

CRYSTAL GROWING PROCEDURE

I. Dip-in Temperature

- A. Refer to log book
- B. A-C Volts x A-C Amperes = 18,000 = Dip In
- C. Last resort
 - 1. 700 Units

II. NECK DOWN

- A. Rotate seed 5 - 10 minutes above melt surface
- B. Pull speed for neck - 1 2"/hr.
- C. Find Dip-in temperature
 - 1. If seed blurps
 - a. Decrease temperature approximately 50-100 units
 - 2. If ice forms on seed
 - a. Increase temperature 50-100 units
 - b. Be sure you rotate the seed long enough
or dip-in will be cold
- D. Pull neck smaller than seed
 - 1. About 1/8" in diameter
 - 2. About 1" in length

III

III. COMING TO DIAMETER

- A. Drop temperature approximately 10 units from neck
 - 1. If diameter fails to come out fast enough
 - a. Drop temperature 5 more units
 - 2. If diameter tends to come out too fast
 - a. Raise temperature 5 units
 - 1. In case of flat diameter
 - a. Raise 10-15 units

IV. COMING OVER SHOULDER

- A. Raise pull rate speed
 1. Start over shoulder app. 1/8"-1/4" before desired diameter
- B. Drop temperature
 1. App. 5-10 units
 - a. Same time pull rate is increased
- C. Heater on
 1. Turn heater on just over the shoulder
 - a. Leave heater settings stable at all times
- D. Lowering the temperature
 1. Decrease temperature gradually
 - a. Every 3-5 min. - when you need it.
 1. 2 or 3 units at a time
 2. Continue controlling the xtal with pull rate
 - a. for proper control
 - b. be sure not to lose control of the crystal at this time
 1. very easily done if you don't keep close watch on it
 3. At this point of growth
 - a. you must know what the crystal is doing
 1. DON'T LOSE CONTROL

V. CRYSTAL CONTROL

- A. If you have control of the crystal
 1. doesn't tend to taper in
 2. grows at desired diameter
 3. controls with pull rate speed only
- B. Stop using temperature
- C. Continue growing crystal
 1. only with pull rate speed

VI. RAISING THE TEMPERATURE

- A. If crystal tends to taper out
 - 1. melt is cold
 - 2. use temperature increases
 - 3. excessive pull rate speed increase adjustments
 - a. melt is cold, increase temperature

VII. ROUNDING OFF

- A. Adjustments
 - 1. normally about 5 units every 5 min.
- B. Heater off

Erased
Erased Bon
25% COTTON CONTENT