



Standard Practice for Visual Signals Between Persons on the Ground and in Aircraft During Ground Emergencies¹

This standard is issued under the fixed designation F 1591; 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 (ϵ) indicates an editorial change since the last revision or reapproval.

1. Scope

1.1 This practice covers the signals to be used between persons on the ground and in aircraft when two-way voice communications cannot be established during ground emergencies. Ground signals are limited to land-based ones that do not require special equipment. Flare, light, panel, and maritime signals are specifically excluded.

1.2 The signals are divided into two categories: those used by persons on the ground and those used by aircraft.

1.3 *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 and health practices and determine the applicability of regulatory limitations prior to use.*

2. Referenced Document

2.1 *International Civil Aviation Organization Standard: International Standards and Recommended Practices, Search and Rescue, Annex 12 to the Convention on International Civil Aviation*²

3. Significance and Use

3.1 While many of the reasons for needing the signals contained in this practice have been overcome by technology development, situations still arise where voice communications cannot be established between aircraft and persons on the ground during emergencies. This is particularly true of persons in distress, who typically have no communications equipment. These signals continue to meet the need for communications.

3.2 Most of these signals have been adopted by international convention, the others by civilian and military agencies of the United States Government. The signals described in this practice are intended for use on land and can be made without special equipment such as flares or colored panels. Other signaling systems are described in the *National Search and Rescue (SAR) Manual*.³

¹ This practice is under the jurisdiction of ASTM Committee F-32 on Search and Rescue and is the direct responsibility of Subcommittee F32.02 on Management and Operations.

Current edition approved April 15, 1995. Published July 1995.

² Available from the International Civil Aviation Organization; Document Sales Unit; 1000 Sherbrooke St. West, Suite 400; Montreal, Quebec, Canada H3A 2R2.

³ *National Search and Rescue (SAR) Manual*, Vol I, Joint Publication 3-50, Feb. 1, 1991. Available from United States Coast Guard; Washington, DC 20953-0001.

3.3 The signals are also useful in situations where either complete or partial voice communications exist. Where only partial capabilities exist, for example, a ground unit with receive-only capability, the aircrew can transmit voice and the ground crew can respond with the appropriate signal.

3.3.1 The signals described in Section 4, by their nature, are not intended for real-time communications with aircraft. They can be left unattended as messages for aircrews. Persons on the ground (SAR or otherwise) can make a signal and continue on without contact with the aircraft. The SAR personnel should keep this in mind when encountering the signals of Fig. 1.

3.4 Search and rescue agencies utilizing this practice should disseminate these signals to the public as part of their preventative search and rescue (PSAR) efforts. The signals have changed over the years and a number of publications contain obsolete signals.

4. Ground-to-Air Signals

4.1 Signals for use by either SAR personnel or persons in distress on the ground are shown in Fig. 1.

4.1.1 The signals in Fig. 1 have been adopted by the Convention on International Civil Aviation. As defined in Annex 12 to the Convention (see 2.1), these signals are divided into those for use by SAR personnel and those for use by persons in distress. Several of the signals have only been adopted by certain countries.

4.1.2 Since the signals are useful regardless of the user's situation or location, this practice includes all of them without limitation. While there may be potential for this to cause confusion for aircrews seeing the signals, this would be a temporary condition and the aircrew's response should not be dependent on the user's status. The benefits of unlimited use of the signals outweighs any confusion caused by their use contrary to the Convention.

4.2 The signals in Fig. 1 shall have the meanings indicated. They shall be used only for the purpose indicated and no other signals likely to be confused with them shall be used.

4.3 All signals shall be as large as possible in the proportions shown in Fig. 2.

4.4 The signals shall be made in a manner that contrasts with the surface on which they are placed. Brush, vegetation, rocks, stones, or surface material can be piled up; trenches dug; soft material stomped down; brush or grass cut down; strips of material laid out; etc. Materials can be combined, such as