

Firearms and Ammunition

Information here is intended to assist the investigator in the recognition, evaluation, marking, packaging, and transmittal of firearms exhibits and related items to the Laboratory.

I. General Considerations

When requested, the Laboratory will process firearms exhibits and related items for fingerprints, DNA and trace evidence as well as the possible determinations listed in Table 10-1.

All exhibits should be properly inventoried. Record the description of the item, source, case number, item number, initials of person collecting, and the date and time collected. Sketch the area of recovery, indicating relative positions in feet and inches between exhibits and fixed objects, and supplement with photographs (see Chapter 4 - Crime Scene Sketch).

It is often possible to restore manufacturer's serial numbers, property marks, or other die-stamped markings which have been removed, altered, or obliterated on firearms (and other metallic objects such as tools, plates, and bicycles).

Firearms and fired ammunition may be delivered to the Laboratory in person or via parcel post, certified mail, or United Parcel Service (UPS).

All firearms must be shipped unloaded to the Laboratory with a marking on the package exterior indicating the firearm is unloaded. An evidence transmittal form should be sealed in an envelope attached to the outside of the package. Indicate what kinds of examinations are requested, e.g., DNA, Trace Evidence, Identification, NIBIN entry, etc.

Firearms or other metal objects recovered from water (or nonflammable liquid) should immediately be placed in a

container of the same liquid, completely submerged. When in a liquid, the oxidation process is considerably retarded minimizing change.

II. Marking of Firearms

Use extreme care in marking recovered firearms for purposes of identification. A reinforced identification tag may be attached to the trigger guard in front of the trigger.

Mark the tag with appropriate identifying data, including the serial number and description of the firearm, source, case number, item number, initials of collector, and the date and time collected.

III. Marking of Bullets, Fragments, Cartridge Cases, Shotgun Shells, Pellets, and Unfired Ammunition

All firearms and firearm related items should be handled with the assumption they will be fingerprinted or sampled for DNA. Therefore, only the packaging should be marked. In this way the possibility of damage, loss or contamination of trace evidence or DNA and destruction of possible fingerprints is greatly diminished. These items should not be packaged in cotton or sealed in plastic.

All packages should be properly sealed, with initials of collector over the seal, and marked with accompanying information such as the description of the item, source, case number, item number, initials of person collecting, and the date and time collected, as described in Table 10-2.

In situations where through-and-through penetration of the victim's body has occurred and the bullet is found on the floor, in walls, etc., bullets or bullet fragments should not be touched with bare fingers. A small piece of clean white paper

may be slipped under the bullet, then folded and placed in a rigid container, and finally sealed and identified. This procedure minimizes the possibility that the recovering officer will contaminate traces of blood which may be present on the bullet. The above recommendations should also apply to shotgun pellets and wads.

**Table 10-1:
Possible Laboratory Determinations
Resulting from Firearms Unit Examinations**

EVIDENCE REQUIRED BY LABORATORY	POSSIBLE LABORATORY DETERMINATIONS
FIRED BULLET	Make, caliber, type of firearms from which each could have been discharged; type of propellant used in firing; manufacturer and designation as to type, caliber, etc.
TWO OR MORE FIRED BULLETS	In addition to the possible determinations listed for a single fired bullet, whether two or more were fired from the same firearm.
FIRED CARTRIDGE CASE OR SHOTSHELL	Make, caliber, type of firearm in which each could have been fired; type of propellant used in firing; name of manufacturer and designation as to type, caliber, etc.
TWO OR MORE FIRED CARTRIDGE CASES OR SHOTSHELLS	In addition to the possible determinations listed for a single cartridge case, whether two or more cartridge cases or shot shells were fired in the same firearm.
FIRED BULLET AND SUSPECTED FIREARM	In addition to the possible determinations listed for a single fired bullet, whether bullet was fired from suspected firearm.
FIRED CARTRIDGE CASE AND SUSPECTED FIREARM	In addition to the possible determinations listed for a single cartridge case, whether cartridge case was fired in suspected firearm.
SUSPECTED FIREARM, AMMUNITION, SCALED PHOTOGRAPH OF POWDER OR SHOT PATTERN AND/OR VICTIM'S CLOTHING	Approximate distance at which shot was discharged.
SHOT PELLETS AND WADS	Size of shot, and gauge designation of wads.

Table 10-2:

Instructions for Handling, Marking, and Shipping Firearms Exhibits

EXHIBIT	GENERAL INSTRUCTIONS	DESCRIPTIVE RECORD TO BE KEPT BY PERSON RECOVERING
FIREARMS	Check for fingerprints. Remove magazine from auto loading firearms. Do not clean or fire. Do not operate mechanism except to unload. If loaded revolver, mark hammer position and sketch cartridge positions. See column on marking for identification.	A record of make, model, type, caliber or gauge designation, serial and lot numbers. If a loaded revolver, draw a sketch indicating position of hammer and cartridges.
FIRED BULLETS	Every precaution should be taken to prevent loss of trace evidence or abrading or mutilating bullet surface in any way. Do not wash or clean.	Sketch showing relative position of fired bullets collected from scene. Transmit a copy of this information to the Laboratory.
FIRED METALLIC CARTRIDGE CASES	Do not mar, mutilate, scratch, or nick head of case. See column on marking for identification.	Sketch showing relative position of cartridge cases collected from scene. Transmit a copy of this information to the Laboratory.
FIRED SHOT SHELLS	Do not mar, mutilate, scratch, or nick head of shot shell.	Sketch showing relative position of shot shells collected from scene. Transmit a copy of this information to the Laboratory.

