

## Typical Operating Procedure

### Performing a Scan

1. Turn Zoom/Focus knob [Fig 1a] fully clockwise to raise Stylus [Fig 2].
2. Turn illuminator knob counterclockwise [Fig 1b] until Light illuminates on Sample Stage. [Fig 2]
3. Switch ON red toggle switch [Fig 3b] on back of Directional Control box.
4. Switch ON red power switch [Fig 3a] on back/top of MEU.
  - Note:** Dektak 3030 Logo screen [Fig 4] displays.
  - Note:** Rotate brightness knob left/right [Fig 5] to adjust screen.
5. Press **PRGM** to display Dektak 3030 Menu screen. [Fig 6]
6. Place sample directly under Stylus on Sample Stage. [Fig 2]
7. Rotate Leveling Wheel [Fig 2] to value noted on machine.
8. Slowly rotate Zoom/Focus knob [Fig 1a] counterclockwise until sample surface is in focus.
  - Caution:** Avoid hitting sample with stylus.
  - Note:** Adjust Illuminator knob [Fig 1b] if needed.
9. Using joystick [Fig 5] move sample region of interest to right of stylus location on screen.
  - Note:** Left/Right joystick motion moves sample left/right (onscreen); Up/Down joystick motion moves sample down/up (onscreen).
10. Press [up/down-button-image] to lower stylus to sample surface.
  - Note:** A delay of 8-10 sec may be observed before stylus moves.
11. Adjust scan parameters as needed.
  - Note:** See Set Scan Parameters section.
12. Press **SCAN** to perform scan.
13. Note: A scan progress screen appears. When complete, the measured data will be displayed.
  - Note:** Inclined/declined profiles are common. See Leveling Plot section.
  - Note:** To print profile and information press **PT**. Printer on top of monitor.



(a) (b) Fig 1

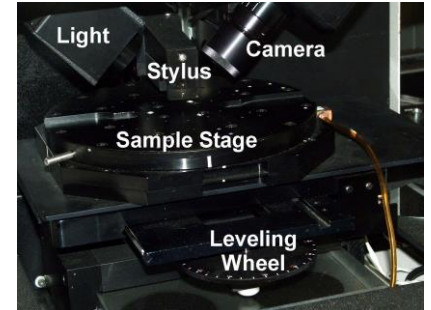


Fig 2



(a)



(b) Fig 3



Fig 4



Fig 5

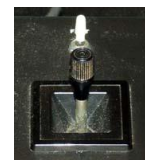


Fig 6

### Shut Down Procedure

1. Rotate Illuminator knob [Fig 1b] fully clockwise.
2. Rotate Zoom/Focus [Fig 1a] knob fully clockwise to lift stylus.
3. Remove sample.
4. Switch off MEU power switch [Fig 3]
5. Switch off Directional Control power toggle switch.

### Leveling Plot

1. Press **REF**. Use **←** and **→** to move vertical reference line [R] onscreen to left edge of a flat region of scanned data.
2. Press **MEAS**. Use **←** and **→** to move vertical reference line [M] onscreen to left edge of a flat region of scanned data.
3. Press **LVL**.
  - Note:** Scanned data is replotted using [R]-[M] region as level reference.

**Set Scan Parameters (Typical)**

1. Press [PRGM] to display Dektak 3030 Menu. [Fig 6]
2. Press [PRGM] to display Scan Parameter screen. [Fig 7]
3. Press [UP] or [DOWN] to highlight Scan Length parameter.
4. Type **2 0 0 1** to select 2.001  $\mu\text{m}$  scan length.  
**Note:** 2.001  $\mu\text{m}$  is minimum scan length required to avoid a known "valley" artifact. See How to Avoid "Valley" Artifact section.  
**Note:** Select Scan Length that will not cause the stylus to fall off sample as this will damage stylus.
5. Press [ENTR]
6. Use [UP] or [DOWN] to highlight Speed. [Fig 7]
7. Use [LEFT] or [RIGHT] to highlight Medium.
8. Press [ENTR]
9. Press [UP] or [DOWN] to highlight Profile.
10. Press [LEFT] or [RIGHT] to select "step/trough image"
11. Press [ENTR]
12. Press [UP] or [DOWN] to highlight Measurement Range. [Fig 7]
13. Press [LEFT] or [RIGHT] to highlight 655kÅ.
14. Press [ENTR]
15. Note: All parameters [Fig 7] and values are active as displayed.
16. Press [SCAN] to perform scan using displayed parameters.

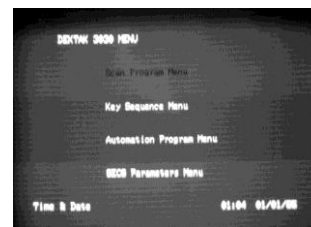


Fig 7

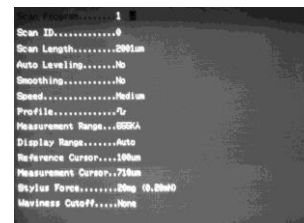


Fig 8

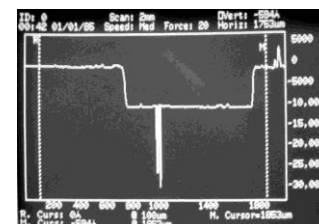


Fig 9

"Valley Artifact"

**How to Avoid "Valley" Artifact**

The "valley" artifact consists of [Fig 9]:

- a.  $\sim 1\mu\text{m}$  drop at  $x\sim 720\mu\text{m}$ ,
- b. anomalous fluctuation  $x\sim 1000\mu\text{m}$ ,
- c.  $\sim 1\mu\text{m}$  rise at  $x\sim 1720\mu\text{m}$ .

**Note:** For example, if scanned sample has a real step at  $x\sim 1400\mu\text{m}$  the resulting profile may look similar to [Fig 10] including the three artifact features described above.

To avoid this artifact, use a Scan Length ( $x$ ) of:

- a.  $0 < x < 710 \mu\text{m}$  or
- b.  $x > 2000 \mu\text{m}$  (at least 2001  $\mu\text{m}$ )

**Note:** If Scan Length is  $710 \mu\text{m} < x < 2001 \mu\text{m}$ , anticipate drop, fluctuation and rise in scan profile at known horizontal locations .

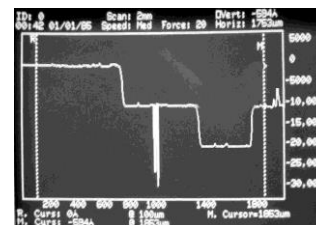


Fig 10

