

# *Idaho State Police*

## *Forensic Services*

### *Approval for Quality System Controlled Documents*



Discipline/Name of Document: Footwear and Tire Impression Training  
Manual and Training Record

Revision Number: 2

Issue Date: 7/20/2007

APPROVED BY:

*Corinna C. Owsby*  
Quality Manager

*7/20/07*  
Date Signed



**Footwear and Tire Impression Examiner  
Training Record**

**Idaho State Police Forensic Services  
Latents/Impression Evidence Section**

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# Training Record

Employee: \_\_\_\_\_

## 1 Laboratory Introduction

Required Reading

Completion Date / Reviewer / Trainee

- a. Idaho State Police Employee Handbook.

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- b. Idaho State Police Forensic Services (ISPFS) Quality Manual.

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- c. ISPFS Health and Safety Manual.

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- d. Footwear and Tire Impression Analytical Method (AM).

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- e. Safety for the Forensic Identification Specialist  
2<sup>nd</sup> Edition by Nancy E. Masters.

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**2 Evidence Handling**

Required Reading

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- a. ISPFS Quality Manual  
Quality Procedure (QP) 5.8/15.8 Evidence Handling.

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- b. Footwear and Tire Impression AM Section 5.

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**Evidence Procedures**  
(Sign-in/out, packaging, storage)

Examiner

Coach

Date: \_\_\_\_\_

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### 3 History and Background of Footwear and Tires

Required Reading

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- a. Footwear Evidence, by Abbott and Thomas.

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- b. Footwear Identification, by Michael J. Cassidy. Chapter 4, "Manufacturing of Soles and Heels."

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- c. Footwear Impression Evidence, Second Edition, by William J. Bodziak. Chapter 6, "Footwear Sizing." Chapter 7, "Manufacturing Process of Synthetic Soled Shoes."

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- d. Footwear and the Podiatrist, by William A. Rossi, DPM. "The Seven Basic Shoe Styles."

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- e. Forensic Tire Impression Identification, by S/Sgt. Lauren Nause. Chapter 1, "The Crime Scene Approach to Tire Impression Evidence." Chapter 5, "Tire Impressions as An Investigational Aid." Chapter 12, "Tire Manufacture Process."

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- f. Tire Imprint Evidence, by Peter McDonald. Chapter 1, "A Brief History of the Tire."

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**Optional Reading:**

g. Tire Tracks and Footwear Identification,  
by E.D. Hamm. *Identification News*. January  
1975, 25 (1), 3-6.

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h. Track Identification: An Historical Overview,  
by E.D. Hamm. *Journal of Forensic Identification*  
1989, 39, 6.

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i. The Complete Handbook of  
Athletic Footwear, by Melvyn Cheskin.  
Chapter 1, "Commercial Aspects."

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j. Footwear and Tire Track Examination  
in the Soviet Union, by I. Zeldes.  
*Journal of Forensic Identification*,  
1989, 39 (6), 367-374.

\_\_\_\_\_ / \_\_\_\_\_ / \_\_\_\_\_

k. A Microscopic Footwear Identification  
on Cloth, by E.R. German. *Identification*  
*News*. January 1981, 31 (1), 10-12.

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#### 4 Footwear and Tire Terminology

Required Reading

Completion Date / Reviewer / Trainee

- a. Footwear Identification, by Michael Cassidy.  
Chapter 4, "Manufacturing of Soles and Heels."

\_\_\_\_\_/\_\_\_\_\_/\_\_\_\_\_

- b. Footwear Impression Evidence Second Edition, by William J. Bodziak. Chapter 1, "Awareness, Detection, and Treatment of Footwear Impression Evidence." Chapter 10, "Class and Identifying Characteristics." Chapter 11, "Comparison of the Questioned Impression with Known Shoes." and the Glossary.

\_\_\_\_\_/\_\_\_\_\_/\_\_\_\_\_

- c. Forensic Tire Impression Identification, by S/Sgt. Lawren Nause. Chapter 2, "Two-Dimensional Tire Impressions Evidence." Chapter 8, "Tire Components and Terminology."

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- d. Tire Imprint Evidence, by Peter McDonald. Chapter 2, "Mechanics of the Tire Tread." Chapter 5, "Sidewalls." Chapter 9, "A Tire Imprint Identification System." Chapter 17, "Future Trends and Considerations." and the Glossary.

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- e. Tire Tracks and Tread Marks, by Bruce W. Given, Richard B. Nehrich And James C. Shields. Chapter 2, "Tire Tracks." Chapter 3, "Tread Marks."

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- f. Footwear and Tire Impression AM,

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Section 3 Definitions.

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**Optional Reading:**

- f. Footprints and Tiretracks, by C.W. Cooke. *Identification News*. July 1981, 31 (7), 7-10.

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## 5 Footwear and Tire Manufacturing

Required Reading

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- a. Footwear Identification, by Michael J. Cassidy. Chapter 4, "Manufacturing of Soles and Heels."

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- b. Footwear Impression Evidence Second Edition, by William J. Bodziak. Chapter 6, "Footwear Sizing." Chapter 7, "Manufacturing Process of Synthetic Soled Shoes."

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- c. Forensic Tire Impression Identification, by S/Sgt. Lawren Nause. Chapter 12, "Tire Manufacturing Process."

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- d. Tire Imprint Evidence, by Peter McDonald. Chapter 5, "Sidewalls." Chapter 10, "What Can Be Learned Without a Suspect's Vehicle." Chapter 12, "Tire Noise Treatments."

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- e. Tire Tracks and Tread Marks, by Bruce W. Given, Richard B. Nehrich And James C. Shields. Chapter 3, "Tread Marks."

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### Optional Reading:

- f. Manufacturing Process for Athletic Shoe Outsoles and Their Significance in the Examination of Footwear Impression Evidence, by W.J. Bodziak. *Journal of Forensic Sciences* January 1986, 31 (1), 153-176.

\_\_\_\_\_/\_\_\_\_\_/\_\_\_\_\_

g. A Forensic Evaluation of the Air Bubbles Present in Polyurethane Shoe Outsoles As Applicable in Footwear Impressions, By D. Music and W. Bodziak. *Journal of Forensic Science*, 1988, 33(5): 1185-1197.

\_\_\_\_\_ / \_\_\_\_\_ / \_\_\_\_\_

h. Tread Design Guide, Product Book. (use most current year available).

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i. Who Makes it? and Where? Directory, Product Booklet. (use most current year available).

\_\_\_\_\_ / \_\_\_\_\_

j. Identification Value of Imperfections in Shoes with Polyurethane Soles in Comparative Shoeprint Examinations, by J. Keijzer. *Journal of Forensic Identification* 1990, 40 (4), 217-223.

\_\_\_\_\_ / \_\_\_\_\_

k. The Seven Basic Shoe Styles, by W.A. Rossi. *Journal of the American Podiatric Medical Association*, March 1985, 75 (3), 169-171.

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## 6 Recording Test Impressions of Footwear and Tires

Required Reading

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- a. Footwear Evidence, by Abbott and Thomas. Chapter 2, "The Crime Scene Examination." Chapter 4, "The Controlled Test Impression."

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- b. Footwear Impression Evidence Second Edition, by William J. Bodziak. Chapter 3, "Casting Three-Dimensional Footwear Impressions." Chapter 4, "Treatment of Two-Dimensional Footwear Impressions."

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- c. Tire Imprint Evidence, by Peter McDonald. Chapter 7, "Recording Tire Imprints." Chapter 11, "Test Tire Impressions."

