



Designation: F2209 – 20

# Standard Guide for Training of Land Search Team Member<sup>1</sup>

This standard is issued under the fixed designation F2209; the number immediately following the designation indicates the year of original adoption or, in the case of revision, the year of last revision. A number in parentheses indicates the year of last reapproval. A superscript epsilon ( $\epsilon$ ) indicates an editorial change since the last revision or reapproval.

## 1. Scope

1.1 This guide establishes the minimum training requirements for land search personnel as it relates to their general, field, and search-specific knowledge and skills.

1.2 A Land Search Team Member searches on the surface of the land only, including urban or disaster areas that may be isolated or have lost supporting infrastructure.

1.3 This guide does not provide the minimum training requirements for searching in partially or fully collapsed structures, in or on water, in confined spaces, or underground (such as caves, mines, and tunnels).

1.4 Personnel trained to this guide are not qualified to perform rescue. No knots, rope, high angle or low angle litter, or other rescue skills are required of a Land Search Team Member.

1.5 Personnel trained to this guide are not qualified to operate in leadership positions.

1.6 Land Search Team Members are eligible to be members of Category: Land Search, and Category: Untrained, search teams or crews, as defined in Classification **F1993**.

1.6.1 Category: Land Search teams which may utilize personnel trained to this guide are:

- 1.6.1.1 Kind: Non-Wilderness;
- 1.6.1.2 Kind: Wilderness;
- 1.6.1.3 Kind: Mountainous;
- 1.6.1.4 Kind: Alpine.

1.7 Further training may be required before a Land Search Team Member can participate on a particular Kind of search team, depending on local needs, regulations, or policies of the authority having jurisdiction.

1.8 *This standard does not purport to address all of the safety concerns, if any, associated with its use. It is the responsibility of the user of this standard to establish appropriate safety, health, and environmental practices and determine the applicability of regulatory limitations prior to use.*

<sup>1</sup> This guide is under the jurisdiction of ASTM Committee **F32** on Search and Rescue and is the direct responsibility of Subcommittee **F32.03** on Personnel, Training and Education.

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1.9 *This international standard was developed in accordance with internationally recognized principles on standardization established in the Decision on Principles for the Development of International Standards, Guides and Recommendations issued by the World Trade Organization Technical Barriers to Trade (TBT) Committee.*

## 2. Referenced Documents

### 2.1 ASTM Standards:<sup>2</sup>

**F1633** Guide for Techniques in Land Search (Withdrawn 2017)<sup>3</sup>

**F1767** Guide for Forms Used for Search and Rescue

**F1773** Terminology Relating to Climbing, Mountaineering, Search and Rescue Equipment and Practices

**F1993** Classification System of Human Land Search and Rescue Resources

**F2890** Guide for Hazard Awareness for Search and Rescue Personnel

**F3068** Guide for Contents and Use of a Position Task Book (PTB)

**F3071** Guide for Basic Wilderness GPS/GNSS Use (GPS/GNSS-IW) Endorsement

**F3222** Terminology Relating to F32 Land Search and Rescue Standards and Guides

### 2.2 Other Documents:

**NWCG PMS 307** Work Capacity Test: Administrator's Guide<sup>4</sup>

## 3. Terminology

### 3.1 Definitions of Terms Specific to This Standard:

3.1.1 *land search team, n*—a group of individuals searching on the surface of the earth.

3.1.2 *land search team member, n*—a person who, at a minimum, meets the requirements of this guide.

3.2 For definitions of terms used in this guide, see Terminology **F1773**, Classification **F1993**, Terminology **F3222**, and other references within this guide.

<sup>2</sup> For referenced ASTM standards, visit the ASTM website, [www.astm.org](http://www.astm.org), or contact ASTM Customer Service at [service@astm.org](mailto:service@astm.org). For *Annual Book of ASTM Standards* volume information, refer to the standard's Document Summary page on the ASTM website.

<sup>3</sup> The last approved version of this historical standard is referenced on [www.astm.org](http://www.astm.org).

<sup>4</sup> <https://www.nwcg.gov/publications>.

#### 4. Significance and Use

4.1 This guide establishes the minimum knowledge, skills, and abilities that a person must have to perform as a Land Search Team Member. No other skills are included or implied.

