Technical Procedure for Preservation of Footwear/Tire Tread Impressions

1.0 Purpose – This procedure is used in the preservation of questioned footwear/tire track impressions for comparison with known footwear/tire tread impressions.

2.0 Scope – This procedure applies to items of evidence that are to be examined for the presence of footwear and tire track impressions.

3.0 Definitions – N/A

4.0 Equipment, Materials and Reagents

4.1 Equipment and Materials

- Scale(s) (for determining correct size in photographs)
- Casting material (dental stone)
- Camera equipment with proper lighting

4.2 Reagents- N/A

5.0 Procedure

5.1 Application

5.1.1 Three-dimensional and two-dimensional impressions are customarily submitted for examination/comparison. Preservation of the impressions will differ depending upon the type of impression, the substrate and the receiving surface.

5.1.1.1 Two-dimensional dust impressions occur when a shoe or tire comes in contact with a surface heavily coated with loose material such as dust or dirt. The shoe or tire will strike the surface and the dust or dirt will cling to the sole or tread; a negative impression of the shoe or tire will remain.

5.1.1.2 Two-dimensional residue impressions occur as a result of residue being deposited from a shoe or tire to a surface. This will include impressions made by the transfer of ordinary residue which shoes accumulate, or impressions made after stepping in blood, grease, or other fluids.

5.1.1.3 Three-dimensional impressions occur when a shoe or tire comes in contact with a soft receiving surface. The impression is then impressed into the substrate (dirt, mud, etc). The resulting impression has a visible length, width and depth.

5.1.2 All questioned impressions shall be photographed prior to any other type of preservation method. The item shall be photographed using a digital camera, tripod, detachable flash and proper scale. Several photographs shall be taken with various light angles to ensure the best quality photograph of the impression is obtained. (See photographic equipment procedures.)

Note: All standards, lifts, photographs and casts created during the examination process shall be entered into FA as an item/sub-item of evidence.

5.2 Lifting Two-Dimensional Impressions

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5.2.1 Identify the type of impression, including the type of substrate and the type of receiving surface.

5.2.2 Based on training and experience, choose the lifting material most suited to the substrate (gel/adhesive lifter, electrostatic lifter, etc).

5.2.3 The Forensic Scientist shall date, initial and label the impression to identify the source for future reference.

5.2.4 Lift the impression using the proper technique for the type of lifter used (See Gelatin Lifters and Pathfinder).

Note: In some impressions, a sufficient amount of detail in the impression may not transfer to the lifting medium. Most impressions in blood, oil or other fluids (even in a dry stage) are fixed too well to the surface to adequately be lifted with any lift materials. In this case, photography is the only method to preserve the impressions.

5.3 Developing Impressions

5.3.1 For impressions that are in a substrate that is unable to be lifted (blood, grease, etc.) chemical enhancement methods may be used (see Blood Print Processing Techniques).

5.3.2 Prior to attempting an enhancement technique, the impression shall be photographed.

5.3.3 Once the impression has been developed, it shall be photographed using direct lighting and a scale prior to any attempts made at lifting.

Note: Some residue impressions may be enhanced for lifting by dusting them with fingerprint powder. Dust impressions should NEVER be dusted with fingerprint powder as this will likely destroy the impression.

5.3.4 If the impression is unable to be lifted, it shall be preserved through photography (see photographic equipment procedures) or by electronic recording (see Section Image Processing Procedure). See the above Processing Procedures for additional preservation information.

5.4 Casting Three-Dimensional Impressions

5.4.1 Three-dimensional impressions shall always be photographed using a tripod, scale and detachable flash prior to casting. Multiple photographs with various lighting angles and positions shall be taken to ensure that the maximum amount of impression detail has been captured.

5.4.2 Cast the impression using the proper casting technique (See dental stone casting).

5.5 Standards and Controls – N/A

5.6 Calibration – N/A

5.7 Sampling - N/A

5.8 Calculations – N/A

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5.9 Uncertainty of Measurement – N/A

6.0 Limitations - N/A

7.0 Safety – N/A

8.0 References

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9.0 Records – N/A

10.0 Attachments – N/A

Revision History		
Effective Date	Version Number	Reason
09/17/2012	1	Original Document

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