

**TENNESSEE BUREAU OF INVESTIGATION**  
*Forensic Services Division*

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Firearms/Toolmarks Standard Operating Procedures Manual  
Automatic Firearm Examination Procedure

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**11.0 AUTOMATIC FIREARM PROTOCOL**

**11.1 Scope:** To determine if a firearm is capable of full automatic fire, whether manufactured as a full-automatic firearm, or showing signs of modification and/or alteration. Firearms suspected of the capability of full automatic fire require research and special safety precautions during test firing.

**11.2 Precautions/Limitations:** The firearm examiner shall visually inspect the firearm to ensure it is not loaded. If loaded, immediate steps shall be taken to ensure the firearm is safely unloaded.

**11.3 Related Information:**

**11.3.1** Physical Examination and Classification of Firearms Section 5

**11.3.2** Safe Firearm Handling Section 4

**11.3.3** Malfunctioning Firearm Section 10

**11.3.4** Test Firing Procedure Section 6

**11.3.5** Worksheet Appendix 1

**11.3.6** Firearm Safety Appendix 3

**11.3.7** Range of Conclusions Appendix 4

**11.4 Instruments:**

**11.4.1.** Remote Firing Stand

**11.5 Reagents/Materials:** None

**11.6 Hazards/Safety:**

**11.6.1** It is the responsibility of the firearm examiner to employ appropriate safety and health practices. Safe firearm handling procedures shall be strictly followed at all times.

**11.6.2** Appropriate hearing and eye protection shall be worn when applicable.

**11.7 Reference Materials/Controls/Calibration Checks:**

**11.7.1** The firearm examiner should consult available manufacturer specification publications as well as disassembly/assembly and exploded diagram manuals.

**11.7.2** Firearm Reference Collection

**11.8 Procedures/Instructions:**

**11.8.1** Performing an External Examination (Disconnecter Function)

A disconnecter is defined as a device intended to disengage the sear from the trigger.



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In semi-automatic firearms, it is intended to prevent full automatic firing. (AFTE Glossary, 5<sup>th</sup> Edition)

- Ensure that the firearm is unloaded then manually cock the hammer/striker assembly.
- Pull the trigger to cause sear release, applying constant pressure to the trigger (do not release).
- Cock the hammer/striker assembly.
- Release the trigger to determine if the disconnecter has engaged the sear. There should be an audible click to signify engagement upon release of the trigger. Pull the trigger again.
- If the firearm does not dry fire (sear release) then it has failed this examination and may be capable of automatic mode of fire.
- If the firearm has a selector, perform the external test for each firing position the selector can be moved to which allows the firearm to fire. Keep in mind that a selector position which allows for full automatic fire may not be marked or in a position typical for semi-automatic versions of the examined firearm.
- If the firearm fires with an open bolt design, cock the bolt to the open position then dry fire the firearm keeping constant pressure on the trigger.
- Pull back the charging handle to cock the bolt. If the bolt will not cock while the trigger is depressed, then the firearm has failed the exam.
- Note: the lack of trigger disconnection after firing in some firearms may not lead to full automatic fire.

#### **11.8.2 Examination of Firearm Modification/Conversion**

- The firearm examiner shall research the firearm to determine what parts or modifications are needed to make the firearm capable of full automatic fire.
- Once research is complete, look for external signs of conversion typical for your firearm. Do not field strip the firearm at this point.
- Pay close attention to firearms that have very light and/or inconsistent trigger pull. If you have a select-fire firearm that is capable of both semi-automatic and full automatic fire, measure and record the trigger pull in both modes.

#### **11.8.3 Test Firing Suspected Modified/Converted Firearms**

- Poorly converted firearms may be dangerous to shoot by hand. Therefore, the firearm examiner should consider the use of a remote firing device.
- The test firing procedure may be recorded with a video camera. Make sure to state your name, laboratory case number, exhibit number, and explain the procedure on the video. Place a copy of the video file into the case file.
- Place only one cartridge in the magazine, load into the chamber, and fire.
- Inspect the cartridge case to look for cracks, gross bulges, overly flattened primers, blown primers, or any other unusual physical effects.
- If the cartridge case shows no signs of distress then place two cartridges in the magazine and pull the trigger leaving constant pressure on the trigger.
- If the firearm is capable of full automatic fire, the firearm should fire both cartridges



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- with one pull of the trigger. Repeat this process to confirm this test.
- If the firearm has cartridge feeding issues try another brand of cartridges. For best results use only cartridges with full metal jacketed bullets.

#### **11.8.4 Internal Examination of the Firearm**

Using research and/or experience, field strip and internally examine the firearm. Try to determine why the firearm is capable of full automatic fire if not designed as a full automatic firearm. Keep in mind that some firearms are capable of full automatic fire due to breakage of normal parts or poor maintenance of the firearm. It is recommended that the firearm examiner photograph any and all observations of conversion/modifications.

**11.9 Records:** The firearm examiner shall document their findings in the form of handwritten notes, computer generated notes, photography, videography, or by utilizing a firearms worksheet.

**11.10 Interpretations of Results:** The firearm examiner should gather all aforementioned material and consult with manufacturer's specifications to ascertain the operating condition of the firearm.

**11.11 Report Writing:** Firearm report writing can be found in the Range of Conclusions Appendix 4. However, it is noted that firearms occasionally are submitted inoperable or in very poor condition and these Range of Conclusions may need to be modified.

#### **11.12 References:**

Association of Firearms and Toolmark Examiners Training Manual, March 3, 2001

Association of Firearms and Toolmark Examiners Procedures Manual, July 9, 2001

Association of Firearms and Toolmark Examiners Glossary, 5<sup>th</sup> Edition, 2007

Bartocci, Christopher, "Fire Control Part Variations in Colt M16/AR15 and Sporter Type Rifles", AFTE Journal, Vol. 35, No. 1, pg. 12.

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French Jr., Mickey, "Full Auto Intratec Caused by Faulty Assembly", AFTE Journal, Vol. 32, No. 1, pg. 51.

McVeigh and Jackson, "Full Automatic Conversion of an S.W.D. M-11/9mm", AFTE Journal, Vol. 36, No. 3, pg. 171.

Monturo, Chris, "Select Fire SKS", AFTE Journal, Vol. 30, No. 1, pg. 120.

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Powder Burns, "Full-Auto Conversion of the SKS Rifle", Paladin Press 1994.