4.2 Every person who is identified as a Land Search Team Member shall have met the requirements of this guide.

4.3 This guide is to be used by individuals and agencies having jurisdiction that wish to identify the minimum training required for a Land Search Team Member.

4.3.1 The AHJ shall determine the depth or detail of training required to meet these needs.

4.4 Though this guide establishes the minimum standard of training, it does not imply that a Land Search Team Member is a “trainee,” “probationary,” or other similar term member of a team, organization, or agency.

4.4.1 Determining the requirements and qualifications for Land Search Team Members is the responsibility of the AHJ.

4.4.2 Nothing in this guide precludes an AHJ from adding additional requirements for its own members.

4.5 This guide can be used to evaluate a document or training program to determine if its content includes the topics necessary for training individuals to operate as a Land Search Team Member.

4.6 This guide does not stand alone and must be used with the referenced documents to provide the specific information needed by a Land Search Team Member or AHJ.

4.7 This guide by itself is not a training document. It is an outline of the topics required for training or evaluating a Land Search Team Member.

4.8 This guide can be used to evaluate a book or other document to determine if its content includes the information required for training a Land Search Team Member. Likewise, the guide can be used to evaluate an existing training program to see if it meets the requirements of this guide.

4.9 The knowledge, skills, and abilities defined in this guide are not presented in any particular order and do not represent a training sequence.

4.10 A Land Search Team Member shall document his or her training by completion of a position task book, compliant with Guide **F3068**, or by field demonstration under qualified supervision.

4.11 Unless stated otherwise, an ability or proficiency in a skill shall be demonstrated for initial qualification and then as often as required by the AHJ.

4.12 Except where a physical skill or ability must be demonstrated, the AHJ shall determine the best way to evaluate a person’s knowledge. This may be by written exam, oral exam, demonstration, or by some combination of the three.

#### 5. Personal Fitness

5.1 Land Search Team Members shall demonstrate annually that they meet the requirements of a medical fitness standard determined by the AHJ.

5.2 Land Search Team Members shall demonstrate annually that they meet the requirements of a physical performance standard determined by the AHJ.

5.2.1 The recommended minimum physical performance requirement for Land Search Team Members is the “Moderate” level as defined in NWCG PMS 307 (see **Appendix X2**).

#### 6. General Knowledge and Skills

6.1 Land Search Team Members shall complete National Incident Management System (NIMS) ICS-100, “Introduction to Incident Command System.”

6.2 A Land Search Team Member shall complete the Department of Interior, Office of Aviation Management (DOI OAM), Course A100—Basic Aviation Safety, or equivalent training.

6.3 A Land Search Team Member shall maintain certification in professional rescuer/health care provider CPR.

6.4 A Land Search Team Member shall maintain certification in basic first aid, or a more advanced level of emergency care. At a minimum the medical or first aid training for certification shall include the following:

6.4.1 Field treatment for common injuries experienced by land searchers in the normal area of operations.

6.4.2 Field treatment for the conditions listed in **7.11**.

6.5 Land Search Team Members shall know the regulations, policies, procedures, and guidelines of the AHJ with regard to the following:

6.5.1 Land Search Team callout or dispatch to an incident,

6.5.2 Incident check-in,

6.5.3 Land search team mission briefing,

6.5.4 Land search team mission debriefing,

6.5.5 Demobilization and departing from an incident,

6.5.6 Land search team member communications with the media,

6.5.7 Working with other agencies or organizations,

6.5.8 Insurance coverage, and

6.5.9 Safe driving procedures and safety.

6.6 Land Search Team Members shall demonstrate an understanding of the legal aspects of SAR with respect to the AHJ for the following:

6.6.1 Entering private property,

6.6.2 Emergency response,

6.6.3 Finding deceased individuals,

6.6.4 Crime scenes,

6.6.5 Subject, victim, witness, or patient confidentiality requirements, including, but not limited to, the Health Insurance Portability and Accountability Act (HIPAA),

6.6.6 Negligence and abandonment, and

6.6.7 Confidentiality of mission information.

6.7 Land Search Team Members shall be trained to operate within the Incident Command System (ICS).

#### 7. Personal Health, Safety, and Survival

7.1 Land Search Team Members shall know how to protect themselves from the effects of the environment in the field, including the following:

7.1.1 The five ways in which the body loses heat, the positive and negative effects of this heat loss, and the ways to assist or prevent them.

