

Guide for the Forensic Documentation and Photography of Footwear and Tire Impressions at the Crime Scene

1. Scope

- 1.1 This Guide provides procedures for the documentation and photography of footwear and tire impressions at the crime scene.
- 1.2 The particular procedures and methods employed in a given case will depend on the evidence.
- 1.3 This Guide may not cover all aspects of unusual or uncommon conditions.
- 1.4 This Guide does not purport to address all of the safety concerns, if any, associated with its use. It is the responsibility of the user of this Guide to establish appropriate safety and health practices and determine the applicability of regulatory limitations prior to use.
- 1.5 This Guide is not intended as a substitute for training in the forensic documentation and photography of footwear and tire track evidence. Completion of a training program and experience in these skills is essential to understanding and applying the principles outlined in this Guide.
- 1.6 This Guide relates to the still photography and written documentation of the recovery of footwear and tire impressions, as related to detailed physical comparisons that will be later made with known footwear and tires.

NOTE: Videotaping, although adequate for providing overall views of the scene and evidence, is not adequate for detailed physical comparisons and is therefore not recommended.

2. Terminology

DOT number: Department of Transportation serial number assigned to every tire sold in the United States which gives information regarding the manufacturer of the tire, tire size, and date of manufacture of the tire

Examination Quality Photographs: high quality photographs taken with a scale specifically for use in the physical comparison of footwear and tire impressions with known footwear and tires

Impression: the product of direct physical contact of an item resulting in the transfer and retention of characteristics of that item

Oblique angle: angle between 0 and 90 degrees

Photo log: a written record of photographs taken at the crime scene

Turning diameter: the diameter of the smallest circle that is made by the outer edge of the outer most front tire in a turn.

Vehicle track width: distance between the center points of the tires from one vehicle side to the other (i.e., from the center point of the passenger side front tire to the center point of the driver side front tire). On a dual axle vehicle, this is the distance from the center points between the dual tires from one vehicle side to the other.

Wheel base: distance between the front and rear axles of a vehicle. An approximation of this dimension can be obtained by measuring the distance from the leading edge of the rear tire track to the leading edge of the front tire track on the same side of the vehicle.

3. Significance and Use

3.1 The procedures outlined here are grounded in the generally accepted body of knowledge and experience in the fields of documentation and photography of footwear and tire impression evidence. By following these procedures, impressions can be properly documented and photographed.

3.2 Footwear and tire tread impressions are documented and photographed for future examination.

4. Interferences

4.1 Footwear and tire impression evidence may have inherent limitations that can interfere with the procedures in this Guide. Limitations, when known, should be noted and recorded.

4.2 Limitations can be due to substrate features, quality of original impressions, and method of collection.

5. Equipment and Requirements

5.1 Photographic Equipment

- Professional SLR film or digital camera (manual focus, detachable flash with 6 foot cable or flash with remote capability, sufficient resolution, timer or shutter cable cord or other remote control)
- Appropriate color or black & white film or digital storage media

5.2 Tripod capable of various angles and positions

5.3 Dark cloth to block sun or bright ambient light

5.4 Long tape measure(s)

5.5 Finely divided rigid scale(s)

5.6 Placards with numbers or letters

5.7 Photo log

6. Procedures

The following procedures may be used, as appropriate, for documenting and photographing footwear and tire impressions. The order of the following steps may vary.

6.1 Note case number, date, time, location of scene, conditions at scene (soil, weather, moisture, and substrate), scene responders

6.2 Evaluate overall scene and available information

6.3 Take overall scene photographs of footwear and tire impressions

6.3.1 Preparation of a photo log is recommended

6.3.2 Tire impressions should be photographed from several locations around the perimeter of the scene.

6.4 Establish path into scene with regard to preservation of evidence

6.5 Place identifying markers next to impressions. These assigned identifiers should be used to link the subsequent diagrams, photographs, and lift or cast of each impression.

6.6 Diagram impressions to record relationship to one another and direction of travel.

6.7 Take medium range photographs of selected impressions, including identifiers, in order to provide closer views of impressions and document their relative positions.

6.8 Measure vehicle track width, turning diameter, and wheel base of impressions if possible.

6.9 Take Examination Quality photographs.

- Position camera on tripod with film plane parallel to impression
- A rigid scale should be included in every photograph
- Place scale next to and along length of impression at same plane as bottom of impression
 - For a long tire impression, in addition to the rigid scale, a long tape measure should be placed along the full length of the impression being photographed, to aid in reconstruction of the impression using the series of photographs
- Fill frame with impression and scale
- Focus should be on the bottom of the impression rather than the scale
- Photograph the impression using flash held at an oblique angle
 - Flash should be held 4 to 5 feet away from and directed at impression
 - For a long tire impression, a series of overlapping photographs should be taken
- Take additional photographs with flash at multiple positions around impression
- An identifier should be included in each photograph
- Use dark cloth to block bright sun or ambient light which is striking impression
- For impressions in snow, highlighting sprays, such as Snow Print Wax or aerosol paint, may be used to increase the contrast

6.10 Collect elimination impressions and/or photographs of footwear and tires of non-suspect persons and vehicles

6.10.1 Document brand name, manufacturer, model, size, and DOT information of tires

6.10.2 Document brand, style, and size of footwear

7. Report

7.1 Procedures utilized and impressions photographed should be documented and may also appear in a report

8. Bibliography

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