Troubleshooting (Taken from Bozzolla & Russel, 1999, Wagner)

Knife cuts every other section

a. The advance has been set below the capabilities of the cutting edge. Increase the advance until serial sections are cut or use a sharper knife.

Failure to cut any sections

a. Cantilever arm at end of fine advance.
b. Dull knife.
c. Block too soft.
d. Knife or block not secure.
e. Negative clearance angle.
f. Wet block face.
g. Vibrations.
h. Temperature fluctuations.

Thickness variations from one entire section to the next

a. Dull knife.
b. Bumping of microtome.
c. Drafts or temperature variations.
d. Knife or block not secure.
e. Block face too large or too soft.
f. Wrong cutting speed.

Wrinkled sections

a. Block face too large or too soft.
b. Dirty or dull knife.
c. Clearance angle too great.
d. Water level too low.
e. Cutting speed too fast.
f. Knife not secure.

Compressed sections

a. Block too soft.
b. Cutting speed too fast.
c. Inadequate expansion, try using.

Chatter

a. High-frequency vibrations during sectioning, try a different cutting speed or clearance angle.
b. Block too tall with small base.
c. Dull knife or soft block.
d. Block or knife not secure.

Specimen block lifts sections on return stroke

a. Water level too high.
b. Block face dirty, wet or hydrophilic. If block face is wet, wick dry with wedge of filter paper without touching knife edge.
c. Clearance angle too small.
d. Dirty knife or back of knife is wet.
e. Static electricity on block face.

Block gets wet

a. See a – e above.
b. Block face too large.
c. Cutting speed too low.

Sections fragged over knife edge

a. Cutting speed too low.
b. Water level too high.
c. Clearance angle too low.
d. Block too soft or a ragged edge of trapezoid preventing detachment.

Sections have holes

a. Bubbles in resin.
b. Incomplete infiltration with resin.
c. Hard objects in specimen.

Specimen falls out of block

a. Poor infiltration.
b. Block too soft.

Sections have striations perpendicular to the knife

a. Nick in knife edge. Move to a different region of knife edge or change knife.
b. Dirt on knife edge.
c. Knife damaged by hard region in specimen. Trim block to avoid hard region.

Sections do not form ribbons

a. Top and bottom of trapezoid not parallel. Re-trim block.
b. Water level wrong.
c. Cutting speed too slow.
d. Static electricity on block face.

Ribbon of sections curved

a. Top and bottom of trapezoid not parallel. Try re-trimming block.
b. Compression on one side of section.

Sections stick to eyelash probe

a. Dirty eyelash probe.
b. Bearing down on sections too much with eyelash probe.

Knife does not wet

a. Add a drop of dilute Tween 20 solution to the boat.
b. Use saliva to wet knife edge.

Sections hard to see

a. Water level wrong.
b. Illumination wrong.

Sections hard to move in boat

a. Contamination in boat water. Change water.

Sections move away from grid

a. Dirty grid.

Perpendicular regions with varied interference colors in sections

a. Cutting edge not equally sharp across knife edge. Use different part of knife edge or change knife.

Irregular variations in interference colors throughout sections

a. Uneven consistency between specimen and embedding material or within different regions of the specimen. Try to re-trim to include only areas with an even consistency.

Color variations occur in bands parallel to knife edge

a. Low frequency vibrations.
b. Knife or specimen not secure.
c. Cutting speed too fast.
d. Trapezoid needs to be re-trimmed.