7.1.2 The reasons for wearing layered clothing, the function of each layer, and the advantages and disadvantages of materials used in each layer.

7.1.3 The factors to be considered when choosing socks and footwear.

7.2 Land Search Team Members shall know a minimum of three methods for avoiding getting lost.

7.3 Land Search Team Members shall have training in how to survive if lost in the field, or forced to remain in the field without support, including the following:

7.3.1 The survival situation plan: STOP—Stay, Think, Observe, and Plan.

7.3.2 Maintaining a positive mental attitude.

7.3.3 The basic needs for survival, and their order of priority.

7.3.4 Differentiating between the requirements for short-term survival versus long-term survival.

7.3.5 Two methods of water purification for use in the field.

7.3.6 The functional requirements of an emergency shelter.

7.4 Land Search Team Members shall demonstrate the ability to build an emergency shelter using only personal field equipment and materials found in the field.

7.5 Land Search Team Members shall demonstrate the ability to build a sustainable fire using only personal field equipment and materials found in the field.

7.6 Land Search Team Members shall know the types and quantity of food to be carried in the field during a search mission.

7.7 Land Search Team Members shall know the personal hygiene and sanitation requirements and techniques used in the field.

7.8 Land Search Team Members shall know at least two types of emergency signaling devices, their advantages and disadvantages, and how to use each device.

7.9 Land Search Team Members shall meet the requirements of Guide **F2890** for hazard awareness training.

7.10 Land Search Team Members shall know the safety precautions and procedures to be employed when working around still and swift water in the normal area of operations.

7.10.1 Land Search Team Members are not qualified to participate in swift water operations.

7.11 Land Search Team Members shall know the signs, symptoms, and preventive measures for the following:

7.11.1 Cold-related problems.

7.11.2 Heat-related problems.

7.11.3 Dehydration.

7.11.4 Fatigue and exhaustion.

7.11.5 Blisters.

7.11.6 Sunburn.

7.11.7 Other hazards specific to the environment in which the Land Search Team Member is likely to operate.

7.12 Land Search Team Members shall know the hazards in the normal area of operations, including, but not limited to, the following:

7.12.1 Plants.

7.12.2 Wild and domestic animals.

7.12.3 Terrain.

7.12.4 Weather patterns and conditions.

7.12.5 Lightning.

7.12.6 Land Search Team Members shall know the procedures to be followed when searching in hazardous areas and conditions.

7.13 Land Search Team Members shall know the dangers of airborne and blood-borne pathogens and how to mitigate the risks, including:

7.13.1 Types of pathogens.

7.13.2 Methods of transmission.

7.13.3 Body substance isolation methods.

7.13.4 Personal protective equipment (PPE) for airborne and blood-borne pathogens and its use.

## 8. Land Navigation

8.1 Land Search Team Members shall know the difference between topographic maps and road maps, and the advantages and disadvantages of each.

8.2 On topographic maps, Land Search Team Members shall demonstrate the ability to:

8.2.1 Identify and explain the meaning of common symbols.

8.2.2 Describe legend information and its use.

8.2.3 Identify, and know the significance of, contour lines and spacing.

8.2.4 Identify, and know the significance of, true North, magnetic North, grid North, and declination.

8.2.5 Orient a map using terrain.

8.2.6 Orient a map using a compass.

8.2.7 Determine the distance between two points on a map.

8.2.8 Determine the heading, bearing, or azimuth between two points on a map.

8.3 Land Search Team Members shall know how man-made and naturally occurring phenomenon affect the accuracy of a compass.

8.4 Land Search Team Members shall demonstrate the ability to do the following in the field:

8.4.1 Follow a compass heading, azimuth, or bearing.

8.4.2 Estimate distance traveled in the field.

8.4.3 Using a compass, determine a heading, azimuth, or bearing in the field and plot it on a map.

8.5 Land Search Team Members shall know the advantages and disadvantages of the following when used to determine a position:

8.5.1 Latitude/Longitude.

8.5.2 Universal Transverse Mercator (UTM) Grid system.

8.5.3 U.S. National Grid system (USNG).

8.5.4 References to features on a map.

8.5.5 Any AHJ-specified methods.

8.6 Land Search Team Members shall demonstrate the ability to determine, and communicate to another person, the coordinates of a point on a map in each of the following systems:

- 8.6.1 Latitude and Longitude.
- 8.6.2 Universal Transverse Mercator (UTM).
- 8.6.3 U.S. National Grid (USNG).
- 8.6.4 References to features on the map.
- 8.6.5 Any AHJ-specified methods.

