

## Solar Pump Troubleshooting Guide

Problem	Possible Cause	Action
Pump Not Running	* Battery Low or Dead	* Check all electrical connections
		* Test battery and replace if necessary
		* Insure that solar panel is clean and getting full sunlight
		* Verify system design is adequate to meet autonomy requirements
	* Timer turned off	* Turn timer on
Pump Runs, No fluid discharge	* Blown fuse	* Check fuse located in battery/control box. Check all connections. Verify that discharge line is not blocked or a valve closed.
	* Loose Connection in Wiring	* Verify 12VDC at motor terminal. Use "RUN" option on timer to send 12VDC to motor, and verify with voltmeter
	* Motor failure	* Replace motor (if above actions do not correct issue)
	* Air in pump chamber	* Open bleed plug (#4H) and purge until steady flow of fluid, then close bleed plug. If ambient temperature is close to vapor point of chemical, mount or situate pump on slight angle down from the tank. 1/4" plunger pumps may require removal of discharge check valve to completely bleed all air from the pump chamber.
Premature Seal Failure	* Fluid flow blocked by plugged line, closed suction valve, extremely high viscosity or lack of fluid supply	* Provide free flow of fluid to pump suction, fluid level in tank must be above level of bleed plug
	* Suction or Discharge check valve leaking	* Put pump setting gauge in test position to determine which valve is leaking. Fluid falling then rising in the gauge indicates suction check valve, fluid level remaining constant in gauge indicates discharge check
	* Chemical filter clogged	* Replace filter element or clean filter
	* Return Spring broken	* Remove front coverplate (#6). Observe pump running. If plunger (#8) not fully engaging or following the cam, stop the pump and check for broken spring or sticking plunger. Replace spring (#9) or lubricate plunger.
	* Plunger Sticking	
	* Stroke Limiter set to zero or very short stroke	* With Pump running, adjust stroke limiter (Loosen (2) #6D screws and adjust tab #6B, to allow a longer pump stroke. Always use a full stroke if possible. Reduce output by timer settings, then use stroke limiter for fine tuning pump output.
Chemical leakage	* Chemical Compatibility	* Check the plunger first. If plunger is scored or damaged, replace plunger and seal. * If seal still fails, change to different seal material.
	* Abrasive Material in Chemical	* Install suction filter
Chemical leakage	* Damaged or leaking suction line, discharge line or seal failure	* Prior to repair:
		* Open the control/battery box and turn the timer to the "OFF" position.
		* Close Isolation ball valve "B" between pump setting gauge and chemical tank (see Diagram 1 on page 2)
		* Close isolation ball valve "A" between pump and pump setting gauge (see Diagram 1 on page 2)

**NOTE:** Item numbers referenced in troubleshooting guide are in the Parts Breakdown chart shown in the Installation & Operating Manual and also on the web page.