Micro Control Systems

APPLICATION NOTE
APP-025

Removal of the 1N5817 Diodes

Revision History

Date	Author	Description
3/21/00	M Singer	The removal of the 1N5817 diodes.

Theory

This application note applies to the MCS-8, SI8, and SI16 boards. The 1N5817 diodes were used to clamp any extra sensor input voltage before it became damaging to the controller. While working very well for this potential problem, it had a drawback. At extreme high temperatures, above 150 degrees Fahrenheit, the 1N5817 diode would leak reverse current and thus cause the sensor input to read higher than actual values. The fix for this problem came in changing these 1N5817 diodes to an SD103 diode, which was installed on the MCS-8 and MCS-I/O in Revision 1.54 and higher boards. They are also installed on the SI8 and SI16 Revision 1.15 and higher boards. This new part is more tolerant to high heat levels and thus stops this problem from occurring while still providing protection.

Purpose

If a job site is having problems with the sensors reading higher than expected, and the boards have a Revision lower than those stated above, this may be the problem. It may be necessary on the MCS-8 and MCS-I/O, to clip these diodes out of the circuit to resume proper operation. This is to be a TEMPORARY fix only. The board must be replaced. This will not void any applicable warranty but must be returned to us promptly. **Please note however that there is no temporary fix for the SI8 and SI16 boards since the diodes are soldered directly to the board.**

The through hole 1N5817 diode found on the MCS-8, looks like a little barrel with the leads coming out on both ends. It is usually black with a silver band on one end and is approximately 1/4" long by 1/8" wide. The surface mount 1N5817 diodes, found on the SI8 and SI16 boards do not have any leads coming out of the ends but rather is soldered directly to the board. This type of diode must be removed at the factory, so the board must be changed out and sent back to us for upgrading. This would only apply to the SI8 and SI16 Revision 1.14 and lower boards.

REMOVAL OF 1N5817 DIODES ON MCS-8 AND MCS-I/O REV. 1.50 thru 1.54 BOARDS

This drawing gives the location for each 1N5817 diode and the sensor input that is in its circuit. There are eight sensor inputs for the MCS-8 and MCS-I/O boards.

TOOLS NEEDED
* Diagonal Wire Cutter

1. Turn power off to unit.
2. With the diagonal wire cutter cut the lead from one side of the 1N5817 diode and lift away from the board.