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Subject: Generator Power Operation with Rev. "E" and Rev "F" Trigger Board on Style "A" Liquid Cooled Solid State Starters		

## General

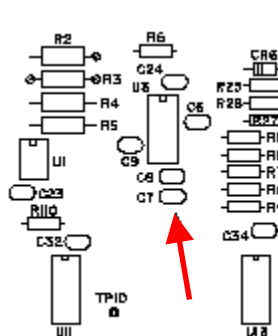
The Liquid Cooled Solid State Starter (LCSSS) contains a trigger board (031-00925-00X) that determines when to turn on the output SCR's based on the wave shape of the input voltage. While the chiller is running from utility power the wave shape of the input voltage is normally very smooth and regulated. Only under conditions such as storms, is utility power not smooth and regulated. Since the voltage wave shape is normally smooth, the input voltage filter in the LCSSS is such that any voltage spikes are not seen by the LCSSS gate driver circuit. This prevents the LCSSS from misgating and damaging the SCR's.

However, the wave shape of the input voltage from a generator is not as smooth or regulated as utility power. In this case, a modified trigger board can be supplied that has an input voltage filter that does not remove all of the voltage spikes. This allows the trigger board to follow the input voltage wave shape and determine the proper gating of the output SCR's. If the modified trigger board is not used on a generator application, then the customer is running the risk of nuisance tripping, and or damage to the SCR's.

## REV. 'E' Trigger Board Operation:

Prior to the Rev. 'E' trigger board, a different modified trigger board was required to provide reliable LCSSS operation with generator power. It was determined a single trigger board (Rev. "E") could be configured for generator power or utility power, instead of requiring a different modified trigger board.

Early versions of the Rev. 'E' trigger board required that capacitor C7 be removed to configure the trigger board for generator power. These Rev 'E' boards will have capacitor C7 standing up on the boards, with enough of its component leads exposed to be able to clip the leads with a diagonal cutter (refer to Figure 1).



**REV. 'F' Trigger Board Operation:**

Although the Rev. 'E' trigger board was an improvement over earlier designs, changes in generator output regulation caused nuisance faults. The input voltage filter circuit was too slow to accurately track changes in the output frequency from the generator. This problem appeared during chiller start-up as an Out-Of Lock fault.

Changes on the Rev. "F" trigger board to the input voltage filter circuit have greatly reduced the occurrence of the Out-Of-Lock faults when using generator power. The new input voltage filter circuit accurately tracks changes in the output frequency from the generator.

During the development of the Rev. "F" trigger board it was determined that the new input voltage filter circuit is compatible with generator power and utility power. Since the new filter is compatible with both types of input power, generator power configuration is not required. The JP1 jumper is no longer supplied on the Rev. 'F' trigger board.