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- d. Tire Tracks and Tread Marks, by Bruce W. Given, Richard B. Nehrich and James C. Shields. Chapter 1, "Crime Scene."

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- e. Footwear Identification, by M. Cassidy. Chapter 2, "Three-Dimensional Footwear Impressions." Chapter 3, "Two-Dimensional Footwear Impressions."

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- f. Forensic Tire Impression Identification, by S/Sgt. L. Nause. Chapter 2, "Two-Dimensional Tire Impression Evidence." Chapter 3, "Three-Dimensional Tire Impression Evidence."

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- g. Footwear and Tire Impression AM, Section 9.5

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**Optional Reading:**

h. Casting Materials: Which One to Use! By, Hilderbrand and Miller. *Journal Of Forensic Identification* 1995, 45 (6), 618-630.

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i. Casting Materials, by J.V. Vandiver. *Identification News* December 1980, 30 (12) 3-9.

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**7 Footwear and Tire Impression Information Services**

Required Reading

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- a. Footwear Evidence, by Abbott and Thomas.  
Chapter 5, "Establishing Footwear Ownership."

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- b. Footwear Impression Evidence  
Second Edition, by William J. Bodziak.  
Chapter 1, "Awareness, Detection, and  
Treatment of Footwear Impression  
Evidence." Chapter 6, "Footwear Sizing."  
Chapter 8, "Known Shoes of Suspects and the  
Preparation of Known Impressions." Chapter 11,  
"Comparison of the Questioned Impression  
with Known Shoes." Chapter 13, "Impressions  
of the Foot."

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- c. Forensic Tire Impression Identification,  
by S/Sgt. Lawren Nause, Chapter 13,  
"The Comparison and Identification of  
Tire Impression Evidence". Chapter 5,  
"Tire Impressions as an Investigational Aid."

\_\_\_\_\_/\_\_\_\_\_/\_\_\_\_\_

- d. Tire Impression Evidence, by  
Peter McDonald. Chapter 6,  
"The Crime Scene." Chapter 8,  
"Wheelbase and Tire Tread Stance  
Measurements." Chapter 10, "What  
can be Learned without a Suspect's  
Vehicle." Chapter 14, "What can be  
Learned when you do have a Suspect's  
Tire." Chapter 16, "Traffic Accident  
Investigation."

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- e. Tire Tracks and Tread Marks, by  
Bruce W. Given, Richard B. Nehrich,

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And James C. Shields. Chapter 2,  
"Tire Tracks." Chapter 3,"Tread Marks."  
Chapter 5, "Associated Evidence."

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f. Footwear and Tire Impression AM  
Section 12

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**Recording Known Test Impressions**

(ink, black powder adhesive method, three-dimensional, other)

Examiner

Coach

Date: \_\_\_\_\_

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**8 Sections and Services of a Forensic Laboratory**

Required Reading

Completion Date / Reviewer / Trainee

- a. Criminalistics, by Richard Saferstein.  
Chapter 1, "Introduction." Pages 1-27.

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- b. Forensic Science an Introduction to  
Criminalistics, by Deforest, Gaensslen,  
& Lee. Chapter 1, "About Forensic  
Science." Pages 1-27.

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**Field Cases/Crime Scene Processing**

	Examiner	Coach
Impression Photography Date _____	_____	_____
Casting Date _____	_____	_____
Lifting Date _____	_____	_____
Vehicle Track Measurements Date _____	_____	_____

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## 9 Introduction to Footwear and Tire Impressions

Required Reading

Completion Date / Reviewer / Trainee

- a. Footwear Evidence by, Abbott and Thomas. Chapter 2, "The Crime Scene Examination." Chapter 3, "The Analysis of Surfaces."

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- b. Footwear Impression Evidence Second Edition, by William J. Bodziak. Chapter 1, "Awareness, Detection, and Treatment of Footwear Impression Evidence." Chapter 6, "Footwear Sizing." Chapter 9, "Wear Characteristics." Chapter 10, "Class And Identifying Characteristics."

\_\_\_\_\_/\_\_\_\_\_/\_\_\_\_\_

- c. Forensic Tire Impression Identification, by S/Sgt. Lawren Nause. Chapter 1, "The Crime Scene Approach to Tire Impression Evidence." Chapter 5, "Tire Impressions as An Investigational Aid." Chapter 6, "Recording Known Tire Impressions and Examining the Suspect Vehicle." Chapter 9, "Tire Construction." Chapter 10, "Tire Design."

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- d. Tire Imprint Evidence, by Peter McDonald. Chapter 4, "Tires Have Distinctive Wear Patterns." Chapter 6 "The Crime Scene." Chapter 9, "A Tire Imprint Identification System."

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- e. Footwear Identification, by M. Cassidy. Chapter 1, "Scenes-Of-Crime Examination." Chapter 3, "Two-Dimensional Footwear Impressions."

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- e. Footwear and Tire Impression AM Sections 6, 9, and 10.

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**10 Physical Development and Lifting of Footwear and Tire Impressions**  
Required Reading Completion Date / Reviewer / Trainee

a. The Science of Fingerprints, by FBI.  
Chapter 13, "Latent Impressions."  
Pages 170-172. \_\_\_\_\_/\_\_\_\_\_/\_\_\_\_\_

b. Footwear Impression Evidence Second Edition,  
by William J. Bodziak., Chapter 4, "Treatment of  
Two-Dimensional Footwear Impressions", page  
126, Chapter 5, "Enhancement of Footwear  
Impressions", pages 158-159.  
\_\_\_\_\_/\_\_\_\_\_/\_\_\_\_\_

c. Criminalistics, by Richard Saferstein.  
Chapter 14, "Fundamental Principles  
of Fingerprints." Pages 408-413.  
\_\_\_\_\_/\_\_\_\_\_/\_\_\_\_\_

d. Fingerprint Techniques, by Andre A.  
Moenssens. Chapter 4, "Latent Prints."  
Pages 102-106.  
\_\_\_\_\_/\_\_\_\_\_/\_\_\_\_\_

e. Scott's Fingerprint Mechanics, by  
Robert D. Olsen, Sr. Chapter 3,  
"Latent Fingerprints and Crime Scene  
Procedures." Pages 111-151.  
\_\_\_\_\_/\_\_\_\_\_/\_\_\_\_\_

f. Forensic Science an Introduction to  
Criminalistics, by Deforest Gaensslen,  
& Lee. Chapter 2, "General Crime Scene  
Procedures. Pages 416-423.  
\_\_\_\_\_/\_\_\_\_\_/\_\_\_\_\_

g. Footwear Identification, by M. Cassidy,  
Chapter 3, "Two-dimensional footwear  
impressions".  
\_\_\_\_\_/\_\_\_\_\_/\_\_\_\_\_

h. Footwear and Tire Impression AM, Section  
9.3.  
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Optional Reading

- i. Electrostatic Dust Lifter manufacturer's manual (EDL).

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- j. Electrostatic Detection Apparatus (ESDA) manufacturer's manuals and information.

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**Powder Processing**  
(Standard, magnetic, and fluorescent)

Date: \_\_\_\_\_

Examiner

Coach

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**Lifting Techniques**  
(Various tapes, casting mediums, gel lifts, dust lifts, etc.)

