Equipment Technical Bulletin

New LiquiCal PCB

PROBLEM

In 2001 more flexible programming ability was added to the LiquiCal giving it the ability to work in several new modes. These new modes appear differently to the user, lighting the LCD indicator lights in different patterns and sequences. The label in the area around the control dials also changed. These changes are referred to in the LiquiCal Users Manual.

New replacement PCBs (Catalog #068899) will have these new capabilities. This is true even if the LiquiCal the PCB is installed in was built prior to 2001, did not have these abilities before the PCB change and has the old label. This has led to confusion among customers who have replaced PCB's and been unable to understand the programming.

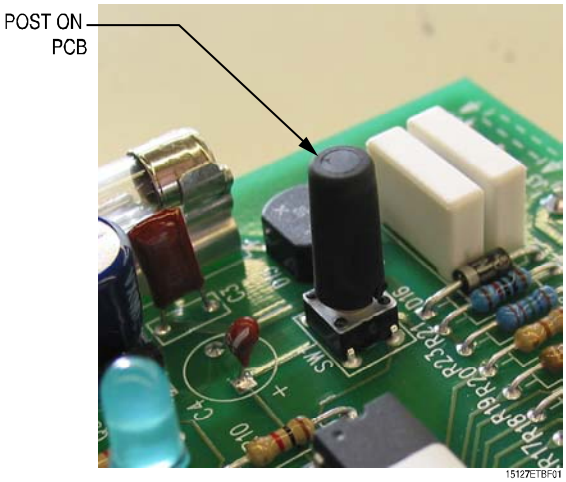

Figure 1. LiquiCal PCB with post attached

Additionally, when changing a LiquiCal PCB, there is a black plastic post which acts as an extension to the prime button. This post is mounted over a button on the PCB but is not attached to it. It allows there to be contact between the exterior Prime Button and the button contact on the PCB and is necessary for the LiquiCal to function properly. In some instances, customers replacing LiquiCal PCBs have disposed of the old PCB with the post still mounted on it. Because LiquiCal replacement PCB's do not come with a post, customers have found themselves unable to reassemble their LiquiCals properly.

SOLUTION/ACTION

When changing the PCB on a LiquiCal be sure to remove and retain the black post shown in Figure 1 and 2 as it is necessary for the proper assembly of the LiquiCal once the PCB is replaced.

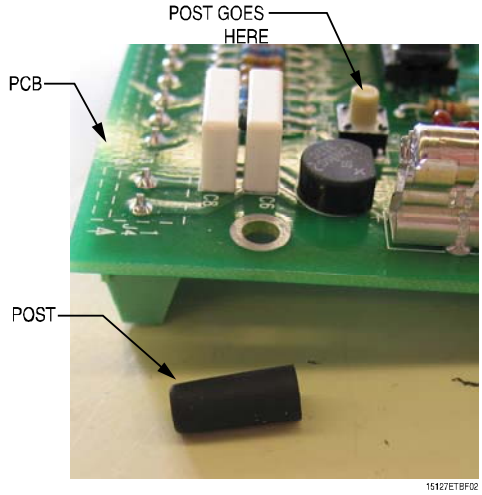

Figure 2. LiquiCal PCB without post attached

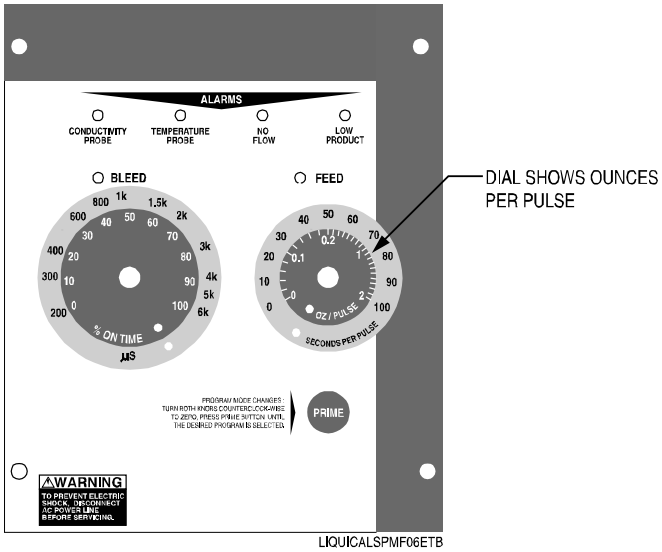

Figure 3. Old LiquiCal Front Panel

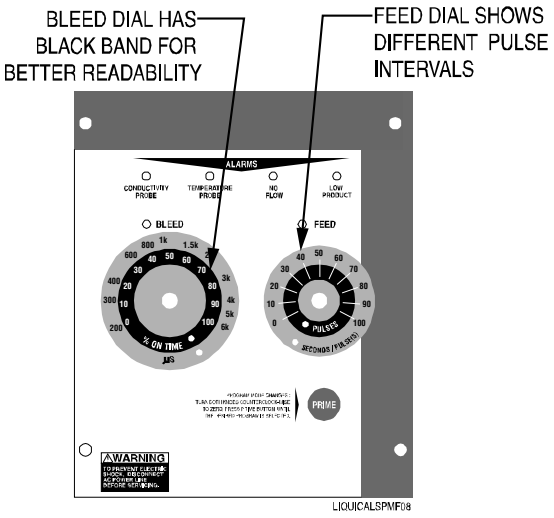

Figure 4. New (Current) Liquical Front Panel

Figure 3 shows the LiquiCal dial prior to the changeover and Figure 4 shows the current dial. As you can see, there are some slight differences in appearance between the old and new front panels. There are also differences in how to program the unit. Refer to Table 1 on next page for instructions on programming in the different modes.

