OPERATION OF JEOL JSM-T200
(January 1998 - Version 2.1)

STARTUP
1. Cooling water on
2. POWER switch on
3. MAGNIFICATION displays a magnification readout
   SIGN IN TO LOG BOOK

SPECIMEN EXCHANGE
1. FILAMENT control fully CCW
2. ACCELERATING VOLTAGE OFF (Button OUT)
3. Toggle VENT vacuum control switch
4. Pull out specimen stage. Must be at 0 degrees tilt
5. Mount/exchange specimen
6. Insert specimen stage. Must be at 0 degree tilt
7. Toggle PUMP DOWN vacuum switch
8. MAGNIFICATION displays a magnification readout

IMAGE OBSERVATION
1. Initial settings:
   a) WD selector to 20 (or 8 or 48)
   b) SEI switch depressed
   c) FILAMENT control fully CCW
   d) ACCELERATING VOLTAGE to desired kV
   e) SPOT SIZE to 11 o’clock
   f) CONTRAST, BRIGHTNESS, and FOCUS panel AUTO/MAN button to MAN
   g) MAGNIFICATION control to 35x
2. ACCELERATING VOLTAGE on
3. CONTRAST control set so that the checker meter reads ~0.20 when the POSITION selector is at 21
4. LSP and EXP depressed. If line does not appear, turn BRIGHTNESS control CW until line appears
5. CHECKER to #4. While watching CHECKER meter, increase FILAMENT control until initial rise on meter.
6. Continue increasing FILAMENT control until waveform plateaus.
7. Depress PIC/TV twice to view an image on the monitor
8. Depress PHOTO to reduce scan area and improve image quality

PHOTOGRAPHY
1. Focus and correct astigmatism at a magnification at least 2 to 4 times the magnification you want
2. Decrease magnification to the magnification you want, depress PHOTO to compose photograph image field
3. PIC/TV and EXP depressed
4. Adjust CONTRAST and BRIGHTNESS controls
5. Close camera over monitor
6. Check f/stop: f/5.6 for Polaroid 55; f/16 for Polaroid 52
7. Insert film. Set FILM COUNTER.
8. Depress exposure button on top of camera - EXPOSURE lights up
9. When EXPOSURE light goes out, remove film, and process
10. Move camera away from monitor. Depress PIC to continue viewing image
**Backscattered Imaging**

→ Due to decreased S/N ratio of BEI signal you will possibly need to:
   - increase **Accelerating Voltage**
   - Increase **spot size**
   - Decrease WD (8 mm WD will not work)
   - Tilt specimen towards to detector
   - Use slow scan mode for improved viewing (**PIC/TV**)

1. Locate area of interest in **SEI** mode
2. Depress and release **SEI/BEI** switch
3. Increase **Contrast** and **Brightness** controls
4. Increase **spot size** (CW) if needed and adjust **Contrast** and **Brightness** controls
5. Focus and stigmate in **SEI** mode

**Normal Shut Down**

1. **filament** fully CCW
2. **accelerating voltage** OFF (Button **OUT**)
3. Specimen out, and column evacuated
4. **Magnification** fully CW - readout displays **00000**
5. **sign out of log book**
6. Lights off

**Full Shut Down**

![Full shut down is to be done ONLY in case of:
   a. Interruption of building utility services (Electrical or Water)
   b. Vacuum system failure
   c. Instruction of EMF Staff)
1. Push red **shutdown** button lower left panel - Lights on right panel will go out and
   scope will go quite
2. Switch breaker box to OFF
3. Cooling water recirculator manual switch to OFF

**Turning Scope On After Full Shut Down**

![To be done ONLY after correction of the reason for the full shut down)
1. Breaker box to ON
2. Cooling water recirculator manual switch to ON
3. Push Black **start up** button lower left panel - pumps will start, some lights will
   come on

After 30-45 mins, the **Magnification** display will read **00000** (Left upper panel) should be
illuminated indicating the scope is functioning.