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Subject: Generator Operation With Rev "C" and Rev "D" Trigger Boards on Style "B" Liquid Cooled Solid State Starters		

General Operation:

The Liquid Cooled Solid State Starter (LCSSS) contains a logic/trigger board (031-02001-00X) 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 the utility power not smooth and regulated. Since the voltage wave shape is normally smooth, the input voltage filter in the LCSSS is such that the LCSSS gate driver circuit does not see any voltage spikes. This prevents the LCSSS from misgating and damaging the SCR's.

However, the wave shape of the input voltage from a generator is neither as smooth nor as regulated as the utility power. In this case, the logic/trigger board must be configured for generator operation. This configuration will allow the logic/trigger board to follow the input voltage wave shape and determine the proper gating of the output SCR's. If the properly configured logic/ 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. 'C' Logic/Trigger Board Operation:

Prior to the Rev. 'D' logic/trigger board, the logic/trigger board needed to be configured for utility power or generator power. We learned that many logic/trigger boards were configured for generator power, but were actually running on utility power.

REV. 'D' Logic/Trigger Board Operation:

Although the Rev. 'C' logic/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 type of problem appeared during chiller start-up as a Phase Lock Loop fault. The Rev. 'D' logic/trigger board made changes to the input voltage filter circuit.

The changes to the input voltage filter circuit greatly reduced the occurrence of the Phase Lock Loop faults when using generator power. The new input voltage filter circuit is capable of accurately tracking changes in the output frequency from the generator.

During development of the Rev. 'D' logic/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. 'D' logic/trigger board.