



ATF-LS-FT2 Examination of Ammunition	Published Online: March 2018
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Scope

The examination of ammunition, including identification of ammunition components as to their manufacturer/marketer can provide key investigative information. These guidelines set forth the procedures by which class characteristics and physical features of ammunition and components can be determined and compared to reference literature and collections for the purpose of identifying the manufacturer/marketer of the components. This protocol is applicable to all ATF Firearm and Toolmark Examiners.

I. References

ATF Laboratory Services Standard Ammunition File (SAF).

Ackley, P. *Handbook for Shooters and Reloaders* –Volumes I and II. Plaza Publishing, 1971.

Barnes, M.L. *Cartridges of the World*. Gun Digest Books, WI, 2009.

Datig, F. *Cartridges for Collectors*, Volumes I and II. Borden Publishing, Los Angeles, CA, 1958.

Hogg, I. *The Cartridge Guide – The Small Arms Ammunition Identification Manual*. Arms and Armor Press, 1982.

Huon, J. *Military Rifle and Machine Gun Cartridges*. Ironside International Publishing, 1990.

Kass, G. *Headstamp Guide*. Most current edition.

Ramage, C. K. *Shotshell Handbook*. Lyman Products Corp., 1994.

Saferstein, R. *Forensic Science Handbook* – Volume II, Chapter 8. Prentice Hall, New York, NY, 1987.

Sharpe, P. *Complete Guide to Hand Loading*. Wolfe Publishing, 1988.

White, H. Munhall, B. *Pistol and Revolver Cartridges* – Volumes I and II. A.S. Barnes, 1967.

II. Safety Precautions

See ATF-LS-FT8 Firearms Safety Guidelines.

III. Apparatus/Reagents

Micrometer, balance (scale), stereomicroscope, rulers, calipers, and comparison microscope

IV. Procedures

See ATF-LS-FT9 Firearm and Toolmark Examination and Documentation for minimum required documentation and supplemental documentation depending on the purpose for which the firearm was submitted for examination.

In general:

- Record manufacturer marks and design features to include those on headstamp, caliber and bullet type and, if applicable, the side of a shotshell.

When applicable:

- Examine the ammunition and ammunition components for manufacturer markings, indications of possible reloading, class characteristics and physical features of the ammunition components to compare with available literature and reference collections.
- Look for evidence of reloading. Intact cartridges with marks such as resizing, bullet seating, primer seating, and firearm toolmarks should be considered as possible reloaded ammunition.
- Measure cartridge dimensions, and compare to caliber designation if stamped on head.
- Dismantle cartridge or shotshell and examine internal components. Items to be documented based on cartridge type can include:
 - Caliber and weight of bullet
 - Number and size of shot; composition
 - Weight and morphology of powder
 - Shot shell buffer
 - Design and composition of wadding
 - Primer design
 - Bullet design, composition, and production method
 - Cartridge case design, composition and production method

- External and internal sealant
- Lubricants on bullet/cartridge

V. Quality Control

Accurate assessment of class characteristics and a reliable determination of manufacturer/marketer of ammunition and ammunition components is ensured when measuring equipment is properly calibrated and maintained.