**Solutions Calculator Club**

**Project Documentation**

**Testing and Troubleshooting**

**General Testing**

First test power in and signal outs on all ICs using the schematic as reference. Note your findings.

Next step if the measurements were not conclusive would be to use a testing method that would isolate each of the separate timer circuits.This might help narrow down the area in which the trouble lies.

**By Module:**

**Clock Module**

**Tests**

* Test Power in for 5 volts DC. OK
* Does the Astable Clock pulse when it should. Do you get NOT Clock on the opposite pulse?Yes
* When the Bistable Timer circuit is toggled does it enable the Monostable Clock pulse to output its signal.Yes
* Observe the Indicator LEDs in the Circuit.

**ALU, Register A and B**

**Test**

* Power test okay
* Register A (AI) receives data from the bus.
* Register B (BI) receives data from the bus.
* ALU ADDs REG B to REG A (Acumulator).
* ALU SUBs REG B From REG A (Acumulator).
* Flag Register Carry out LED Lights.
* Flag Register Zero LED Lights.

**Troubleshoot**

MSB AND LSB not Correct rewire 4 times, twice to the schematics.

Flag Register not rewired failed previous test.

**MAR, RAM and Program Counter**

**Test**

* Power test okay
* Program Counter counts okay
* Program Counter date to the Bus okay
* Mar Program Mode Address validation Run mode calling address Recalls Correct value and Address.
* Ram Input value to 64-bit of Ram

**Troubleshoot**

**Control, OUTPUT Display Logic, and Instruction Register**

**Tests**

1. The circuit's clock indicates a positive test if the LED has an Astale pulse.

2. The next test is the couter does the indicator LEDs cycle 00, 01, 10, 11.

3. The input selection to the EEPROM should be multiplexing.

4. Do displays show the correct digit…. 1’s, 10’s and 100’s.

**Tested**

* Power test okay
* Clock Circuit test Passed
* Counter Circuit test Passed
* Select/Multiplexing test circuit Passed
* EEPROM Test Arduino Serial Port Looks like the correct information
* Display Values incorrect **not** Passed

**Troubleshooting**

Missing power pin 1 on Control Logic EEPROM A.

Another IC was missing a pin the a connection to ground.