swing check valve opens and allows the liquid waste to drain. After a two hour delay, the flush cycle initiates and rinses the tank with a three minute spray of water.



**Maintenance:**

ADP Centrifugal Vacuum pumps are designed for ease of operation and minimal maintenance. The following periodic maintenance is recommended. If the pump is functioning properly no other maintenance is necessary.

**Vacuum Relief Valve (Cleaning):**

Periodic cleaning of the vacuum relief valve is required for proper operation.

1. Turn vacuum "OFF".
2. Remove vacuum relief valve muffler/filter.
3. Clean muffler/filter with compressed air.
4. Disassemble vacuum relief valve as demonstrated in the illustration on Page 7.
5. Clean vacuum relief valve thoroughly and reassemble.

**Note: Piston must move freely.**

6. Install valve and muffler/filter.
7. Start vacuum and adjust relief valve to 6" mercury max.

**Emptying Solids Collector Drum:**

The solids collector drum should be emptied annually. The disposal of the hazardous waste must follow local codes.

1. Turn vacuum "OFF".
2. Remove PVC piping from inlet and outlet.
3. Loosen lid locks and remove lid.
4. Dispose of waste water per local code.

**Vacuum Maintenance Guide Chart:**

Maintenance Procedure	Daily	Weekly	Semi-Annually	Annually
Cleanse Vacuum Piping System	...			
Clean In-Operatory Strainers		...		
Check Vacuum Level		...		
Clean and Dust Off Vacuum Pump			...	
Empty Solids Collector Drum				...

**PROBLEM: Motor will not start when turned "ON".**

**Cause:** No power to pump motor.

**Remedy:**

1. Check for proper voltage at pump start contactor (208 VAC  $\pm$  10%). If proper voltage is not present, check circuit breakers and supply circuit.
2. If low voltage switching is being used, bypass low voltage circuit by connecting the red, blue, yellow and purple wires from the top of the electrical box.

**Cause:** Defective transformer or fuse.

**Remedy:**

1. Check the voltage. If it isn't between 20 and 28 VAC the fuse or the transformer is defective, or there is a faulty connection within the box.

**Cause:** Faulty level switch.

**Remedy:**

1. Check for continuity between the two leads from the secondary level switch.

**Cause:** Defective coil.

**Remedy:**

1. If the voltage of step 3 was within limits, and there is continuity in step 4, replace starter contactor coil.

**PROBLEM: Pump runs but creates insufficient "suction".**

**Cause:** Vacuum Solids Collector clogged.

**Remedy:**

1. Clean, or replace, as indicated in maintenance section.

**Cause:** Faulty vacuum system.

**Remedy:**

1. Remove the vacuum inlet line from the pump. If there is good suction at the pump, but none or little in the system, the system is clogged or contains leaks. Locate the problem and repair.

**PROBLEM: Pump runs but creates insufficient "suction".**

**Cause:** Inadequately sized pump.

**Remedy:**

1. Check usage chart for maximum number of simultaneous users. Upgrade if necessary.

**Cause:** Stuck vacuum relief valve.

**Remedy:**

1. Clean or replace vacuum relief valve.

**PROBLEM: Pump will not run continuously.**

**Cause:** Overheating. Thermal protection shutdown.

**Remedy:**

1. Check for adequate ventilation. The motor is air cooled and a ventilation fan may be required.

**Cause:** Circuit breaker tripping.

**Remedy:**

1. Check for incorrectly sized or defective circuit breaker.

**Cause:** Faulty relay.

**Remedy:**

1. Replace relay if contacts fail to remain closed.

**Replacement Parts List:**

Description	Part Number
Drum - Solids Collector with Lid	TVA90500
Gauge - Vacuum	PGA70415
Impeller - Liquid Discharge Pump Replacement	MMS80472
Motor - 3 HP	HRM10110
Motor - 5 HP	HRM10115
Motor - 7.5 HP	HRM10120
Pump - Liquid Discharge	MMS80470
Solenoid - Panel Mount	PVV10479
Starter Contactor - Under 5 HP	ETR10470
Starter Contactor - 7.5 HP	ETR10472
Switch - Level 1/2"	ECS10461
Timer - Pump Control	EMS80502
Timer - Flush Control	EMS80503
Timer - Motor Delay	EMS80501
Transformer - 230V/24 VAC 100 VA	ETR10502
Valve - 1/2" Check	PVV50656
Valve - 1" Check	PVV50658
Valve - 3" Check	PVV50660
Valve - Relief / Regulator	SVA50558

**Warranty Information: 2 Year**

All ADP units are thoroughly inspected and tested in accordance with rigid specifications and standards. Our products are guaranteed against any defective material and workmanship from the date of shipment; provided, that the installation, operation, and maintenance is done in accordance with ADP procedures as outlined in our Installation and Maintenance Guides. Warranty cards must be returned to ADP within ten days of installation to effect warranty. No other warranties or guarantees, expressed or implied are made.

ADP's obligation under the warranty is to provide parts for the repair or, at its option, to provide the replacement product (excluding labor). All special, incidental and/or consequential damages are excluded. We will not issue credit for complete air compressors or vacuum systems without first attempting to correct the problem in the field. Written notice of breach of warranty must be given to ADP within the warranty period. The warranty does not cover damage resulting from improper installation or maintenance, accident or misuse. The warranty does not cover damage resulting from the use of cleaning, disinfecting or sterilizing chemicals and processes. The warranty does not cover vacuum failures due to hard water deposits. Failure to follow instructions provided in ADP's Installation and Maintenance Guides may void the warranty.