Instructions for Sharon TE-3

1. Venting the Chamber
    a. Close High Vacuum Gate valve. You will hear a "click" when it has closed completely.
    b. Open Vent valve
    c. When pressure reads 7.2 x 10^2 lift evaporator lid
    d. Close vent valve
2. Loading Sample
    a. Mount substrate on sample holder
    b. Open shutter and screw sample holder into place. Close shutter.
    c. Mount boats. Use boats with long channels for Ti, and boats with hemispherical depressions for Au.
    d. Put metals into evaporation boats. Use one slug of Ti and 1 piece of Au for every 10 nm thickness of Au required – then add one extra piece to be safe.
    e. Make a note of the positions of the evaporation boats (numbering is 1-4, beginning at the front of the evaporator).
3. Pumping down the chamber
    a. Lower lid of vacuum chamber
    b. Start mechanical pump. Give it a minute or so to get up to speed.
    c. Open the roughing valve.
    d. When pressure reaches 2 x 10^{-1} close roughing valve and turn off mechanical pump.
    e. Open high vacuum gate valve.
    f. Turn on ion gauge.
    g. When pressure reaches 5 x 10^{-4} degas ion gauge. Watch pressure rise and then fall again before turning off the degas process.
    h. Allow vacuum to decrease to ~2 x 10^{-7} (about 2 hours).
4. Evaporating
    a. Press "Start", "Reset Procedure", "Start", "Reset Procedure", "Menu", choose appropriate process for metal that you are evaporating (Ti is 2, Au is 3), press "Menu", "Start", "Reset Procedure", "Manual". Process number should show next to "film".
    b. Choose the correct position.
    c. Turn on evaporation power.
    d. Increase evaporation power until rate is about 1 Å/s.
    e. Simultaneously reset and open the shutter
    f. When required thickness is achieved, close shutter
    g. Decrease evaporation power to 0%
    h. Turn off evaporation power.
    i. Repeat for all metals in chamber.
5. Venting the chamber
    a. Close high vacuum gate valve (listen for click)
    b. Open Vent valve
    c. When pressure reads 7.2 x 10^2 lift evaporator lid

d. Close vent valve
e. Remove sample and boats
f. Vacuum chamber

6. Pumping down the chamber
a. Lower lid of vacuum chamber
b. Start mechanical pump. Give it a minute or so to get up to speed.
c. Open the roughing valve.
d. When pressure reaches 2×10^{-1} close roughing valve and turn off mechanical pump.
e. Open high vacuum gate valve.