Date: \_\_\_\_\_

Examiner

Coach

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**11 Chemical Development of Footwear and Tire Impressions**

Required Reading

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- a. Forensic Tire Impression Identification, by S/Sgt. Lawren Nause. Chapter 2, "Two-Dimensional Tire Impression Evidence."  
\_\_\_\_\_ / \_\_\_\_\_ / \_\_\_\_\_
- b. Footwear Impression Evidence, Second Edition, by William J. Bodziak. Chapter 5, "The Enhancement Of Footwear Impressions."  
\_\_\_\_\_ / \_\_\_\_\_ / \_\_\_\_\_
- c. Footwear Identification, by M. Cassidy. Chapter 3, "Two-Dimensional Footwear Impressions."  
\_\_\_\_\_ / \_\_\_\_\_ / \_\_\_\_\_
- d. Manual of Fingerprint Development Techniques, by Home Office Police Science Development Branch, London.  
\_\_\_\_\_ / \_\_\_\_\_ / \_\_\_\_\_
- e. The Science of Fingerprints, FBI. Chapter 15, "Chemical Development of Latent Impressions." Pages 175-186.  
\_\_\_\_\_ / \_\_\_\_\_ / \_\_\_\_\_
- f. Techniques of Crime Scene Investigation, 5<sup>th</sup> edition, by B. Fisher. Page 124.  
\_\_\_\_\_ / \_\_\_\_\_ / \_\_\_\_\_
- g. Footwear, The Missed Evidence, by D.S. Hilderbrand, pages 55-58.  
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- h. Local Impression Library Articles on the chemical development of impressions.  
\_\_\_\_\_ / \_\_\_\_\_ / \_\_\_\_\_
- i. Footwear and Tire Impression AM, Section 10.

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**Optional Reading:**

j. Deciphering Bloody Imprints  
Through Chemical Enhancement,  
By, Doherty and Mooney.  
*Journal of Forensic Sciences*  
1990, 35 (2), 457-465.

\_\_\_\_\_/\_\_\_\_\_/\_\_\_\_\_

k. Enhancement of Footwear Impressions  
on Glass, by E.E. Hueske. *Identification News*  
March 1987, 37 (3), 11.

\_\_\_\_\_/\_\_\_\_\_/\_\_\_\_\_

l. Developing Footwear Evidence, by  
P.R. Barbant. *Identification News* August  
1975, 25 (9), 14-15.

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**11.5.1 Amido Black**

Required Reading

Completion Date / Reviewer / Trainee

a. Footwear Impression Evidence  
Second Edition, by William J.  
Bodziak. Chapter 5, "The Enhancement  
of Footwear Impressions."

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b. Local impression library articles on  
amido black and blood prints.

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i. Footwear and Tire Impressions AM Section  
10.1.

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**Amido Black**

Date

Examiner

Coach

Mixing of Chemical

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Application, Examination, and  
Preservation

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**11.5.2 Ammonium Thiocyanate**

Required Reading

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- a. Footwear Impression Evidence,  
Second Edition, by William J. Bodziak.  
Chapter 5, "The Enhancement of Footwear  
Impressions."

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- i. Footwear and Tire Impressions  
AM Section 10.2.

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b.

**Ammonium Thiocyanate**

Date Examiner Coach

Mixing of Chemical

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Application, Examination, and  
Preservation

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**11.5.3 7,8-Benzoflavone**

Required Reading

Completion Date / Reviewer / Trainee

- a. Footwear Impressions Evidence  
First Edition, by William J. Bodziak.  
Chapter 5, "Techniques to Enhance  
Footwear Impressions."

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- b. Footwear and Tire Impressions  
AM Section 10.3

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**7,8-Benzoflavone**

	Date	Examiner	Coach
Mixing of Chemical	_____	_____	_____
Application, Examination, and Preservation	_____	_____	_____

**11.5.4 Cyanoacrylate Fuming**

Required Reading	Completion Date / Reviewer / Trainee
a. Footwear Impressions Evidence First Edition, by William J. Bodziak. Chapter 5, "Techniques to Enhance Footwear Impressions.", pages 158-159.	_____/_____/_____
b. Local impression library articles on cyanoacrylate (super glue) fuming.	_____/_____/_____
c. Footwear and Tire Impressions AM Section 10.4.	_____/_____/_____

**Cyanoacrylate Fuming (CAE)**

	Date	Examiner	Coach
Application of CAE (Chamber method)	_____	_____	_____
Application of CAE (Fuming wand)	_____	_____	_____
Application of CAE (Vacuum Chamber)	_____	_____	_____

Examination and Preservation \_\_\_\_\_

### 11.5.5 8-Hydroxyquinoline

Required Reading

Completion Date / Reviewer / Trainee

- a. Footwear Impression Evidence,  
Second Edition, by William J. Bodziak.  
Chapter 5, "The Enhancement of Footwear  
Impressions."

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- b. Footwear and Tire Impressions  
AM Section 10.5

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### 8-Hydroxyquinoline

Date

Examiner

Coach

Mixing of Chemical

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Application, Examination, and  
Preservation

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### 11.5.6 Iodine Fuming

Required Reading

Completion Date / Reviewer / Trainee

- a. Footwear Impressions Evidence  
First Edition, by William J. Bodziak.  
Chapter 5, "Techniques to Enhance  
Footwear Impressions."

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- b. Advances in Fingerprint Technology,  
by Lee, Gaensslen.

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- Pages 60, 65-67, 89. \_\_\_\_\_ / \_\_\_\_\_ / \_\_\_\_\_
- c. Footwear Identification by M.J. Cassidy, pages 53-57. \_\_\_\_\_ / \_\_\_\_\_ / \_\_\_\_\_
- d. Local impression library articles on iodine. \_\_\_\_\_ / \_\_\_\_\_ / \_\_\_\_\_
- e. Footwear and Tire Impressions AM Section 9.1. \_\_\_\_\_ / \_\_\_\_\_ / \_\_\_\_\_

**Iodine Fuming**

	Date	Examiner	Coach
Iodine gun	_____	_____	_____
Iodine chamber	_____	_____	_____
Examination and Preservation	_____	_____	_____

**11.5.7 Leucocrystal Violet (LCV)**

Required Reading	Completion Date / Reviewer / Trainee
a. Footwear Impression Evidence, Second Edition, by William J. Bodziak. Chapter 5, "The Enhancement of Footwear Impressions."	_____ / _____ / _____
b. Footwear and Tire Impressions AM Section 10.6	_____ / _____ / _____

### Leucocrystal Violet (LCV)

	Date	Examiner	Coach
Mixing of Chemical	_____	_____	_____
Application, Examination, and Preservation	_____	_____	_____

### 11.5.8 Leucomalachite Green (LMG)

Required Reading	Completion Date / Reviewer / Trainee
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a. Moses, Kenneth R., "Special Techniques for Latent print Development", San Francisco Police Department instructions.

\_\_\_\_\_ / \_\_\_\_\_ / \_\_\_\_\_

b. Stow, K.M., "Direct lift-enhancement of blood-contaminated shoe marks by leuco malachite green-impregnated membranes", Journal of the Forensic Science Society, 34(4), 1994, pp 241-244.

\_\_\_\_\_ / \_\_\_\_\_ / \_\_\_\_\_

c. Footwear Impression Evidence Second Edition, by William J. Bodziak. Chapter 5, "The Enhancement of Footwear Impressions."

