



# TECHNICAL SERVICE BULLETIN

**TSB 2021-1001 Level: 1**

**Effective: March 30, 2021**

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| <b>Topic</b>          | Startup Behavior of the SuperEvac™ PLUS II                       |
| <b>Affected Units</b> | All SuperEvac™ PLUS II models                                    |
| <b>Resolution</b>     | Use proper startup procedure to reduce stress on pump components |

## ISSUE:

The SuperEvac™ PLUS II includes a soft start feature which uses control electronics to slowly bring the motor and vacuum pump up to speed over about a 3 second period. This unique start profile may cause certain users to think their pump is faulty when they first turn it on since it takes a couple extra seconds to start when compared to a conventional AC motor.

## ROOT CAUSE ANALYSIS:

The initial delay in startup is a result of the capacitors in the control board charging up, and the intentional ramp up of the motor is designed to keep inertial forces on the coupler and bearings to a minimum.

In addition to the extra seconds of startup time if the user has incorrectly shut down the pump while still connected to a system, this can cause oil to migrate into the cartridge. Since oil is incompressible, it requires substantially more force to turn an oil flooded cartridge than when starting a pump that was properly shut down.

## INSTRUCTIONS:

To easily start a pump that is struggling to rotate, simply open the intake to atmosphere. This equalizes the pressure across the cartridge and allows the pump to easily expel the oil while maintaining minimal torque on the bearings and coupling.

If a customer is having difficulty starting a vacuum pump, the troubleshoot steps are:

1. Make sure the intake is open to atmosphere and the ball valve is open
2. Turn on the motor and wait at least 10 seconds
  - a. Typical start time is around 3 seconds after flipping the main power switch
3. If this does not resolve the issue contact Technical Services for further troubleshoot steps

**NOTE:** If a customer does not want to vent the pump to atmosphere to start it (such as during a power loss mid evacuation of larger systems), the pump will be able to start under such conditions. But may take up to 5 minutes as the motor gently nudges the cartridge over. To speed up the startup in this situation, the operator can close the ball valve, and completely remove the gas ballast plug to provide atmosphere to the cartridge if necessary.

For further information about proper startup and shutdown techniques of vacuum pumps, please visit <https://yellowjacket.com/product/superevac-plus-ii-vacuum-pumps/> or contact YELLOW JACKET® Technical Service at 800-769-8370 or email [techserv@yellowjacket.com](mailto:techserv@yellowjacket.com).