Table 10-2 (continued):**Instructions for Handling, Marking, and Shipping Firearms Exhibits**

SHOT PELLETS	Recover as many as possible. Do not mutilate in recovery.	Sketch showing relative position of shot pellets collected from scene. Transmit a copy of this information to the Laboratory.
SHOT WADS	Recover as many as possible. Do not mutilate in recovery.	Sketch showing relative position of shot wads collected from scene. Transmit a copy of this information to the Laboratory.
LOADED SHELLS OR CARTRIDGES	If unfired ammunition is recovered in investigation, forward to Laboratory. If ammunition manufacturer's boxes are recovered, forward to Laboratory for latent print examination.	Sketch showing relative position of shells or cartridges collected from scene. Transmit a copy of this information to the Laboratory.
SHOT OR POWDER PATTERNS	If on clothing send only the clothing that might contain powder, powder residues, or exhibit bullet or shot penetrations. If on skin, doors, walls, etc., consult Laboratory concerning scaled photographs.	Description and source of garment containing shot or powder patterns. Location and size of shot or powder patterns on walls, doors, or other immovable objects.

**Table 10-2 (continued):
Instructions for Handling, Marking, and Shipping Firearms Exhibits**

EXHIBIT	GENERAL INSTRUCTIONS	DESCRIPTIVE RECORD TO BE KEPT BY PERSON RECOVERING
FIREARMS	Check for fingerprints. Remove magazine from auto loading firearms. Do not clean or fire. Do not operate mechanism except to unload. If loaded revolver, mark hammer position and sketch cartridge positions. See column on marking for identification.	A record of make, model, type, caliber or gauge designation, serial and lot numbers. If a loaded revolver, draw a sketch indicating position of hammer and cartridges.
FIRED BULLETS	Every precaution should be taken to prevent loss of trace evidence or abrading or mutilating bullet surface in any way. Do not wash or clean.	Sketch showing relative position of fired bullets collected from scene. Transmit a copy of this information to the Laboratory.
FIRED METALLIC CARTRIDGE CASES	Do not mar, mutilate, scratch, or nick head of case. See column on marking for identification.	Sketch showing relative position of cartridge cases collected from scene. Transmit a copy of this information to the Laboratory.
FIRED SHOT SHELLS	Do not mar, mutilate, scratch, or nick head of shot shell.	Sketch showing relative position of shot shells collected from scene. Transmit a copy of this information to the Laboratory.
SHOT PELLETS	Recover as many as possible. Do not mutilate in recovery.	Sketch showing relative position of shot pellets collected from scene. Transmit a copy of this information to the Laboratory.
SHOT WADS	Recover as many as possible. Do not mutilate in recovery.	Sketch showing relative position of shot wads collected from scene. Transmit a copy of this information to the Lab.
LOADED SHELLS OR CARTRIDGES	If unfired ammunition is recovered in investigation, forward to Laboratory. If ammunition manufacturer's boxes are recovered, forward to Laboratory for latent print examination.	Sketch showing relative position of shells or cartridges collected from scene. Transmit a copy of this information to the Laboratory.

SHOT OR POWDER PATTERNS	If on clothing send only the clothing that might contain powder, powder residues, or exhibit bullet or shot penetrations. If on skin, doors, walls, etc., consult Laboratory concerning scaled photographs.	Description and source of garment containing shot or powder patterns. Location and size of shot or powder patterns on walls, doors, or other immovable objects.
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Instructions for Handling, Marking, and Shipping Firearms Exhibits

RECOMMENDED METHOD OF PACKAGING, MARKING FOR IDENTIFICATION AND SHIPPING TO THE LABORATORY	EXHIBIT
Attach an ID tag and mark tag with initials, case #, date and item #. Secure firearms and magazines to cardboard box or rigid container with fasteners. Package each cartridge separately in a cardboard box or rigid container and mark containers according to your sketch. Seal the package, initial the seal, and label each container with case #, date, item # and source. Forward to Laboratory along with the descriptive record.	FIREARMS
Package each separately in cardboard slide box or rigid container. Do not put in envelope. Mark on the container the source of each bullet. Seal the package, initial the seal, and label each container with case #, date, item # and source. Forward to Laboratory along with the descriptive record.	FIRED BULLETS
Package each separately in cardboard slide box or rigid container. Seal the package, initial the seal, and label each container with case #, date, item # and source. Forward to the Laboratory along with the descriptive record.	FIRED METALLIC CARTRIDGE CASES
Same as above.	FIRED SHOT SHELLS
Same as above (all of the available fired shot can go in a single box).	SHOT PELLETS
Same as above.	SHOT WADS
Same as above.	LOADED SHELLS OR CARTRIDGES
Place each individual air-dried item of clothing in a separate clean paper bag. Seal each bag, initial each seal and label each bag with case #, date, item # and source. Forward to the Laboratory along with the descriptive record.	SHOT OR POWDER PATTERNS