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d. Footwear and Tire Impressions AM Section 10.7

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### Leucomalachite Green (LMG)

	Date	Examiner	Coach
Mixing of Chemical	_____	_____	_____
Application, Examination, and Preservation	_____	_____	_____

### 11.5.9 Physical Developer

Required Reading	Completion Date / Reviewer / Trainee
a. Footwear Impression Evidence Second Edition, by William J. Bodziak. Chapter 5, "The Enhancement of Footwear Impressions."	_____/_____/_____
b. Advances in Fingerprint Technology, by Lee, Gaensslen. Pages 37, 79-82, 95, 112-113.	_____/_____/_____
c. Local impression library articles on physical developer.	_____/_____/_____
d. Footwear and Tire Impressions AM Section 10.8.	_____/_____/_____

### Physical Developer

	Date	Examiner	Coach
Mixing of Chemical	_____	_____	_____
Application, Examination, and Preservation	_____	_____	_____

**11.5.11 Small Particle Reagent**

Required Reading	Completion Date / Reviewer / Trainee
a. Advances in Fingerprint Technology by Lee & Gaensslen. Pages 82-83.	_____/_____/_____
b. Fingerprints and Other Ridge Skin Impressions by, Champod, Lennard, Margot, and Stoilovic Pages 138, 162.	_____/_____/_____
c. Local latent lab library articles on small particle reagent.	_____/_____/_____
d. Footwear and Tire Impressions AM Section 9.4.	_____/_____/_____

**Small Particle Reagent**

	Date	Examiner	Coach
Mixing of traditional SPR	_____	_____	_____
Application, Examination, and Preservation of traditional SPR	_____	_____	_____
Application, Examination, and Preservation of white SPR	_____	_____	_____

**12 Alternate Light Source (ALS) Detection of Impressions**

Required Reading	Completion Date / Reviewer / Trainee
a. Friction Ridge Skin, by James F. Cowger. Pages 106-107.	_____/_____/_____

- b. Scott's Fingerprint Mechanics,  
by Robert D. Olsen Sr.,  
Pages 185-187, 229-231, 347-348. \_\_\_\_\_ / \_\_\_\_\_ / \_\_\_\_\_
- c. Advances in Fingerprint Technology,  
Lee & Gaensslen. Pages 89-91, 104,  
115-124, 135-159. \_\_\_\_\_ / \_\_\_\_\_ / \_\_\_\_\_
- d. An Introduction to Lasers, Forensic  
Lights, and Fluorescent Fingerprint  
Detection Techniques, by A. Roland  
Menzel. \_\_\_\_\_ / \_\_\_\_\_ / \_\_\_\_\_
- e. Local latent lab library articles on ALS. \_\_\_\_\_ / \_\_\_\_\_
- f. Footwear and Tire Impressions  
AM Section 8.1. \_\_\_\_\_ / \_\_\_\_\_
- g. Criminalistics, by Richard Saferstein,  
Chapter 14, Pages 440-441. \_\_\_\_\_ / \_\_\_\_\_ / \_\_\_\_\_
- h. Krimesite Imager User's Manual/Video. \_\_\_\_\_ / \_\_\_\_\_ / \_\_\_\_\_

**Alternate Light Source Examination**

	Date	Examiner	Coach
Application, Examination, and Preservation (ALS)	_____	_____	_____
Application, Examination, and Preservation (RUVIS)	_____	_____	_____
Visualization Examination, and Preservation (inherent luminescence)	_____	_____	_____

### 3 Preservation of Impressions

#### Required Reading

#### Completion Date / Reviewer / Trainee

- a. Tire Imprint Evidence, by Peter McDonald. Chapter 6, "The Crime Scene." Chapter 7, "Recording Tire Imprints."

\_\_\_\_\_/\_\_\_\_\_/\_\_\_\_\_

- b. Footwear Evidence, by Abbott and Thomas. Chapter 2, "The Crime Scene Examination." Chapter 4, "The Controlled Test Impression."

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- c. Footwear Impression Evidence, by W. Bodziak. Chapter 2, "Photography of Footwear Impressions." Chapter 5, "The Enhancement of Footwear Impressions."

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- d. Forensic Tire Impression Identification, by S/Sgt. L. Nause. Chapter 2, "Two-Dimensional Tire Impression Evidence." Chapter 3, "Three-Dimensional Tire Impression Evidence."

\_\_\_\_\_/\_\_\_\_\_/\_\_\_\_\_

- e. The Value of Shadow in Footwear and Tire Track Evidence Recovered by Photographic Techniques, by E.D. Hamm. *Journal of Forensic Identification* 1988 38 (3), 91-97.

\_\_\_\_\_/\_\_\_\_\_/\_\_\_\_\_

- f. Police Photography, by Larry S. Miller.

\_\_\_\_\_/\_\_\_\_\_/\_\_\_\_\_

- g. Local impression library articles on photographing impressions.

\_\_\_\_\_/\_\_\_\_\_/\_\_\_\_\_

- h. Techniques of Crime Scene

Investigation, 5<sup>th</sup> edition,  
by B. Fisher. Page 113-115.

\_\_\_\_\_/\_\_\_\_\_/\_\_\_\_\_

- i. Footwear and Tire Impressions  
AM Section 10.9.

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- j. Forensic Science An Introduction to Criminalistics,  
by DeForest, Gaensslen & Lee Appendix 3.  
Pages 426-449.

\_\_\_\_\_/\_\_\_\_\_/\_\_\_\_\_

- k. Close-up & Macro Photography  
For Evidence Technicians.

\_\_\_\_\_/\_\_\_\_\_/\_\_\_\_\_

**Optional Reading:**

- l. Background Subtraction through  
Exhibit Substitution, by Dalrymple, B.  
*Journal of Forensic Identification* 2004, 54 (2), 150-157.

\_\_\_\_\_/\_\_\_\_\_/\_\_\_\_\_

- m. Determination of Shoe Size in Out-of-Scale  
Photographs, by A. Mankevich. *Journal of  
Forensic Identification* 1990, 40 (1), 1-13.

\_\_\_\_\_/\_\_\_\_\_/\_\_\_\_\_

**35mm Photography**

Examiner

Coach

Date: \_\_\_\_\_

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**Black and White Film Development**

Examiner

Coach

Date: \_\_\_\_\_

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## 14 Evaluation and Comparison of Impressions

Required Reading

Completion Date / Reviewer / Trainee

- a. Footwear Impression Evidence Second Edition, by William J. Bodziak. Chapter 8, "Known Shoes of Suspects And the Preparation of Known Impressions." Chapter 9, "Wear Characteristics." Chapter 10, "Class and Identifying Characteristics." Chapter 11, "Comparison of the Questioned Impression with Known Shoes." Chapter 12, "The Footwear Impression Examiner in Court."

\_\_\_\_\_/\_\_\_\_\_/\_\_\_\_\_

- b. Footwear Identification, by Michael J. Cassidy. Chapter 5, "Identification of Footwear Evidence." Chapter 8, "Identifying a Suspect to an Unknown Shoe."

\_\_\_\_\_/\_\_\_\_\_/\_\_\_\_\_

- c. Footwear Evidence, by Abbott and Thomas. Chapter 3, "The Analysis of Surfaces."

\_\_\_\_\_/\_\_\_\_\_/\_\_\_\_\_

- d. Tire Imprint Evidence, by Peter McDonald. Chapter 9, "A Tire Imprint Identification System."

\_\_\_\_\_/\_\_\_\_\_/\_\_\_\_\_

- e. The Individuality of Class Characteristics In Converse All-Star Footwear, by Ernest D. Hamm. *J. Forensic Identification*, 1989, 39 (5), 277-292.