8.7 Land Search Team Members shall demonstrate the ability to plot on a map a location defined by coordinates in each of the following systems:

- 8.7.1 Latitude and Longitude.
- 8.7.2 Universal Transverse Mercator (UTM).
- 8.7.3 U.S. National Grid (USNG).
- 8.7.4 References to features on the map.
- 8.7.5 Any AHJ-specified methods.

8.8 Land Search Team Members shall have a wilderness GPS use endorsement as defined in Guide **F3071**.

## 9. Personal Protective Equipment

9.1 Land Search Team Members shall have, and know how to use, the Personal Protective Equipment (PPE) necessary to safely participate in field search operations, as determined by the AHJ, including:

- 9.1.1 Appropriate clothing, outerwear, footwear, and personal field equipment.
- 9.1.2 Survival equipment.
- 9.1.3 A durable, hands-free method of carrying personal and team equipment into the field.

9.2 To assist the AHJ or the Land Search Team Member with personal equipment decisions, **Appendix X1** contains the following equipment lists:

- 9.2.1 **Table X1.1** is a list of items to be considered for personal equipment.
- 9.2.2 **Table X1.2** is a list of suggested items for a personal first aid kit.
- 9.2.3 **Table X1.3** is a list of suggested items for a personal base camp kit.

9.3 Land Search Team Members shall know the reasons for carrying, and explain or demonstrate the use of, all field equipment required by the AHJ.

9.4 Land Search Team Members shall demonstrate an understanding of mission-specific packing for the normal area of operations.

## 10. Communications

10.1 Land Search Team Members shall demonstrate the ability to verbally communicate information clearly, effectively, and accurately.

10.2 Land Search Team Members shall know the radio communications procedures and protocols used in search missions in the field, as determined by the AHJ.

10.3 Land Search Team Members shall demonstrate the ability to operate the radio equipment used for search missions in the field, as determined by the AHJ.

10.4 Land Search Team Members shall demonstrate the ability to correctly send and receive position coordinates by radio.

## 11. Basic Search and Rescue Knowledge

11.1 Land Search Team Members shall know the meaning of the following terms, as used in search and rescue operations:

- 11.1.1 *Search*.
- 11.1.2 *Rescue*.
- 11.1.3 *Recovery*.
- 11.1.4 *LAST (Locate, Access, Stabilize, Transport)*.

11.2 Land Search Team Members shall know the six phases of search operations:

- 11.2.1 Preplanning.
- 11.2.2 Notification.
- 11.2.3 Planning and Strategy.
- 11.2.4 Tactics and Techniques.
- 11.2.5 Suspension.
- 11.2.6 After action review or critique.

11.3 To the extent determined by the AHJ, Land Search Team Members shall know the roles of other agencies or organizations, at the following levels, that coordinate, provide resources, provide services, or perform other functions in search and rescue for the AHJ.

- 11.3.1 National.
- 11.3.2 State or Provincial.
- 11.3.3 Tribal.
- 11.3.4 Local.

## 12. Search-Specific Knowledge and Skills

12.1 Land Search Team Members shall demonstrate an understanding of the basic principles affecting search operations, including:

- 12.1.1 Search is an emergency.
  - 12.1.1.1 Search urgency depends on a variety of factors (examples of search urgency rating forms are found in Guides **F1633** and **F1767**, as well as other references).
- 12.1.2 Searching for clues, not just subjects.
- 12.1.3 Clue consciousness or awareness.
- 12.1.4 Hasty searches usually precede grid searches.
- 12.1.5 Lost person behavior, including:
  - 12.1.5.1 General classifications of lost persons.
  - 12.1.5.2 Factors that affect lost person behavior.
  - 12.1.5.3 Application of statistical studies of lost person behavior.

12.2 Land Search Team Members shall know the function and importance of lost or missing person questionnaires (examples of questionnaires are provided in Guide **F1767**).

