

Date	28 Sept 2015	Service Note #	TCS-2068	Updated	NA
Product	TCS-0200		Created By	J. Yangco	
Description	Installing the A2D (Analog to Digital) Plug-in Board				

Release	<input checked="" type="checkbox"/>	Internal	<input checked="" type="checkbox"/>	Distributors	<input type="checkbox"/>	Customers
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Parts/Tools Required	Serial Numbers Affected
A2D Board (2400-5123-A2D) Philips Screwdriver IC Chip Puller	2135228 and older

Installing the A2D Plug-in Board

Reason: Failure trend analysis indicated an intermittent failure resulting in either overheating or the heater not turning on. Upon further investigation and analysis it was determined that overtime, the TCS main board (2400-5123) will malfunction intermittently due to the instability of the oscillator's clock signal to drive the analog to digital chip (U4-ADS1213P).

In order to address this issue a design change in the circuitry via a plug-in board was implemented. This enhancement will improve the stability of the oscillator's clock signal performance used for the analog to digital chip.



The enhancement improves reliability of the oscillator's clock signal to drive the analog to digital chip, therefore on legacy systems it will be implemented on a case by case basis as the issue arises.

By default, all units shipped after the Serial Number listed above will have the new A2D plug-in board installed.



Pre-requisite:

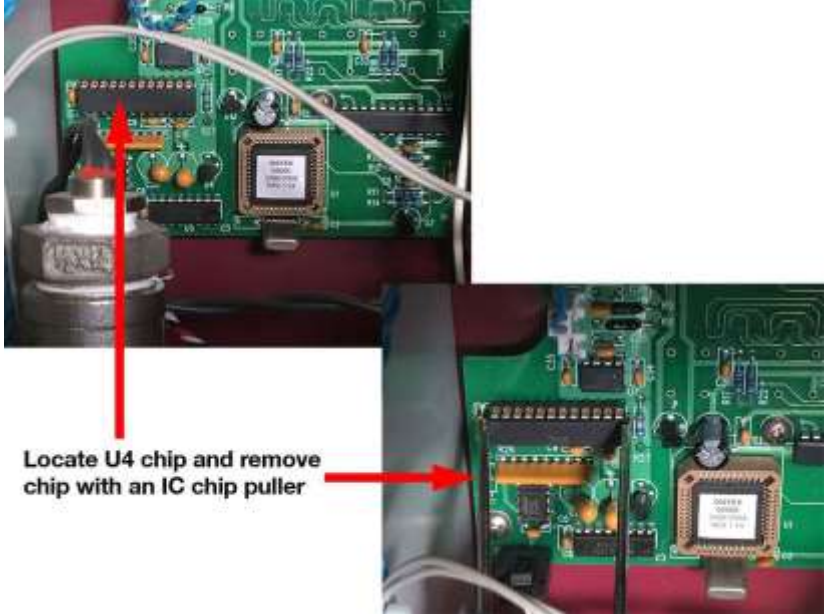

Service Engineer or person performing this service must have proper training in servicing the instrument.

Solution / Action



Before proceeding, discharge any static electricity from your body by touching a bare screw from the instrument. Turn off the instrument and disconnect the AC power cord.

<p>Step 1</p>	<p>Disconnect the TCS tubing starting with the quick disconnect then remove the tubing clip in order to pull the top tubing out as shown. Set the TCS on a clean area to work on.</p>  <p>Step 1</p>
<p>Step 2</p>	<p>Open the rear panel by removing the two screws as shown.</p>  <p>Step 2</p>

<p>Step 3</p>	<p>With the rear panel open, locate the U4 chip and remove it using a chip puller as shown. Discard the U4 chip.</p>  <p>Locate U4 chip and remove chip with an IC chip puller</p> <p>Step 3</p>
<p>Step 4</p>	<p>Prepare the A2D Board. Line up the two rows of pins with the U4 socket and push the A2D board until all pins are fully seated as shown.</p>  <p>Line up the pins and push the A2D board until it's fully seated</p> <p>Step 4</p>

Step 5	Secure the rear panel with the two screws.
Step 6	Reconnect the TCS-0200 with the dissolution bath.
Step 7	Reconnect the AC power cord.
Step 8	Verify that the TCS is primed correctly.
Step 9	Turn on the TCS and check for leaks.
Step 10	Turn on the heat and observe the TCS for proper operation.