

I. Analytical Procedure: **Headlight/Bulb Examination**

II. Suggested Uses: A procedure for the examination of headlights and other bulbs to determine if they were “On” or “Off” when damaged.

III. Procedures

- A. Do a visual examination and look for signs that the bulb was “On.”
 - 1. Black or multicolored discoloration of filaments.
 - 2. Black or pale yellow oxidation on filaments, hoods, filament posts, glass, or other parts.
 - 3. Unusual distortion of filaments.
 - 4. Glass beads or particles welded to the filament surface.
 - 5. If broken, melted or beaded filament ends.
- B. Do a stereo microscopic examination and look for signs that the bulb was “On.”
 - 1. Black or multicolored discoloration of filaments.
 - 2. Black or pale yellow oxidation on filaments, hoods, filament posts, glass, or other parts.
 - 3. Unusual distortion of filaments.
 - 4. Glass beads or particles welded to the filament surface.
 - 5. If broken, melted or beaded filament ends.
- C. Test circuits with a volt-ohm or similar meter to determine continuity.
- D. Photograph the evidence to illustrate and document the damage.
- E. If necessary, remove portions of the filament for SEM analysis (See SEM Instrumental Procedures).
 - 1. Gives great definition and depth of field to view of filaments.
 - 2. Elemental analysis can identify oxides and glass.

IV. Safety Concerns

- A. Broken bulbs have very sharp edges and can produce severe cuts.
- B. Electrical circuits may be energized and could produce electrical shocks.

V. See manufacturer’s guide for bulb specifications.