New PCB's will exibit LCD indication lights in accordance with the curent Installation and Operating Manual. Refer to Figure 4 when following programming instructions to identify the meaning of each LCD lighting configuratuion.

NOTE

Because Modes 1-4 require that the Feed dial be set twice, it is very important that you follow the exact chronological order described in Table 1 when programming.

	Control Method Selection		External Equipment Requirements	Control Setpoint Programming (Follow exact sequence described)
Mode Description (See notes 1-4 below)	Turn Feed and Bleed dials full counter-clockwise. Press Prime button to change mode.			
	Bleed Dial LED Status	Feed Dial LED Status		
Mode 1 Feed (0-100 seconds) based on water meter pulse accumulation. Bleed based on percentage (0-100%) of recycling 10-minute time period.	% ON time LED **ON**	Pulses LED **ON** Seconds/Pulse **ON**	Water Meter	Step 1: Set Feed dial to number of pulses to accumulate before activating feed (1-100 pulses). Step 2: Set Bleed dial to percentage (0-100%) that bleed output activates during the recycling 10-minute period. Step 3: Set Feed dial to desired duration (0-100 seconds) for the pump to operate after the desired number of accumulated pulses is reached.
Mode 2 Feed (0-100 seconds) based on 10-minute cycle accumulation. Bleed based on percentage (0-100%) of a recycling 10-minute time period.	% on time LED **ON**	Pulses LED **ON Fast Flash** Seconds/Pulse **ON Fast Flash**	None	Step 1: Set Feed dial to number of 10-minute cycles to accumulate before activating feed (1-100 cycles). Step 2: Set Bleed dial to percentage (0-100%) that bleed output activates during the recycling 10 minute period. Step 3: Set Feed dial to desired duration (0-100 seconds) for the pump to operate after the desired number of accumulated cycles is reached.
Mode 3 Feed (0-100 seconds) based on water meter pulse accumulation. Bleed occurs when conductivity exceeds microSiemen setpoint.	MicroSiemen LED **ON**	Pulses LED **ON** Seconds/Pulse **ON**	Water Meter and Conductivity Probe	Step 1: Set Feed dial to number of pulses to accumulate before activating feed (1-100 pulses). Step 2: Set Bleed dial to microSiemen value (200-6000) above which bleed output activates. Step 3: Set Feed dial to desired duration (0-100 seconds) for the pump to operate after the desired number of accumulated pulses is reached.
Mode 4 Feed (0-100 seconds) based on a 10-minute cycle accumulation. Bleed occurs when conductivity exceeds microSiemen setpoint.	MicroSiemen LED **ON**	Pulses LED **ON Fast Flash** Seconds/Pulse **ON Fast Flash**	Conductivity Probe	Step 1: Set Feed dial to number of 10-minute cycles to accumulate before activating feed (1-100 pulses). Step 2: Set Bleed dial to microSiemen value (200-6000) above which bleed output energizes. Step 3: Set Feed dial to desired duration (0-100 seconds) for the pump to operate after desired number of accumulated cycles is reached.
Mode 5 Feed runs at same time as bleed (0-100 minutes) then locks out. Bleed occurs when conductivity exceeds microSiemen setpoint	MicroSiemen LED **ON**	Pulses LED **OFF** Seconds/Pulse **OFF**	Conductivity Probe	Step 1: Set Feed dial activation period (0-100 minutes) after which the feed output is locked-out. The feed lockout will be reset when the bleed cycle finishes. Step 2: Set Bleed dial to microSiemen value (200-6000) above which bleed output energizes.
Mode 6 Feed runs as a percentage (0-100%) of Bleed ON time based on a 10-second recycling time period. Bleed based on percentage (0-100%) of a recycling 10-minute time period.	% ON time LED **ON**	Pulses LED **OFF** Seconds/Pulse **OFF**	None	Step 1: Set Feed dial to percentage (0-100%) that feed will activate during the 10 second recycling time period. Step 2: Set Bleed dial to percentage (0-100%) that bleed will activate during the recycling 10 minute period.
1. When Mode 1, 2, 3, or 4 is selected, both feed scale LEDs are lit (steady or flashing). In this mode, the user can set the number of accumulated pulses by following these steps: The feed light above the dial turns on when at the previously-entered setpoint 1) Turn the feed dial to desired setpoint value (0-100 seconds) 2) Turn the bleed dial off zero to exit the programming mode. This setup stores the pulse accumulator setpoint into non-volatile memory.				
2. **Bleed Setpoint (% time LED ON)** Bleed dial sets % of a 10-minute recycle period that the bleed output is energized. Example: Setting of 25% energizes the bleed output 2.5 minutes every 10 minutes.				
3. **Bleed Setpoint (MicroSiemens LED ON)** Rotate bleed dial to desired setting. Bleed output is energized when actual microSiemens exceed the setpoint.				
4. **Pump Runtime (Modes 1,2,3,4)** Turn the Feed dial to desired duration (0-100 seconds) for the pump to operate after accumulated pulses (1-100) or cycles (1-100) is reached.				

Table 1

Table 1 above shows the programming modes for the current LiquiCal. New PCB's will program according to this table. It is necessary to follow the programming instructions carefully. The complete Installation and Operating Manual is available on our web site at www.beta-technology.com or by contacting Technical Support at 1-800-468-4893.

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