



ATF-LS-FT9 Firearm and Toolmark Examination Documentation	Published Online: March 2018
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I. Scope

This policy and procedure guideline sets a minimum standard for examination documentation in firearm and tool mark casework. It also describes additional information, which should be included in case note documentation if applicable. This policy is applicable to all ATF Firearm and Toolmark Examiners and relates to documentation of casework of all types of examinations.

II. References

ATF-LS-FT1 Examination of Firearms.

ATF-LS-FT2 Examination of Ammunition.

ATF-LS-FT3 Examination and Comparison of Fired Ammunition Components.

ATF-LS-FT4 Serial Number Restoration.

ATF-LS-FT5 GSR Pattern Analysis for Muzzle-to-Target Distance Determination.

ATF-LS-FT6 Toolmark Examination.

ATF-LS-FT7 Physical Match.

ATF-LS-FT11 Theory of Identification and Range of Conclusions.

ATF-LS-4.13.2 Case Records.

III. Background

Based on the AFTE Theory of Identification, a comparison of two toolmarks will result in one of four basic types of conclusions: the tool marks were produced by the same tool, the tool marks were produced by different tools, the comparison is inconclusive, or the exhibit is unsuitable for comparison. In order to reach such a conclusion, an examiner has to evaluate the similarity or dissimilarity of various class and individual characteristics, and the potential for subclass characteristics.

The examination of evidence in firearm and toolmark casework generally follows an accepted procedure that is stated in protocols related to the specific examination. For an examiner to justify not recording having performed certain examinations because they “always perform them and in the same way every time” is unacceptable. The examiner must record specific documentation about what examinations were actually performed during casework. The documentation of a case examination is not for the sole purview of the examiner. The documentation must provide a clear depiction of what was done during the examination, and what information specifically supports the conclusions of the examiner.

A technical peer review of case documentation is not for the purpose of the individual doing the review to independently arrive at his or her own conclusion with regard to the evidence. It is to allow an individual reviewing the case record to determine if there is sufficient documentation of the observations that supports the conclusion that was reached.

ATF-LS-4.13.2 requires that case notes contain comprehensive detailed observations. For a firearm and toolmark examination, this can require a variety of documentation that is specific to the type of examination. These guidelines define the variety of documentation that is required and optional for various firearms evidence to support the conclusion(s) that must be stated in the notes by the examiner.

Worksheets are a good tool for aiding the examiner in data collection and recording observations and measurements. At the discretion of the section chief, examiner developed worksheets may be used to record data and observations. These personally created worksheets are not controlled documents.

IV. Documentation Requirements

Firearm Examinations

The examination of the firearm can require additional information, including submission to FTB. The following minimum information will be included in case note documentation:

- a. Packaging
- b. Exhibit Number
- c. Firearm Type
- d. Make
- e. Model
- f. Caliber
- g. Generic Action Type
- h. Serial Number
- i. Finish
- j. Magazine Submission (yes/no)
- k. Examiner ID Marks/location
- l. Number of lands and grooves and direction of twist.

Depending on the scope of the examination, recording of additional information as described below may be necessary:

- a. Magazine (type)/Cylinder Capacity
- b. Safeties: Type and Operational Condition
- c. Position of the safeties (on or off)
- d. Type and amount of ammunition submitted with firearm
- e. Land/Groove Measurements
- f. Examination of the tool working surfaces for individuality (subclass characteristics) i.e., – barrel, firing, breechface etc.
- g. Test Fire Information (SA/DA/Number of testfires/Ammunition Used)
- h. Trigger Pull Measurement (Method Used/SA/DA)
- i. Trace Evidence Examination
- j. Comparison Documented

- k. Support for Conclusion
- l. Residues in bore
- m. Overall condition of the weapon, noting any obvious damage
- n. Importer (if present)
- o. Grip Configuration/Condition
- p. Overall Length
- q. Photographs/Photomicrographs
- r. Direction of Cylinder Rotation
- s. Position of extractor/ejector
- t. Shape of firing pin impressions
- u. Cartridge Interchangeability
- v. Operating mechanical condition
- w. Types of Sights
- x. Types of Accessories
- y. Specific Action Type

Ammunition Examinations

The following minimum information will be included in case note documentation:

- a. Packaging
- b. Exhibit Number
- c. Headstamp
- d. Caliber
- e. Bullet Type
- f. Examiner ID Mark (location/type)

Depending on the scope of the examination, recording of additional information as described below may be necessary:

- a. Manufacturing Toolmarks Observed
- b. Subclass Characteristics
- c. Feed Toolmarks Observed
- d. Reloading Toolmarks Observed
- e. Trace Evidence Examination
- f. Comparison Documented
- g. Support for Conclusion
- h. Evidence Alterations
- i. Photograph/Photomicrograph
- j. Cannelures
- k. Case Finish Type
- l. Primer Finish Type
- m. Diagram

Fired Bullet Examinations

The following minimum information will be included in case note documentation:

- a. Packaging
- b. Exhibit Number
- c. Design/Composition
- d. Diameter
- e. Caliber

