**A. Purpose:** To define a method by which head lamps will be examined for the determination of the condition of the filament and lamp prior to impact. In an attempt to determine whether a bulb was "on" or "off" at the time of impact the examiner will observe the distortion and characteristics of the filament.

**B. Responsibility:** Forensic Science Examiner or designee by the Director

The Director or Supervisor may act as the co-signor of a report, which includes lamp filament examinations.

**C. Safety:**

1. The examiner will exercise caution was when using sharp blades or similarly sharp instruments.
2. The examiner will exercise caution when handling evidence, which may include broken glass or sharp areas.
3. All sharps, glassware or similar material will be handled using the appropriate precautions.

**D. Procedure: Set up**

1. It will be to the discretion of the examiner to assess the probative value of the evidence submitted to the laboratory; upon which the examiner will determine, based on their training and experience, if a request for analysis will be conducted.
2. It is to the examiner's discretion, based on their experience and training, to determine the types and extent of examinations conducted.
3. At any time, the condition of the evidence, the examiner may use their training and experience to deem a variation in the lamp examination procedure may be necessary. This will be decided upon on a case-by-case basis and with the consultation of the co-signor of the case.
4. The examiner will utilize a clean workspace.
5. The examiner will document the packaging in which the evidence was submitted to the laboratory.
6. The examiner will notate if additional debris is located in the evidence packaging.
7. The examiner may employ the use of a stereoscope or other means of magnification to aid in the examination of a lamp bulb.
8. The examiner will document the overall appearance of the bulb. The examiner may choose to photograph the bulb.
9. The examiner will notate the color of the glass immediately surrounding the filament. It is to be noted that bulb may not be intact thus glass may not be present. Typical descriptions of glass

color include, but are not limited to "clear" and "amber". Other descriptions may be used based on the appearance of the evidence.

10. The examiner will either document the markings / information on the bulb, photo document or write the information in narrative form on the worksheet. This information may include the following information: "part number", "manufacturer", "amperage" or "voltage".
11. In order to examine the filament present in a bulb, the examiner may need to remove the bulb from a larger glass housing to view the characteristics of the filament. Refer to work instructions "Opening Lamp Housing".
12. When observed, the examiner will document if the glass of the bulb immediately surrounding the filament is broken.
13. The examiner will notate the number of filament(s) present in the bulb. The examiner will then notate if the filaments are intact (attached to the posts.) It is to be noted that filament placement on the interior of the bulb (top or bottom filament) may not necessarily indicate the "high beam" or the "low beam". The examiner should exercise caution when labeling "high beam" or "low beam". Manufacturer information may be required to determine the type of "beam" present. When referencing a filament, the examiner may choose to use the terms "shorter or longer", "top and bottom" or "upper and lower". It will be to the discretion of the examiner, based on their training and experience to determine a method to reference a dual filament bulb.
14. The examiner will photo document the condition of the filament(s) of the bulb.
15. When observed, the examiner will notate if oxidation is observed.
16. The examiner will notate the condition of the filament(s). These descriptions, when observed, may include, but is not limited to, the observation of deformation, breakage, discoloration, pitting, and appearance of melted areas and deformation of the ends.
17. When observed, the examiner will notate when the filament is fused to the interior wall of the bulb.
18. When observed, the examiner will notate when glass fragments or particulate is fused to the filament.
19. The examiner may employ the assistance of the lamp manufacturer to gain information about the filament or bulb.
20. Upon completing the lamp examination, the examiner will assess the physical characteristics present. The examiner will then prepare a report citing their conclusions based on the training and experience. The examiner may include an opinion based on their results if the filaments were consistent with being "on" or "off "at the time of impact.

21. Results and Conclusions

The following are examples of wording of the conclusions:

Submission #1 consisted of light bulb assembly.

A. Submission #1 was a clear-glass dual filament bulb.

B. Distortion observed on the shorter filament located in submission #1 presented characteristics consistent with "Hot Shock", indicating that the filament was "on" at the time of impact.

C. Distortion observed on the longer filament located in submission #1 presented characteristics consistent with "Hot Shock". This filament also presented characteristics consistent with "burn out".

or

D. The filament located in submission #1 presented no distortion indicative of "Hot Shock".

E. No determinations as to "on / off" can be made.

F. One filament located in submission #1 exhibited characteristics indicative of "Cold Shock", indicating that the filament was "off" at the time of impact.

*** Conclusion statements may vary from case to case based on the evidence submitted. The examiner will consult with their co-signor while drafting a final report.

## E. References:

1. North Western University Traffic Institute: Lamp Examination, For On or Off In Traffic Accidents
MORE References to add