

Flare Examinations

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Flare Examinations

1 INTRODUCTION

Highway safety flares, or fusees, hereafter referred to as flares, are manufactured for use as a safety signaling device. They function by burning a pyrotechnic mixture that produces a bright light. Following their use, little remains except an ash residue and a metal stand which may have been used to hold the flare upright during burning.

Flares are commonly used in the fabrication of hoax devices that are built to resemble an actual improvised explosive device (IED) or improvised incendiary device (IID), hereafter collectively referred to as devices; however, they usually contain no energetic materials. The specific use of the flare in the hoax device is to visually simulate the main charge.

The examination of flares can sometimes be used to determine their manufacturer. This information can assist the investigator in identifying the subject(s) responsible for constructing the device.

2 SCOPE

These procedures describe the process for flare examinations and apply to explosives and hazardous devices caseworking personnel who examine flares to determine identifying and functionality information.

3 EQUIPMENT

Below is a list of items that can be used to examine flares and their remains. Explosives and hazardous devices personnel should choose the most appropriate items based on the nature of the evidence.

- Personal protective equipment (e.g., lab coat, eye protection, gloves)
- Hand tools (e.g., tweezers, pliers, utility knife)
- Cleaning materials and disinfectants (e.g., cloths, bleach, rubbing alcohol)
- Stereomicroscope (various magnifications)
- Ruler (e.g., standard 12 inch length)
- Micrometer
- Caliper
- X-ray machine
- Pillboxes, glass containers, and static-proof plastic bags
- FBI Laboratory Explosives Reference Tool (EXPeRT) Database
- Reference texts, manuals, manufacturers' literature, and known materials are maintained in the explosives library. Additional reference information can be obtained from direct contact with manufacturers and distributors.

4 PROCEDURE

These procedures are implemented as part of the overall examination process outlined in the Explosives and Hazardous Devices Examinations Technical Procedure (TP).

Explosives and hazardous devices personnel will:

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- A. Before any examinations are conducted, ensure that the item(s) and its container(s) and packaging have been appropriately marked in accordance with the [FBI Laboratory Operations Manual \(LOM\)](#) (i.e., item number, initials, and full Laboratory number, when practicable).
- B. Ensure care is taken not to obliterate any identifying marks which have been previously placed on the flare, or obliterate any microscopic marks of value.
- C. Visually examine the item for any trace evidence that could be of value. This evidence could include, but not limited to the following: hairs, fibers, paint, or other particles.
 - 1. If trace evidence is to be examined or preserved, contact the appropriate unit and determine if the material should be removed. Record the material by means of notes, sketches, or photographs before it is removed.
- D. Take appropriate photographs of the flare before disassembling it for examination purposes to preserve any markings on the item.
- E. Note the physical characteristics of the flare through visual/microscopic examination. Physical measurements should be taken to aid in determining as many of the following attributes as possible:
 - o Manufacturer
 - o Brand
 - o Type
 - o Date/plant/shift code
 - o Special properties (e.g., physical condition, functionality, modifications made for use in device)
- F. If possible, determine the manufacturer, brand, and type by searching the EXPeRT database, explosive reference files, manufacturers' literature, and/or reference or known materials collection. Identifications or associations are made by comparison of observable/measurable physical characteristics with those provided in the above reference/literature materials.

5 LIMITATIONS

Refer to the Limitations section in the Explosives and Hazardous Devices Examinations TP and Appendix A of the Explosives and Hazardous Devices Report Writing Guidelines.

6 SAFETY

Safety protocols, contained within the [FBI Laboratory Safety Manual](#), will be observed at all times.

- A. Protective gloves (e.g., latex, nitrile) should be worn when handling evidence.
- B. Intact flares are a fire hazard and are sensitive to heat, shock, and friction. Flares will be handled with care to prevent accidental ignition. The following guidance is provided:
 - 1. When not under examination, flares will be stored in appropriate containers (paper boxes or metal cans).
 - 2. When being examined, flares will not be placed in the close proximity to heat or in locations where they may fall or other materials may fall on them.

- C. Items containing blood or other body fluids can be cleaned with a bleach-based solution or other suitable disinfectant following discussions with personnel that may conduct other examinations of the items.

7 REVISION HISTORY

Revision	Issued	Changes
02	06/15/2022	Title changed to Flare Examinations. Updated to new document template and updates made throughout for clarity.