- f. Weight
- g. Examination driven changes/modifications to evidence
- h. Rifling
- i. Land/Groove Measurements (where no gun is identified)
- j. Assessment of the presence or absence of subclass characteristics
- k. Suitability for comparison
- l. Trace Evidence
- m. Examiner ID (location)
- n. GRC Search results in cases where no gun is identified

Depending on the scope of the examination, recording of additional information as described below may be necessary:

- a. Make
- b. Manufacturers Toolmarks
- c. Comparison Documented
- d. Photographs/Photomicrographs
- e. Cannelures

Other Projectiles

The following minimum information will be included in case note documentation:

- a. Packaging
- b. Exhibit Number
- c. Design/Composition
- d. Diameter
- e. Caliber/Gauge/Shot size
- f. Number/Amount
- g. Suitability for comparison
- h. Subclass Characteristics assessment
- i. Trace Evidence
- j. Examiner ID (location)

Depending on the scope of the examination, recording of additional information as described below may be necessary:

- a. Make
- b. Manufacturers Toolmarks
- c. Weight
- d. Comparison Documented
- e. Support for Conclusion
- f. Rifling
- g. Photographs/Photomicrographs
- h. Cannelures
- i. Land/Groove Measurements
- j. Diagrams

Fired Cartridge Case/Shotshell Examinations

The following minimum information will be included in case note documentation:

- a. Packaging
- b. Basic Description

- c. Exhibit Number
- d. Headstamp
- e. Caliber/Gauge
- f. Firing Pin Impression Shape/Characteristics
- g. Breech Face Impression Shape/Characteristics
- h. Ejector Toolmark
- i. Extractor Toolmark
- j. Trace Evidence
- k. Suitability for comparison
- l. Subclass Characteristics assessment
Examiner ID Marks (location)

Depending on the scope of the examination, recording of additional information as described below may be necessary:

- a. Manufacturers Toolmarks
- b. Comparison Documented
- c. Support for Conclusion
- d. Photograph/Photomicrograph
- e. Cannelures
- f. Case Finish Type
- g. Anvil Marks
- h. Ejection Port Marks
- i. Chamber Marks
- j. Primer Finish Type
- k. Chamber Toolmarks Shape/Characteristics

Tool/Toolmark Examinations

The following minimum information will be included in case note documentation:

- a. Packaging
- b. Exhibit Number
- c. Examiner ID (location)
- d. Tools
 - a. Tool Type
 - b. Manufacturer/Brand Name
 - c. General Description
 - d. Tool Action
 - e. Tool Working Surface Detail
 - f. Method of Manufacture
 - g. Class Characteristics
 - h. Subclass Characteristics assessment
 - i. Suitability for comparison
 - j. Trace Material
 - k. Damage
 - l. Sketch and/or photos

Toolmark

- a. Location of toolmark
- b. Type of toolmark

- c. Class Characteristics
- d. Subclass Characteristic assessment
- e. Trace Material
- f. Suitability for comparison

Depending on the scope of the examination, recording of additional information as described below may be necessary:

- a. Comparison Documented
- b. Direction
- c. Sketch and/or photos
- d. Support for Conclusion
- e. Photograph/Photomicrograph

Restoration of Obliterated Markings

The following minimum information will be in the case note documentation:

- a. Packaging
- b. Exhibit Number
- c. Make
- d. Model
- e. Caliber
- f. Location of obliterated markings
- g. Method of obliteration e.g.– grinding, scraping, drilled etc., and toolmark suitability for comparison
- h. Presence of any characters or partial characters as received prior to restoration
- i. Photograph/Sketch of object and characters or partial characters as received.
- j. Indication of whether the area of obliteration is magnetic/non-magnetic.
- k. Trace evidence
- l. Surface preparation methods
- m. List methods used for restoration, and order of application.
- n. Document final restoration results/conclusions by text and photographic depiction, if possible.
- o. Examiner ID (location)

Depending on the scope of the examination, recording of additional information as described below may be necessary:

- a. Casts made of any toolmarks present e.g. drilled serial number
- b. Photos of results

GSR Pattern Analysis for Distance Determinations

The following minimum information will be in the case note documentation:

- a. Packaging
- b. Exhibit Number
- c. Description of Item(s)
- d. Location of bullet holes
- e. Presence of soot and/or smoke
- f. Size (diameter) and relative density of the GSR pattern (including burnt and/or un-burnt gunpowder)
- g. Morphology of suspect GSR particles – ball, flattened ball, etc.

- h. Types of GSR particles i.e. - soot, partially burned GSR, copper residues, etc.
- i. Take color photographs, with a scale, of significant analytical observations to include: reaction of controls and results of analysis
- j. Examiner ID (location)

Shotgun Patterning

- a. Location of shot pattern to include margins
- b. Measurement and description of shot pattern

Type of chemical test(s) performed

- a. Positive control test results for each chemical test performed

Test firing

- a. Types of test material (and justification) used for distance testing (twill jean, denim, etc.)
- b. Distances of test shots (for distance determination comparison cases)
- c. Retain and label of control test materials
- d. Conclusions / Results
- e. Support for conclusions
- f. If possible, test shot materials used for visual/physical comparisons to the submitted evidence shall be retained.

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