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SERVICE DEPT. MEMO

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RE: Modification Made to P/N 10257-10F Photodetector Board to Permit Higher Laser Beam Intensity Incident On Photodiode Cell

About 2 years ago a small modification was made to the current style photodetector board that would allow for a stronger (more powerful) laser light to be received at the photodiode. This was done to boost the overall signal that would be used by the ellipsometer and thereby improve the ellipsometer's precision.

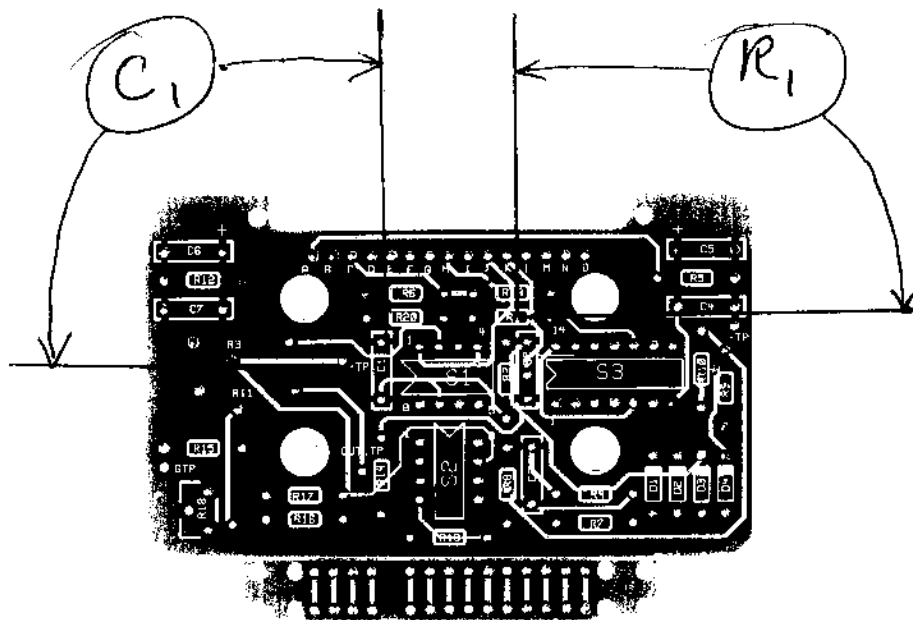
Specifically, the resistor at location R1 and the capacitor at location C1 (refer schematic) were replaced. Formerly, at R1 there was a 301k ohm resistor, and at C1, there was a 33 picofarad capacitor. These have since been replaced with a 100k ohm resistor and a 100 picofarad capacitor, respectively.

The printed "R1" and "C1" are difficult to see on the photodetector board because the components cover the print. To find the specific components look for the resistor (R1) nearest the number "14" and look for the capacitor (C1) nearest the label "TP".

As a result of this modification, if a newer photodetector (PD) board is installed on an older rotating-analyzer ellipsometer, there may not be sufficient laser light intensity at the photodetector to enable the gain pot on the PD board to be adjusted all the way to the 90 (9 volts) reading on the LED gain meter.

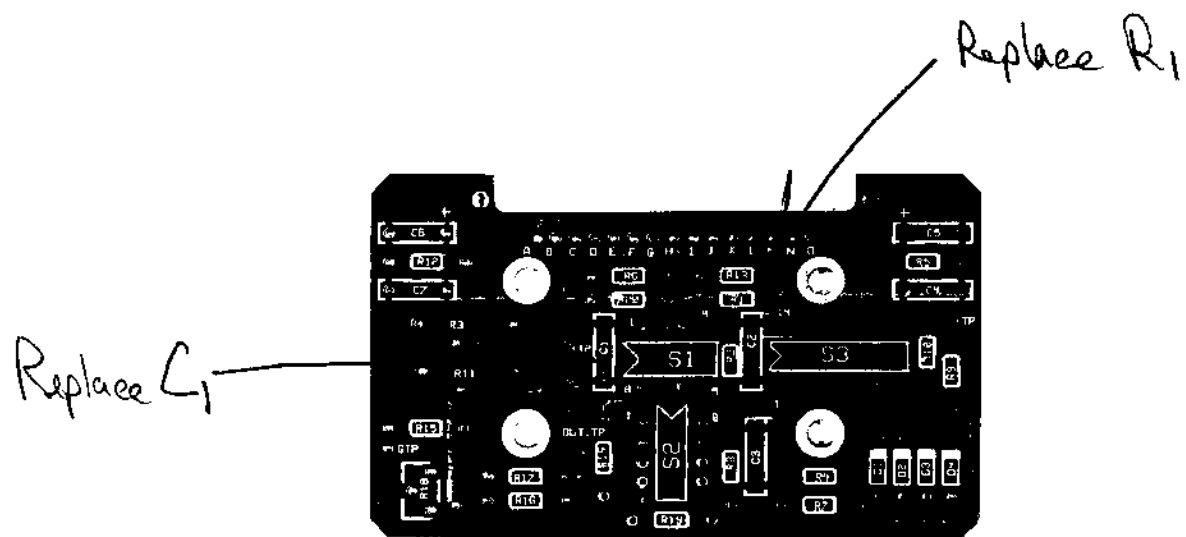
Several remedies for this situation may be used:

- 1) If possible, boost the overall laser beam intensity exiting the polarizer by adjusting the beam attenuator at the forward area of the laser mount. If there is not sufficient adjustment at the attenuator, then apply one of the next remedies.
- 2) Replace the R1 resistor and C1 capacitor components with their old, original rated components as denoted above, or ship the photodetector board(s) to Gaertner Scientific for the explained alteration.
- 3) The last option is to replace the existing diffuse filter on the motor endplate with the newer diffuse filter that allows more light through.



follow the intersection of lines for C_1
& lines for R_1 to locate

The diffuser used currently allows more light thru to PD. This improves the signal-to-noise ratio. As such, the PD board feedback gain must be reduced. Please replace the components indicated below with those provided with the diffuser



Replacement parts:

7108-E370A-100K
7108-E400A-101

