

Questioned Documents Unit (QDU)

Procedures for Conducting Footwear and Tire Make/Model Determinations

1 Scope

1.1 These procedures will be used by QDU personnel, including examiners, analysts and the unit chief, to determine the make and model associated with, or to learn more about, an item of footwear/tire evidence, including both questioned and known items.

1.2 These procedures may be used by QDU personnel, including examiners and analysts, to determine the make/model of the source of an impression made using features on the footwear item outsole or tire tread. The procedures may also be used to determine the make/model of a footwear item/tire using features on the footwear item upper or tire sidewall.

1.3 QDU personnel, including examiners and analysts, may conduct other footwear/tire examinations to associate additional product information outside of make and model. However, these examinations must be approved by the technical leader, unit chief, or designee, and will be evaluated on a case-by-case basis. Additional discussion with the contributor may also be required to decide whether QDU personnel will conduct the requested examinations. All substantive communications will be recorded on an *Activity and Communication Log (7-245)* or Forensic Advantage (FA) Case Communication Log, as appropriate.

1.4 The outcome of these procedures can assist law enforcement with generating investigative leads and an examiner when conducting comparative footwear/tire examinations.

2 Equipment/Materials/Reagents

- Bluestar NFD footwear database [including Alaskan Reference Collection (ARC) and National Footwear Reference Collection (NFRC)]
- Everspry EverASM footwear database (including EverSole reference collection)
- FBI Sole Searcher II footwear database
- Foster+Freeman SoleMate FPX footwear database (including SoleMate reference collection)
- Internet
- Other Reference Materials
- Other Resources
- Tire Business
- Tread Design Guide
- Webster Groves High School footwear database (including Payless-Walmart reference collection)

3 Standards and Controls

Not applicable.

4 Sampling

Not applicable.

5 Terminology

5.1 *image* – any one of the following types of media: a digital image, a photograph, a negative, a printout or a video.

5.2 *laboratory reference materials* – the footwear/tire resources available to this laboratory, which are comprised of both reference footwear items/tires and images/information related to reference footwear items/tires. These resources include: commercial off-the-shelf footwear databases, footwear or tire databases created or maintained in the laboratory, the Internet (e.g., zappos.com, ebay.com, tirerack.com and bestusedtires.com), and others (e.g., catalogs and industry publications).

5.3 *make* – the brand name or manufacturer associated with a footwear item/tire.

5.4 *model* – the specific product designation (e.g., name, number or combination thereof) associated with a footwear item/tire.

5.5 *upper* – the top portion of a footwear item excluding the outsole and midsole.

6 Procedures

6.1 Visually examine the evidence (or reproductions of the evidence) to identify design features within the impression(s) or printed/molded into the evidence that are suitable to search. These design features include geometric shapes, logos and text.

6.2 Search the laboratory reference materials to locate reference footwear items/tires with corresponding design features.

6.2.1 QDU personnel may use other resources to associate a make and/or model with an impression (or evidence item) to include: site visits to local retailers, contact with manufacturers or retailers, contact with colleagues, and discipline-specific online forums (e.g., the SWGTREAD Forum available at <http://forum.swgtread.org>).

6.2.1.1 Prior to sharing images and information associated with evidence items, QDU personnel will contact the contributor to obtain consent to do so.

6.2.1.2 Record any substantive communications using these procedures on the *Activity and Communication Log* (7-245) or Case Communication Log in Forensic Advantage (FA).

6.3 Compare the features observed in the impression (or evidence item) to the features observed on the reference footwear items/tires in the laboratory reference materials using side-by-side comparison, superimposition, or both.

6.4 Record the details of the search(es) performed in the examination record. At a minimum, record the following the details:

- the item(s) [or appropriate designator(s)], impression(s) or pattern(s) searched
- the laboratory reference materials searched
- the date(s) searched
- the name(s) or initials of the individual(s) who performed the search(es)
- the outcome(s) of the search(es) (i.e., association or no association)

6.5 If a make (with or without the model) is associated after conducting a search of the laboratory reference materials, record, at a minimum, the make, the model (if known), the relevant reference number (or URL, when appropriate) for the record associated with the reference materials, and an appropriate image of the associated reference footwear item/tire.

6.6 The examiner will report the results of the make/model determination under the 'Results of Examinations' section of the *FBI Laboratory Report* (7-1 or 7-1 LIMS) using one of the following conclusions. The results will also include, at a minimum: the evidence item(s) (or appropriate designation) searched and an image of the associated reference footwear item/tire.

6.6.1 Conclusions

6.6.1.1 Association

A search of the laboratory reference materials resulted in associating the impression (or evidence item) with a make of footwear/tire and possibly a footwear/tire model. It should be noted that there may be other makes and/or models of footwear/tires that could also be associated with the evidence.

6.6.1.2 No Association

A search of the laboratory reference materials resulted in not associating the impression (or evidence item) with a make of footwear/tire.

6.7 Refer to the *QDU Procedures for Conducting Footwear and Tire Evidence Examinations* for footwear/tire examination procedures beyond those detailed in these procedures.

7 Calculations

Not applicable.

8 Measurement Uncertainty

Not applicable.

9 Limitations

9.1 The laboratory reference materials are not comprehensive.

9.2 The methods required to search the laboratory reference materials require manual input and subjective judgments, which may prevent QDU personnel from associating a record despite its presence in the laboratory reference materials.

9.3 Some features associated with footwear and tires are common to multiple makes and models (i.e., generic) and thus don't provide discrimination potential such that the requested product information cannot be associated with the evidence item.

9.4 The examinations may be limited by one or more of the following factors:

- the condition or age of the evidence item
- the quality of the detail of the source item's features as reproduced in the impression
- the quantity of the source item's features as reproduced in the impression
- the improper placement of the scale in images depicting an impression
- processing of the evidence prior to submission
- the way that the evidence item was recovered
- the way that the evidence item was packaged
- the way that the impression was photographed
- the absence of original evidence items

10 Safety

Standard precautions should be followed for the handling of chemical and biological materials. Chemical and biological materials, that are hazardous or potentially hazardous, will be

maintained and examined in specifically designated areas within the QDU space. Personal protective equipment will always be worn when handling these materials. QDU personnel should refer to the *FBI Laboratory Safety Manual* for additional guidance.

11 References

FBI Laboratory Bluestar NFD User Guide

FBI Laboratory Everspry EverASM User Guide

FBI Laboratory Safety Manual

FBI Laboratory SoleMate FPX User Guide

FBI Shoeprint Database Application Training Manual

QDU Quality Assurance Manual

Bluestar NFD User Guide

Everspry EverASM Operation Manual

SoleMate FPX3 Footwear Print eXpert User Manual

Rev. #	Issue Date	History
5	03/01/18	1 Scope added, "This document applies to examiners, analysts and the unit chief in the QDU for conducting footwear database searches."
6	08/17/20	Significant changes were made throughout this document. Content of "QDU Procedures for Conducting a Tire Database Search" was incorporated into this document for ease of use and therefore "QDU Procedures for Conducting a Tire Database Search" was discontinued. Document title was revised. 'Equipment/Materials/Reagents' section was revised to add recently-validated COTS footwear databases and additional reference materials. 'Procedures' section was revised for added detail/clarity, specifically in areas of methods used. 'Conclusions' sub-section of 'Procedures' section was revised to provide additional clarity. 'Limitations' section was revised to provide additional detail/clarity. 'References' section was revised to add specific equipment manuals and user guides.

Redacted - Signatures on File

Approval

Questioned Documents
Unit Chief

Date: 08/14/2020

Footwear/Tire
Technical Leader

Date: 08/14/2020