# Unless Given permission from Steve FOLLOW THIS EXACTLY

NOTE: Manual is in the cabinet above the CHN machine. You should read sections 4C and 4D pages 4-6 through 4-11 and all of section 5 and 6.

# Some quick references

1. Tube filling chart and changing directions are in the beginning of section 4 on page 4-6 through 4-11.

2. After changing the combustion tube "purge gas" Helium for a minimum of 500 seconds and Oxygen for 250 seconds.

    a. If you are only changing the reduction tube or starting up after a delay in burning "purge gas" for a minimum of 250 seconds for Helium and 150 seconds for Nitrogen.
    b. Although not necessary, reducing the furnace temperatures can make changing the reduction and combustion tubes easier. Under parameters function 7 and 8 After lowering raise temps back to operating temps of 925 for combustion and 640 for reduction. REMEMBER TO WAIT FOR TUBES TO REACH OPERATING TEMPS BEFORE BEGINNING.

3. Run a series of blanks, no tin ball (about 5). Blanks must be reproducible to within:
    a. Carbon+ or –30
    b. Hydrogen + or – 100
    c. Nitrogen + or – 16

    If blanks to do not reproduce within five or six runs "purge gas" again Helium only for 150 seconds.

    **NOTE: This is for stabilizing the machine not calibrating it.**

4. Once blanks stabilize run calibration by running:
    a. 2 K Factors (Type S1)
    b. 1 blank
    c. 1 K Factor

d. 1 blank or more if needed

**NOTE: Now you are calibrating, the blanks are for "conditioning" the machine and should only be reproducible to the other blanks in this series. These values will be higher than you would expect. Only worry about reproducibility!!**

5. K's must be reproducible to:
    a. Carbon 16.5 + or – 3.5
    b. Hydrogen 50.0 + or – 20.0
    c. Nitrogen 6.0 + or – 3.0
6. If K Factors are in tolerance then you may begin running samples.
    a. **If need be** Do not forget to reset sample run #. This will have to be done before starting samples and when reaches 120 samples.
    b. Do not forget to check "Run Counters" to see how many runs are left on the tubes and vial receptacle.
    c. Details of running samples (Auto run) are in section 6F. page 6-24.
7. Watch pressure regulators, adjust as needed.

8. Run a blank every 20 samples! This will verify the conditioning of the machine.

**IF YOU DO ALL OF ABOVE AND READINGS ARE OUTSIDE LIMITS CALL STEVE!**

**NOTE: Make sure ID is unique to the sample so that it can be fully identified later.**

**NOTE: Change vial receptacle every time you change the reduction tube. The receptacle vial goes in the combustion tube with the interior lip at the bottom. Pack bottom with quartz wool so that the wool makes a "tube" or hollow deep bowl shape.**