

Technical Procedure for Known Tire Tread Standards

1.0 Purpose - This procedure applies to the collection of known tire tread standards.

2.0 Scope - This procedure is applied when obtaining known tire tread standards.

3.0 Definitions - N/A

4.0 Equipment, Materials and Reagents

4.1 Equipment and Materials

- Clear acetate film
- Printer's ink
- Ink spatula/ink rollers
- Permanent marker
- Cardboard sheets
- Tape

4.2 Reagents - N/A

5.0 Procedure - Prior to taking the impressions, locate an area where you can move a vehicle forward approximately one (1) vehicle length over a hard, flat surface. An indoor garage with a concrete floor will be used if available; however, the impressions can be recorded outside if weather permits.

- 5.1** On a clean, dry and smooth surface, roll a 30-foot section of brown paper and tape to surface. This will provide a clean surface in the event the tire runs off of the boards, and will also prevent the inked tire from leaving an unwanted impression on the concrete surface. Pull the vehicle onto one end of the paper. Align the vehicle so that pertinent rear tire will run through the center of the paper during this process. Dust off any loose dirt or dust from the tire. Excess dust or dirt will contaminate the ink and impression and give false characteristics. Rocks or other objects in the grooves of the tires shall not be removed.
- 5.2** Using a flexible tape, measure the approximate circumference of the tire.
- 5.3** Measure the distance between the front and rear tires; this distance is normally longer than the circumference of the tire.
- 5.4** Cut cardboard to create two (2) sections that combine to be approximately six (6) inches longer than the circumference of the tire, yet still fit between the front and rear tires.
- 5.5** Tape the cardboard pieces together from the back. One section will be used as the ink board and one will be used as the board for impressions. Make sure the sections fit between the front and rear tires, but are at least a few inches longer than the circumference of the tire, so a full impression can be obtained.
- 5.6** Mark the entire circumference of the tire with chalk or marker in the 12, 3, 6, and 9 o'clock positions (i.e.: 1, 2, 3, 4). When the number rolls across the clear film, mark the corresponding number on the impression.

- 5.7 Remove ink from the can or tube and spread with the spatula at various locations over the length of the cardboard section. Spread the ink first slightly with the spatula, and then with the fingerprint roller, until it is thin and even. The final ink coating should NOT be thick, but should cover the entire surface of the cardboard.
- 5.8 Using the other section of the cardboard, tape the end of the roll of clear film to one end of the section roll to cover the length of the section. Cut film to fit and tape it securely to the board at each end.
- 5.9 Slide the inked cardboard between the tires and align it so when the vehicle rolls across it, the tire will track over the inked cardboard and not run off the side of the inked surface. Push the vehicle forward so that the tire tracks across the inked surface, inking the tread design of the tire. As the tire completes a revolution and tracks off the inked cardboard, insert the other section of the cardboard with the clear film. Do this so the vehicle will continue to track from the inked cardboard onto the film until it reaches the end. Note the starting position on the tire for future reference. Insert a small clean piece of cardboard for the inked tire to come to rest on so the ink does not pick up dirt from the surface or stick to the brown paper. Note the direction relative to the front of the vehicle, presuming the tire has been mounted on the same side as it was on the suspect vehicle.
- 5.10 Remove the inked cardboard and the cardboard containing the inked impression. Disconnect the clear film with the impression and hang it over a door (or lay it across a table) and let it dry overnight.
- 5.11 For each subsequent impression, re-roll the inked cardboard with the roller to remove prior impressions and re-smooth the ink. Adjust the ink amount if necessary.
- 5.12 Repeat the above procedure to get a second clear film impression, but shift the beginning point by half the circumference of the tire (about 3 feet) to get a full circumference impression that begins and ends differently from the first impression.
- 5.13 After drying, carefully roll the clear film and place in a cardboard tube.

Note: Allow the impressions to dry for twenty-four (24) hours. For a faster drying time, spray a thin layer of lacquer or polyurethane on the impressions.

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

- 5.14 **Standards and Controls** - N/A
- 5.15 **Calibration** - N/A
- 5.16 **Sampling** - N/A
- 5.17 **Calculations** - N/A
- 5.18 **Uncertainty of Measurement** - N/A

6.0 **Limitations** - N/A

7.0 **Safety** - N/A

8.0 **References**

Bodziak, W.J. "Shoe and Tire Impression Evidence." *FBI Law Enforcement Bulletin*. (July 1984): 1-11.

Freels, R.H. *Improved Test Impressions and Prints*. Kentucky State Police.

McDonald, P. *Tire Imprint Evidence*. CRC Press LLC, Florida (1993).

Nause, L. *Forensic Tire Impression Identification*. Canadian Police Research Centre, Canada (2001).

9.0 Records - N/A

10.0 Attachments - N/A

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