\_\_\_\_\_/\_\_\_\_\_/\_\_\_\_\_

- f. The Value of Shadow in Footwear and Tire Track Evidence Recovered by Photographic Techniques, by E.D. Hamm. *J. Forensic Ident.* 1988, 38 (3), 91-97.

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g. A Superior Method for Obtaining Test Prints From Footwear and Tires, by E.E. Hueske. *J. Forensic Ident.* 1991, 41 (3), 165-167.

\_\_\_\_\_ / \_\_\_\_\_ / \_\_\_\_\_

h. Local impression library articles on Evaluation and Comparison.

\_\_\_\_\_ / \_\_\_\_\_ / \_\_\_\_\_

i. Footwear and Tire Impressions AM Section 12.

\_\_\_\_\_ / \_\_\_\_\_ / \_\_\_\_\_

**Optional Reading:**

j. Locating an Area on a Suspect Tire for Comparative Examination to a Questioned Track, by E.D. Hamm. *J. Forensic Ident.* 1988 38 (4), 143-151.

\_\_\_\_\_ / \_\_\_\_\_ / \_\_\_\_\_

k. Back to Basics, by W. Bodziak. *J. Forensic Ident.* 1997, 47 (3).

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**Evaluation of Impressions**

Examiner

Coach

Date: \_\_\_\_\_

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**Comparison of Impressions**

Examiner

Coach

Date: \_\_\_\_\_

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**15 Digital Imaging**

**Required Reading**

**Completion Date / Reviewer / Trainee**

- a. Police Photography, by Larry S. Miller  
Digital Cameras, Pages 132-138. \_\_\_\_\_ / \_\_\_\_\_ / \_\_\_\_\_
- b. Techniques of Crime Scene Investigation,  
by Barry A. J. Fisher Page 112. \_\_\_\_\_ / \_\_\_\_\_ / \_\_\_\_\_
- c. Advances in Fingerprint Technology,  
by Lee & Gaensslen. Page 267. \_\_\_\_\_ / \_\_\_\_\_ / \_\_\_\_\_
- d. Criminalistics An Introduction to Forensic Science,  
by Richard Saferstein.  
Pages 252-254, 509-510. \_\_\_\_\_ / \_\_\_\_\_ / \_\_\_\_\_
- e. Digital Imaging User Manual  
Forensic Image Tracking System  
and Updates. \_\_\_\_\_ / \_\_\_\_\_ / \_\_\_\_\_
- f. Footwear and Tire Impressions  
AM Section 11. \_\_\_\_\_ / \_\_\_\_\_ / \_\_\_\_\_
- g. ISPFs Latent Section Digital  
Imaging Users Manual. \_\_\_\_\_ / \_\_\_\_\_ / \_\_\_\_\_
- h. Current Adobe Photoshop Users Manual  
printed from tutorial. \_\_\_\_\_ / \_\_\_\_\_ / \_\_\_\_\_
- i. Local latent lab library articles on  
Digital Imaging. \_\_\_\_\_ / \_\_\_\_\_ / \_\_\_\_\_

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**Digital Photography**

Examiner

Coach

Date: \_\_\_\_\_

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**Digital Acquisition Devices**

(Flatbed scanner, negative scanner, and digital camera(s))

Examiner

Coach

Date: \_\_\_\_\_

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**Digital Image Enhancement**

Examiner

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Date: \_\_\_\_\_

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Required Reading

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- a. Idaho State Police Forensic Services  
Quality Manual 5.10 Reporting the Results.

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- b. Footwear and Tire Impressions  
AM Section 14.

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Report Writing

Examiner

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Evidence Tracking System Orientation

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OMNIX Orientation

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## 17 Preparation of Court Exhibits

### Required Reading

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- a. Tire Impression Evidence, by Peter McDonald. Chapter 18, "Preparation for Trial."

\_\_\_\_\_/\_\_\_\_\_/\_\_\_\_\_

- b. Footwear Identification, by Michael J. Cassidy. Chapter 9, "The Footwear Specialist in Court."

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### Preparation of Court Exhibits

Examiner

Coach

Date: \_\_\_\_\_

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### Preparation of Curriculum Vitae

Examiner

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Date: \_\_\_\_\_

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### Preparation of Qualifying Questions

Examiner

Coach

Date: \_\_\_\_\_

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Rev. 2.0

Issued July 20, 2007

Training Record Footwear and Tire Impressions

Issuing Authority: Quality Manager

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**18 Court Procedures and Related Laws**

Required Reading

Completion Date / Reviewer / Trainee

- a. Footwear Identification by, Michael J. Cassidy. Chapter 9, "The Footwear Specialist in Court."

\_\_\_\_\_/\_\_\_\_\_/\_\_\_\_\_

- b. Footwear Impression Evidence Second Edition, by William J. Bodziak. Chapter 14, "Some Case Applications." Chapter 15, "The Footwear Impression Evidence in the O.J. Simpson Trial."

\_\_\_\_\_/\_\_\_\_\_/\_\_\_\_\_

- c. Forensic Tire Impression Identification, by S/Sgt. Lawren Nause. Chapter 13, "The Comparison & Identification of Tire Impression Evidence."

\_\_\_\_\_/\_\_\_\_\_/\_\_\_\_\_

- d. Tire Imprint Evidence, by Peter McDonald. Chapter 18, "Preparation for Trial."

\_\_\_\_\_/\_\_\_\_\_/\_\_\_\_\_

- e. Footwear Evidence, by Abbott. Chapter 1, "The Footwear Specialist In Court."

\_\_\_\_\_/\_\_\_\_\_/\_\_\_\_\_

- f. Effective Expert Witnessing, by Jack V. Matson.

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- g. Law for the Expert Witness, by Daniel A. Bronstein.

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**Moot Court**

Date

Examiner

Coach

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## 19 Student Internship

19.1 Each trainee is required to keep a record documenting the following areas:

19.1.1 All field cases responded to and/or assisted with and the impressions processed or information gathered.

19.1.2 Moot court(s).

19.1.3 All court cases where they testified.

19.1.4 All discipline related classroom training.

19.1.5 All classes or presentations instructed or assisted with.

19.1.5 The trainee shall document any comparison exercises (to include number of impressions examined, number of comparisons, and number of identifications).

19.1.6 The trainee shall document the total number of cases processed and lab number of any processing cases worked.

19.1.7 The trainee shall also document total number of cases worked, lab number of cases worked, number of impressions examined, number of submitted known shoes/tires, number of comparisons, and number of shoe and tire searches.

19.1.8 The trainee shall complete at least 5 co-signed cases before approval as an independent examiner. Approval to perform co-signed cases must be obtained from the Quality Manager prior to the initiation of casework examinations. The Discipline Leader shall have the final decision as to when sufficient co-signed cases have been completed.



**Footwear and Tire Impression  
Training Manual**

**Idaho State Police Forensic Services  
Latents/Impression Evidence Section**

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Footwear and Tire Impression  
Training Manual/Training Record  
ISP Forensic Services

History Page

<b>Version</b>	<b>Issue Date</b>	<b>History</b>
0.0	Oct. 1999	Original
1.0	June 2001	Minor changes in terminology
1.1	Nov 2002	Change "section 10" to "section 12" in section 11.0
2.0	July 20, 2007	Training manual completely redone to ISO standards

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- 6 Recording Test Impressions of Footwear and Tires
- 7 Footwear and Tire Impression Information Services
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- 10 Powder Development of Footwear and Tire Impressions
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20 Student Progress Record

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Recommended Readings for Footwear and Tire Examiners

Appendix "B"

Recommended Training Courses for Footwear and Tire Examiners

Appendix "C"

Recommended Professional Associations and Certifications

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## Introduction of Training

### *Base training level for all Footwear and Tire Impression analysts - minimum training requirements*

All new footwear and tire impression analysts will be assigned to another qualified impression analyst who will act as their coach.