IV. Bullet Path Reconstruction

Defining a bullet path at a shooting scene is a useful element of crime scene reconstruction. A shooter's position and final bullet location can both be defined by determining the path of a bullet or bullets through a sequence of materials. Such reconstructions are most accurate when a bullet has created both a bullet hole and a subsequent impact site or two or more bullet holes in successive planes of material, e.g. sheet rock on both sides of an interior wall. Inserting rods through the bullet holes (or from bullet hole to impact site) will define a bullet path that can direct the investigator to the shooter's position or to the bullet's likely location (see Figure 10-1). Rods should not be inserted in any bullet hole until documentation and examination of the bullet hole has been completed.

Over short distances, string can be attached to the rods to project the bullet path. This technique is especially useful in reconstructing shootings involving vehicles due to their double-panel construction. However, as the projected bullet path increases in distance from the bullet hole, greater imprecision will be introduced into the reconstruction. For bullet path reconstructions over long distances, a combination of spacer cones, rods and lasers will offer much better precision, especially if meaningful diagramming of the reconstruction is desired.

Unless a bullet passes through a significant thickness of material, a single bullet hole will usually not allow useful reconstruction of the bullet path. However, bullet direction can be determined from through-and-through bullet holes in many materials. For example, the passage of a bullet through metal will create an indentation on the metal surface facing the bullet origin and metal stretch on the surface in the direction away from bullet origin, clearly defining the direction of the bullet through the metal. Bullets that pass through auto glass, skull and some plastics will create a crater on the side of the material away from the bullet origin. In other words the crater opens up in the direction of bullet travel (see Figure 10-2).

Even a portion of a bullet hole in a destructively fractured skull can define the direction of the bullet and subsequently establish exit and entrance. The combination of glass cratering and radial glass fracture in a window can even define the sequence of shots through the window, particularly when working with vehicle shootings.

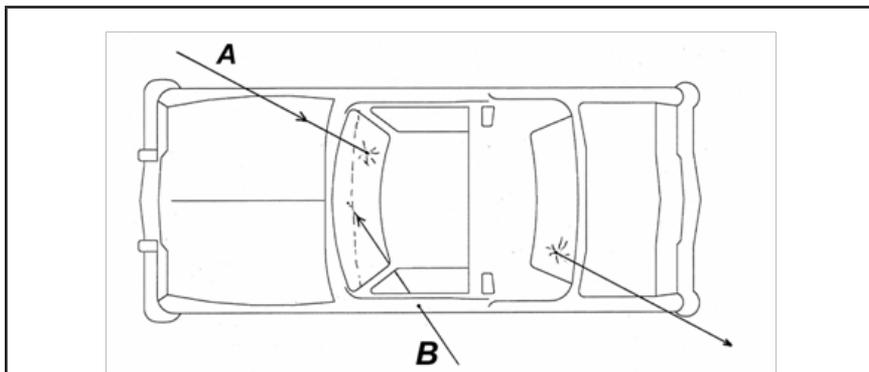


Fig. 10-1 Bullet paths A&B define two shooter locations outside the vehicle. Such diagrams can be included in crime scene notes to aid in shooting reconstructions.

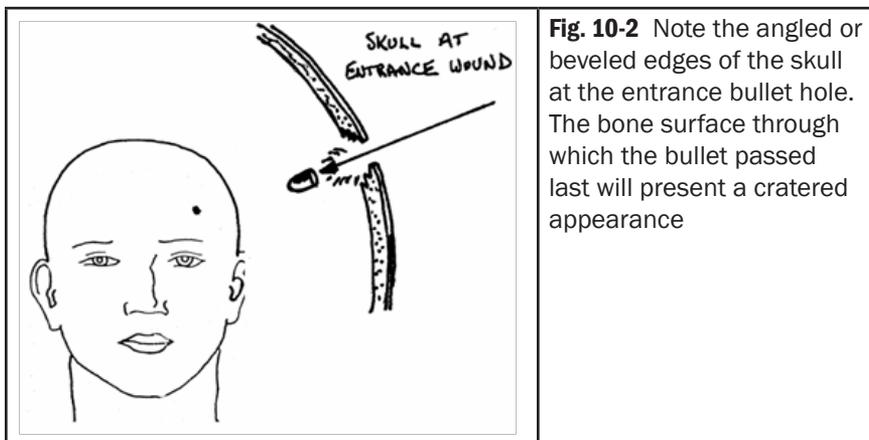


Fig. 10-2 Note the angled or beveled edges of the skull at the entrance bullet hole. The bone surface through which the bullet passed last will present a cratered appearance

Notes