A. Purpose:

To describe the general procedures and methods for working tool mark cases. Because each tool mark case can vary extensively, specificity for any one type is not possible; therefore, this generalization will fundamentally apply to all cases. Documentation through the use of notes, sketches, and/or photographs will be conducted.

B. Responsibility:

Forensic Science Examiners assigned to the Firearms Unit and competent in Toolmark Examination.

C. Safety:

1. Personal protective equipment (PPE) may be worn at the discretion of the analyst.
2. Protective eyewear should be worn when working with some types of tools.

D. Procedure:

1. Initial documentation and examination of a suspect tool should include:
   a. The presence of any trace material. Refer to FA SOP-15 Removing Debris for guidance.
   b. The type of tool
   c. The brand name of the tool
   d. The size of the tool
   e. The class characteristics of the tool
   f. The potential for subclass characteristics
   g. The condition of the tool
   h. The medium used for testing
2. Initial documentation and examination of a suspect tool mark should include:
   a. A description of the item containing the tool mark
   b. The presence of any trace material Refer to FA SOP-15 Removing Debris for guidance.
   c. The class characteristics of the type of tool used, if apparent
   d. The size of the tool mark
   e. The direction of the tool mark

f. The suitability of the tool mark for comparison purposes

3. Creating test marks

   a. Select the appropriate test media for the tool. The initial test media used for producing test marks should be soft enough to prevent alterations to the working surface of the tool. This may include lead or cellulose-based plastic coating material such as Dip Seal or Dip Pak. Subsequent test marks may require the use of a harder material to better reproduce the evidence mark.

   b. Test marks from tools will be sub-itemized in JusticeTrax in same manner as test fires from a firearm. Refer to FA SOP-08 Test Firing for Operability for guidance.

4. Casting

   If an evidence or test item is too large to fit on the stages of a comparison microscope, a cast may be made of the tool mark(s) in question. There are also occasions in which a cast may be submitted as evidence. Any test marks must also be cast in order to conduct a comparison.

   Mikrosil, Forensic Sil, and other similar silicone rubber products are used for this process. Follow the manufacturer's mixing instructions for proper usage.

   a. Cascade the material over the area to be cast.

   b. Allow enough time for the product to cure.

   c. Lift the cast off the tool mark.

   d. Consider adding orientation marks on the back of the cast, as well as identifying marks.

E. Equipment:

1. Cellulose-based plastic coating material
2. Lead and/or other test media
3. Silicone rubber cast material

F. References:

1. GL 2 Safety Manual
2. FA SOP-15 Removing Debris
3. FA SOP-08 Test Firing for Operability
4. AFTE Glossary