Students must pass written tests and/or practical exercises on required objectives.

Training usually lasts 1 to 2 years depending upon the progress of the examiner and their demonstrated aptitude and ability. Training blocks may be completed in any order.

During the training phase the trainee shall attend workshops and/or training classes in the areas of footwear and tire impression collection and processing, footwear impression comparison, tire impression comparison, crime scene processing, courtroom testimony, digital imaging, and photography. Training on additional topics may be attended as approved. Attendance of outside training courses/workshops is subject to course availability and budget constraints. Requests for training shall be approved through the chain of command. A list of recommended footwear and tire impression training courses may be found in Appendix "B" of this training manual.

All cases processed and examinations performed during training will be verified by the assigned coach or by another qualified impression analyst. All reports shall be co-signed by the verifying analyst during the training phase.

Reading is an on-going process during the training phase and shall include books, articles, and journals held in the Footwear and Tire Impression Library. A list of required reading for each training block is listed in the trainee's Training Record. A list of recommended reading for impression analysts may be found in Appendix "A" of the training manual.

During training, the trainee shall accompany their coach and other trained footwear and tire impression analysts on field case processing. Allowing the trainee to accompany more than one impression analysts will afford them the opportunity to learn the various techniques that each examiner utilizes and to develop their own style of crime scene processing. The trainee's coach and the programs supervisor shall determine the point at which the trainee is able to work field cases on their own.

The trainee shall satisfactorily complete competency tests in the areas of footwear impression comparisons and tire impression comparisons.

The trainee may accompany other examiners to court to gain exposure to expert testimony on footwear and tire impressions during the training period.

After a minimum of one year of training, the trainee shall participate as an expert witness in a moot court prepared by other impression analysts to gain exposure to footwear and tire impression testimony.

Any footwear and tire impression training classes that are taught by FS personnel during the training phase shall be observed by the trainee. After attending these classes, the trainee may be permitted assist or teach some segments of the training classes.

The trainee shall keep a notebook of all experience obtained during the training phase. This shall include time spent working with test impressions, classes attended, classes instructed, court testimony observed, field cases worked, # of comparisons, # of identifications effected, and special projects completed during the training phase. These statistics will be a valuable aid for future court testimony.

It is encouraged that the trainee make application to become a member of the International Association for Identification (IAI). A list of professional associations and certifications may be found in Appendix "C" of this Training Manual.

This training manual does not preclude the coach from adding other pertinent topics as may be applicable and/or related to the science impression analysis, forensic science, and the criminal justice system. However, additional courses or topics must be approved by the Latents/Impression Evidence Section Supervisor prior to instruction or incorporation within the program.

Training blocks may be segmented as may be necessary for optional student understanding of the subjects and concepts presented. Field trips are authorized to enhance courses under current study. Training blocks may be supplemented by additional required readings, group discussion, independent and direct study, practical exercise, or research (or any combination thereof).

**1 Laboratory Introduction (may be skipped by an analyst approved in another discipline)**

- 1.1 An orientation to the Idaho State Police Forensic Services (FS).
- 1.2 An understanding of the organization structure, chain of command, and policies/procedures for FS.
- 1.3 An understanding of laboratory security and the need for confidentiality.
- 1.4 An understanding of the quality assurance/quality control guidelines for FS.
- 1.5 An understanding of the safety guidelines for FS.

**2 Evidence Handling (may be skipped by an analyst approved in another discipline)**

- 2.1 An understanding of the case/evidence acceptance policy and evidence receiving procedures.
- 2.2 An understanding of evidence packaging and chain of custody.
- 2.3 An understanding of evidence handling, prevention of contamination, and documentation.

**3 History of Footwear and Tires**

- 3.1 An understanding of the earliest recorded use of footwear and tires.
- 3.2 An understanding of early manufacturing processes.
- 3.3 An understanding of the scientific observation and uses leading to modern footwear and tire impression identification.
- 3.4 An understanding of the chronology of the introduction and use of impression evidence in the United States.

**4 Footwear and Tire Terminology**

- 4.1 An understanding of common terminology and definitions associated with footwear, footwear manufacture, processing and comparisons.
- 4.2 An understanding of common terminology and definitions associated with tires, tire manufacture, processing and comparisons.

- 4.3 An understanding of the terminology associated with tire track measurements.

## **5 Footwear and Tire Manufacturing**

- 5.1 An understanding of the common methods of shoe sole and shoe manufacturing.
- 5.1.1 A basic understanding of the molding processes.
  - 5.1.2 A basic understanding of the Wellman and die-cut processes.
  - 5.1.3 An basic understanding of how to recognize the manufacturing processes on shoes.
- 5.2 An understanding of the common methods of tire manufacturing.
- 5.2.1 A basic understanding of the various types of molds.
  - 5.2.2 A basic understanding of the steps in the manufacturing process.
  - 5.2.3 A basic understanding of the various tread and tire designs and their uses.
  - 5.2.4 A basic understanding of the tire retreading and recapping processes.
- 5.3 An understanding of shoe and tire searches.
- 5.3.1 A basic understanding of the information available about shoes and tires.
  - 5.3.2 A basic understanding of where to find information about shoes and tires.
  - 5.3.3 A basic understanding of how to do a search of an impression for the make and model of shoe or tire.
  - 5.3.4 A basic understanding of the assistance a manufacturer can provide with case work and court testimony preparation.

## **6 Recording Test Impressions of Footwear and Tires**

- 6.1 An understanding of the various methods for recording test impressions of known shoes.
- 6.1.1 Introductory knowledge of chemical (inkless) systems for recording shoe test impressions.
  - 6.1.2 Introductory knowledge of the use of printer's ink systems for recording shoe test impressions.
  - 6.1.3 Introductory knowledge of the use of powder and adhesive sheets systems for recording shoe test impressions.
  - 6.1.4 Introductory knowledge of recording three-dimensional shoe test impressions.
- 6.2 An understanding of the various methods for recording test impressions of known tires.
- 6.2.1 Introductory knowledge of the use of printer's ink systems for recording tire test impressions.
  - 6.2.2 Introductory knowledge of the use of the oil method for recording tire test impressions.

- 6.2.3 Introductory knowledge of recording three-dimensional tire test impressions.
- 6.3 An understanding of when additional/special test impressions may be needed.
- 6.4 An understanding of the proper documentation needed for known shoes and tires test impressions.

## **7 Footwear and Tire Impression Information Services**

- 7.1 An understanding of the types of comparisons that can be done with an impression.
  - 7.1.1 Unknown impression to unknown impression from same scene.
  - 7.1.2 Unknown impression to unknown impression from different scenes.
  - 7.1.3 Unknown impression to known shoes and tires.
  - 7.1.4 Shoe and tire search with unknown impression.
  - 7.1.5 Vehicle search using tire track measurements.
- 7.2 An understanding of the investigative information that can be provided by impression evidence.
  - 7.2.1 Point of entry to crime scene.
  - 7.2.2 Movement through the crime scene.
  - 7.2.3 Sequence of events (overlapping impressions).
  - 7.2.4 Point of exit from the scene.
  - 7.2.5 Shoe types and tire types and sizes.
  - 7.2.6 Vehicle information from tire track measurements.
- 7.3 An understanding of the limitations of the comparison.