12.3 Land Search Team Members shall know the following terms and understand their significance in search operations:

- 12.3.1 Point Last Seen (PLS).
- 12.3.2 Last Known Point (LKP).
- 12.3.3 Initial Planning Point (IPP).
- 12.3.4 Search segment or area.
- 12.3.5 Probability of Area (POA).
  - 12.3.5.1 Probability of Detection (POD).
  - 12.3.5.2 Probability of Success (POS).



12.3.5.3 Coverage.

12.4 Land Search Team Members shall know the factors that affect POD, including:

- 12.4.1 Searcher speed.
- 12.4.2 Searcher spacing.
- 12.4.3 Terrain.
- 12.4.4 Vegetation and ground cover.
- 12.4.5 Weather.
- 12.4.6 Time of day.
- 12.4.7 Searcher condition.
- 12.4.8 Search subject condition.

12.5 Land Search Team Members shall know the functions of the following land search team positions:

- 12.5.1 Search team leader.
- 12.5.2 Radio operator.
- 12.5.3 Navigator.
- 12.5.4 Search team member.

12.6 Land Search Team Members shall know the actions to be taken upon finding the following:

- 12.6.1 Clues or evidence.
- 12.6.2 The search subject(s) or objective(s):
  - 12.6.2.1 Alive.
  - 12.6.2.2 Deceased.
- 12.6.3 Possible crime scene.

12.7 Land Search Team Members shall know the differences between active (or direct) and passive (or indirect) search tactics, their advantages and disadvantages, and the reasons for their use.

12.8 Land Search Team Members shall know how the following passive or indirect search techniques are performed:

- 12.8.1 Investigation.
- 12.8.2 Attraction.
- 12.8.3 Containment.

12.9 Land Search Team Members shall know how to perform the following active or direct search tactics:

- 12.9.1 *Type I*—Hasty search.

12.9.2 *Type II*—Loose, area, sweep, or efficient search.

12.9.3 *Type III*—Tight, grid, evidence, or thorough search.

12.10 Land Search Team Members shall know how tracking or sign-cutting may be used in search operations.

12.11 Land Search Team Members shall know the following in regard to tracking or sign-cutting:

- 12.11.1 The difference between sign and tracks.
- 12.11.2 The difference between sign-cutting and tracking.
- 12.11.3 The procedures used to preserve tracks or sign and to preserve an area for a tracking team.

12.12 Land Search Team Members shall know the procedures for preserving an area for a search dog team.

12.13 Land Search Team Members shall know the proper procedures for handling scent articles to be used by search dog teams.

12.14 Land Search Team Members shall know the techniques and procedures used for any other search methods used by the AHJ.

12.15 Land Search Team Members shall know the advantages and disadvantages of night search.

12.16 A Land Search Team Member shall demonstrate the ability to perform as a member of a land search team in the normal area of operations. The AHJ shall determine how to evaluate the individual's performance. Written tests, oral tests, or both types may be used in addition to a physical demonstration. Factors to consider include, but are not limited to, the following:

- 12.16.1 Day versus night.
- 12.16.2 Terrain.
- 12.16.3 Season.
- 12.16.4 Hazardous areas.

## 13. Keywords

13.1 equipment; land; personnel; rescue; SAR; search; team; training

## APPENDIXES

### (Nonmandatory Information)

#### X1. BACKGROUND INFORMATION

X1.1 The tables in this appendix were compiled from the equipment lists of 20 local and national search and rescue organizations from across the United States.

X1.1.1 Table X1.2 was revised in 2020 to take into account changes in emergency medical care knowledge and treatments, and the development of more effective materials.

X1.2 The information in these tables is for reference only and the tables are provided to assist an AHJ or Level I Land Search Team Member in making equipment decisions. These are not lists of required equipment. See Section 9 for equipment requirements.

X1.3 The lists are general in nature and should be supplemented by AHJ for specific conditions, for example, winter.

X1.4 Only those lists identified as minimum, basic, 24 hour, hasty, or similar were included in Table X1.1. Equipment lists identified as technical, cold weather, rescue, and so forth were excluded.

X1.5 There were a total of 100 different personal equipment items contained on the 20 lists. No list had all 100 items and only six items were listed on all 20 lists.

X1.6 The items in Table X1.1 were scored in four ways: