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Sienna Construction Note 11/1/09

Use of 115kBaud on RS-232 port

Note: Removal of two SMT capacitors is required. Here is the procedure:

Use a conical tip soldering iron set to 750 degrees. Be sure it is in good condition and well-tinned. Apply heat to both sides of the capacitor, alternating quickly to keep the solder from solidifying. As it loosens, it will move slightly. Keep alternating until the part comes free. Extra solder may be applied to each side to help keep it hot.

Once a part is removed, use solder wick to remove excess solder from the pads.

Problem: Unable to communicate with Sienna via RS-232 port after selecting 115200 Baud Rate (from front panel menu OR via “BR4;” command)

Severity: Critical on units without a front panel, since there is no way to reset the unit to a lower baud rate once the new baud rate is in use.

Cause: This problem is caused by excessive capacitance on the RS-232 communication lines, causing the high speed data to have too long of a rise and fall time. Fairly large capacitors were used in order to provide static protection on these exposed pins. But the values are too large for proper use at 115200 Baud.

Solution: The easiest solution is to avoid selecting the 115200 Baud rate, especially when using a Sienna which has no front panel. However, if you have already selected this setting, it's too late!

A more effective solution is to remove C1 and C3 on the RS-232 interface board and C4 and C6 on the controller board. The latter two parts are small surface-mount capacitors, but they are easily accessible once the front panel is removed. They are located at the bottom of the board next to J4, the 6-pin RS-232 interface connector.

We are evaluating replacement parts for the two boards for a more permanent solution and will provide a modification kit once the new values have been fully tested. Kits ordered after 11/2/09 will not need this modification.