## **8 Sections and Services of a Forensic Laboratory**

- 8.1 An understanding of the capabilities, basic operating procedures, and manner in which impression procedures interface with:
  - 8.1.1 Forensic Latents Examinations
  - 8.1.2 Firearms and Toolmarks
  - 8.1.3 Forensic Photography
  - 8.1.4 Chemistry/Toxicology
  - 8.1.5 Biology/DNA
  - 8.1.6 Forensic Documents Examination
  - 8.1.7 Microanalysis/Trace Evidence
- 8.2 An understanding of the proper procedures for completing forms, correspondence, and packaging of evidence to be forwarded to national or regional laboratories.



## **9 Introduction to Footwear and Tire Impressions**

- 9.1 An understanding of the services offered by the Latent/Impression Evidence Section.
- 9.2 An understanding of the infinite variables precluding “age” determination of footwear and tire impressions in almost all instances.
- 9.3 An understanding of the potential for loss, contamination, and destruction of other types of forensic evidence (indented hand writing, body fluids, etc.) when more than one discipline is to process the same item of evidence. An ability to preserve other types of forensic evidence when processing for impressions.
- 9.4 An understanding of the professional duties, including moral obligations and ethics, of footwear and tire track examiners.
- 9.5 An understanding of the personal safety hazards posed by blood borne pathogens (AIDS virus, hepatitis, etc.) present on body fluid contaminated evidence that is to be processed for impressions. Knowledge shall include proper work area disinfection, procedures for handling sharps and glass, and use of personal protective equipment, clothing, gloves, etc.
- 9.6 Introductory knowledge concerning class characteristics of footwear and tire impressions.
- 9.7 Introductory knowledge of various crime scene search techniques, including commonly prescribed searching sequences (grid, spiral, strip, etc.).
- 9.8 Introductory knowledge of the potential explosion, fire, and contamination safety hazards associated with impression development powders, solvents and chemicals.

## **10 Powder Development of Footwear and Tire Impressions**

- 10.1 An understanding of the basic types of brushes and their composition.
- 10.2 An understanding of surfaces and environmental factors determining brush type, powder type, and color selection.
- 10.3 An understanding of the proper procedures for using different types of hair, fiberglass, and magnetic brushes.
- 10.4 An understanding of equipment maintenance and safety procedures relative to powder development of footwear and tire impressions.

10.5 Introductory knowledge of lifting tape, gel lifters, adhesive lifters, etc.

## **11 Chemical Development of Footwear and Tire Impressions**

- 11.1 An understanding of the safety hazards associated with each of the chemicals used for development of footwear and tire impressions. Knowledge shall include proper disposal, spill procedures/equipment, and the use of personal protective equipment.
- 11.2 An understanding of the impression residue components targeted by different chemical development procedures.
- 11.3 An understanding of the effects of various solvents on evidence surfaces (inks, plastics, varnishes, etc).
- 11.4 An understanding of surface and environmental factors effecting selection and sequencing of chemical development procedures.
- 11.5 An understanding of chemical storage, application and development procedures for:
- 11.5.1 Amido Black
  - 11.5.2 Ammonium Thiocyanate
  - 11.5.3 7,8-Benzoflavone
  - 11.5.4 Cyanoacrylate Fuming
  - 11.5.5 8-Hydroxyquinoline
  - 11.5.6 Iodine Fuming
  - 11.5.7 Leucoerythrin Violet (LCV)
  - 11.5.8 Leucomalachite Green (LMG)
  - 11.5.9 Physical Developer
  - 11.5.10 Small Particle Reagent
- 11.6 An understanding of equipment maintenance relative to chemical development of impressions.

## **12 Alternate Light Source (ALS) Detection of Impressions**

- 12.1 An understanding of the personal safety hazards associated with Alternate Light Sources (ALS) and other non-destructive methods of impression development.
- 12.2 An understanding of equipment maintenance relative to ALS detection of impressions.

- 12.3 Introductory knowledge of luminescence, fluorescence, inherent luminescence, light wavelengths, band-pass filters, and light delivery systems as they relate to ALS detection of impressions.

### 13 Preservation of Impressions

- 13.1 An understanding of impression photography to include:
- 13.1.1 Equipment and Materials
    - 13.1.1.1 Different types of cameras used for impression photography.
    - 13.1.1.2 Film vs digital
    - 13.1.1.3 Filters
    - 13.1.1.4 Lighting techniques
    - 13.1.1.5 Use and maintenance of cameras and other photography equipment
  - 13.1.2 Photographic Procedures
    - 13.1.2.1 Accuracy of image size
    - 13.1.2.2 Exposure
    - 13.1.2.3 Film development
  - 13.1.3 Photography of chemically developed impressions of various colors.
  - 13.1.4 Photography of impressions developed with powders.
  - 13.1.5 Photography of two and three-dimensional impressions (in blood, dust, soil or snow, etc.).
  - 13.1.6 Photography of ALS luminescent impressions.
- 13.2 An understanding of and ability to utilize impression lifting techniques to include:
- 13.2.1 Various types of tape.
  - 13.2.2 Adhesive lifters such as Handiprint.
  - 13.2.3 Gel lifters
  - 13.2.4 Casting materials (Mikrosil, dental stone)
  - 13.2.5 Electrostatic dust lifter and ESDA
- 13.3 A basic understanding of how to locate impressions at a crime scene.
- 13.4 A basic ability to record vehicle tire track measurements.
- 13.5 An understanding of, and the ability to demonstrate proper procedures for handling and marking physical evidence received for examination.
- 13.6 An understanding of proper procedures for packaging physical evidence for subsequent impression examination without reducing its evidentiary value.

## **14 Evaluation and Comparison of Impressions**

- 14.1 An understanding of scientific methodology and its application to impression examinations, and the ability to evaluate an impression to determine its potential for comparison to known shoes or tires.
- 14.2 An understanding of class characteristics (outsole or tread design, size and general wear) and how they may be utilized in the comparison process.
- 14.3 An understanding of the value of individual characteristics, and how they may be utilized in the comparison process.
- 14.4 An understanding of the use of elimination test impressions or photographs.
- 14.5 An understanding of the nature of color reversals (entire impression) and changes (within the same impression) and the ability to properly analyze these occurrences when they are encountered in impression comparisons.
- 14.6 An understanding of the effects of distortion, slippage, overlays, pre- and post-deposit artifacts (surface scratches, soil, brush strokes, etc.), and the ability to properly analyze such disturbances/distortion.
- 14.7 An understanding that different policies and standards exist regarding what constitutes impression identifications or matches in the U.S. and other countries and why no minimum "number" of matching individual characteristics can be defined to effect an identification (i.e., positive opinion based on personal empirical experience in examining and comparing impressions).
- 14.8 The ability to recognize consecutive footwear impressions and simultaneous tire impressions of different design and an understanding of their value for identification.
- 14.9 An understanding of what constitutes a valid identification and the ability to render a proper conclusion of identification.
- 14.10 An understanding of the necessity for verification by another qualified impression examiner.

## **15 Digital Imaging**

- 15.1 An understanding of the operational environment of computer based imaging and storage as related to impression photographs.
- 15.2 An understanding of the proper procedures for camera capture and digital scanning of impression images.

- 15.3 An understanding of digital enhancement techniques using Adobe Photoshop or other like programs to improve the quality of impression images.
  - 15.3.1 Color reversal
  - 15.3.2 Position reversal
    - 15.3.3 Enlargements
    - 15.3.4 Use of layers
    - 15.3.5 Image contrast
    - 15.3.6 Image calibration
    - 15.3.7 Use of digital filters
- 15.4 Introductory knowledge of the digital image system.

## **16 Case Management and Reporting**

- 16.1 An understanding of and the ability to demonstrate proper procedures for maintaining chain of custody (documentation and physical control).
- 16.2 An understanding of and the ability to demonstrate proper procedures for case file (note taking) recording of activities. Documentation shall be such that another qualified Impression Examiner could evaluate what was done and replicate any comparisons.
- 16.3 An understanding of and the ability to demonstrate proper procedures for reporting impression examination findings in an accurate, concise, and clear manner.

## **17 Preparation of Court Exhibits**

- 17.1 An understanding of court exhibit preparation procedures to include:
  - 17.1.1 Charting types/methods (points, area bubbles, power point)
  - 17.1.2 Use of the digital imaging system to develop court charts
  - 17.1.3 Impression selection
  - 17.1.4 Selection of individual characteristics for charting

## **18 Court Procedures and Related Laws**

- 18.1 An understanding of the proper procedure for presenting expert impression testimony that:
  - 18.1.1 Is accurate
  - 18.1.2 Exhibits knowledge of the science
  - 18.1.3 Is understandable
  - 18.1.4 Is believable

- 18.2 An understanding of the professional restrictions and legal obligation regarding answers to questions about qualified conclusions regarding impression comparisons.
- 18.3 An understanding of and ability to demonstrate proper case preparation prior to appearance in court (work sheets, evidence, notes, reports, demonstrative exhibits).
- 18.4 An understanding of the value of pretrial conference with the attorney who will be conducting direct examination. Preparation of a list of qualifying questions.
- 18.5 An understanding of proper courtroom demeanor (grooming, dress, walk, tone of voice, expression, speech, distracting mannerisms, pause before answering, etc.).
- 18.6 An understanding of courtroom operational procedures (swearing-in, depositions, preliminary hearings, voir dire, establishing foundation for exhibit admission, direct examination, cross examination, addressing the judge, etc.).
- 18.7 An understanding of the proper format and content for a curriculum vitae or affidavit of qualifications and the legal obligation to furnish it on request before trial.

## **19 Student Internship**

- 19.1 An understanding of and the ability to practically demonstrate all phases of impression training under the direction of a qualified Impression Examiner.
- 19.2 The ability to function independently as a competent impression examiner. As such, it should be well understood that frequent consultation with other impression examiners concerning difficult examinations, identifications, etc., is encouraged for the duration of one's career. Completion of the training program does not remove the moral requirement to resolve uncertainties involved in instances of difficult comparisons, examination, etc.

**21 Student Progress Record**

Training Blocks

Date / Initials of Reviewer

- 1 Laboratory Introduction \_\_\_\_\_
- 2 Evidence Handling \_\_\_\_\_
- 3 History of Footwear and Tires \_\_\_\_\_
- 4 Footwear and Tire Terminology \_\_\_\_\_
- 5 Footwear and Tire Manufacturing \_\_\_\_\_
- 6 Recording Footwear and Tire Test Impressions \_\_\_\_\_
- 7 Footwear and Tire Information Services \_\_\_\_\_
- 8 Sections and Services of a Forensic Laboratory \_\_\_\_\_
- 9 Introduction to Footwear and Tire Impressions \_\_\_\_\_
- 10 Powder Development of Footwear and Tire Impressions \_\_\_\_\_
- 11 Chemical Development of Footwear and Tire Impressions \_\_\_\_\_
- 12 Alternate Light Source (ALS) Detection of Impressions \_\_\_\_\_
- 13 Preservation of Impressions and Impression Information \_\_\_\_\_
- 14 Evaluation and Comparison of Impressions \_\_\_\_\_
- 15 Digital Imaging \_\_\_\_\_
- 16 Case Management and Reporting \_\_\_\_\_
- 17 Preparation of Court Exhibits \_\_\_\_\_
- 18 Court Procedures and Related Laws \_\_\_\_\_
- 19 Student Internship \_\_\_\_\_

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## **Appendix A Recommended Reading for Footwear and Tire Examiners**

Journal of Forensic Identification (bimonthly publication)  
By The International Association for Identification

Footwear Evidence  
By John Reginald Abbott

Footwear Identification  
By Michael J. Cassidy

Footwear Impression Evidence Second Edition  
By William J. Bodziak

Footwear, The Missed Evidence: A field guide to the collection and preservation of footwear  
impression evidence  
By Dwayne S. Hilderbrand

Forensic Tire Impression Identification  
By S/Sgt. Lawren Nause

Tire Imprint Evidence  
By Peter McDonald

Tire Tracks and Tread Marks  
By Bruce W. Given, Richard B. Nehrich and James C. Shields

An Introduction to Lasers, Forensic Lights  
and Fluorescent Fingerprint Detection Techniques  
By Dr. E. Roland Menzel

Close-up and Macro Photography for Evidence Technicians  
By James A. McDonald

Police Photography 4<sup>th</sup> Edition  
By Larry S. Miller

Techniques of Crime Scene Investigation 5<sup>th</sup> edition  
By Berry A. J. Fisher

Criminal Investigation  
Basic Perspectives  
By Paul B. Weston & Kenneth M. Wells

Effective Expert Witnessing  
By Jack V. Matson



Law for the Expert Witness  
By Daniel A. Bronstein

Forensic Image Tracking System  
More Hits User Manual

Electrostatic Dust Print Lifter Directions for Use  
Kinderprint User Manual

ESDA Operating Instructions  
Foster & Freeman User Manual

Safety Guidelines  
International Association for Identification

Safety For the Forensic Identification Specialist 2<sup>nd</sup> Edition  
By Nancy E. Masters

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## Appendix B Recommended Training Courses for Footwear and Tire Examiners

1. Detection and Recovery of Footwear and Tire Evidence  
40 hours
2. Detection, Recovery and Examination of Footwear Evidence 40 hours, or Examination and Comparison of Footwear Evidence  
40 hours
3. Tire Track and Tire Impression Evidence Examination 40 hours or Examination and Comparison Of Tire Track Evidence  
40 hours.
4. Digital Imaging Workshop  
40 hours
5. Crime Scene Photography  
40 hours
6. Basic Black & White Photography Workshop  
8 hours
7. Expert Testimony  
40 hours
8. Homicide Investigation Techniques Course  
40 hrs.
9. International Association for Identification Annual Education Conferences  
40 hrs.

*All class hours are approximated.*

### **Students may also receive additional training with factory tours:**

1. Footwear manufacturing plants utilizing different methods (injection, compression, cut).
2. Tire manufacturing plants.
3. Recapping/retreading plants.
4. Shoe repairs shops.

## Appendix C Professional Associations and Certifications

1. Recommended professional associations
  - a. International Association for Identification
  - b. American Academy of Forensic Scientists
  
2. Professional Certification is available after completion of the ISP Forensic Services footwear and tire impression training program and three years of work experience.
  - a. International Association for Identification Footwear Examiner Certification (CFE).
  
3. Optional Certifications
  - a. Certified Crime Scene Investigator, (CCSI) Level I
  - b. Certified Crime Scene Analyst, (CCSA) Level II
  - c. Certified Senior Crime Scene Analyst (CSCSA) Level III

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