



U.S. Department
of Transportation
**Federal Aviation
Administration**

Advisory Circular

Subject: Aircraft Rescue and Fire Fighting Communications **Date:** April 14, 2008 **AC No:** 150/5210-7D
Initiated by: AAS-300 **Change:**

- 1. PURPOSE.** This Advisory Circular (AC) provides guidance to assist airport operators in preparing for Aircraft Rescue and Fire Fighting (ARFF) communications.
- 2. CANCELLATION.** This AC cancels AC 150/5210-7C, Aircraft Rescue and Fire Fighting Communications, dated July 1, 1999.
- 3. APPLICABILITY.** The prompt and efficient response of a modern ARFF service depends on the reliability of its communications and alarm systems. The material contained in this AC applies to the operation of civil airports where aeronautical activity is conducted. Certificated airport operators may use these recommendations and guidelines to satisfy some of the requirements of 14 Code of Federal Regulations (CFR), Part 139, Certification of Airports.
- 4. COPIES OF THIS AC.** The Office of Airport Safety and Standards makes ACs available to the public through the Internet. These ACs may be found online at www.faa.gov. A printed copy of this and other ACs can be ordered from the U.S. Department of Transportation, Subsequent Distribution Office, Ardmore East Business Center, 3341 Q 75th Avenue, Landover, MD 20785.

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1. OVERVIEW OF AIRPORT EMERGENCY COMMUNICATIONS.

The objective of the airport emergency communications system should be to provide a primary and, where necessary, an alternate effective means of direct communication between the following:

a. The alerting authority, Airport Traffic Control Tower (ATCT), Flight Service Station (FSS), Airport Manager, fixed-base operator, or airline office and the Aircraft Rescue and Fire Fighting (ARFF) service.

b. The ATCT or FSS and the ARFF responders' enroute to an aircraft emergency and at the accident or incident site.

c. The dispatcher and ARFF vehicles at the accident/incident site.

d. The ARFF Incident Command (ARFF IC) and appropriate local and mutual aid organizations located on or off the airport, including an alert procedure for all auxiliary personnel expected to participate.

e. The ARFF IC and the Emergency Aircraft.

(1) **Discrete Emergency Frequency (DEF).** The DEF establishes a direct link between the Emergency Aircraft and the ARFF IC for providing critical information about the Emergency Aircraft status, if not previously provided by Air Traffic Control (ATC) to the ARFF IC (e.g., fuel on board, souls on board, hazmat or dangerous goods on board and location in aircraft, pilot intentions, etc.). The ARFF IC will relay information to the Pilot of the Emergency Aircraft about the external situation of the aircraft, whether or not evacuation is recommended, and other hazards that may not be readily apparent to the Pilot. ATC will instruct the Emergency Aircraft and the ARFF IC to switch to the DEF as specified in the ARFF Communications – Operating Procedures Letter of Agreement (LOA) for the Discrete Emergency Frequency between the Airport Operator and ATC (see sample LOA in Appendix 6) and in accordance with section 9.b. (1)(b) of this AC.

(2) **Use of the DEF.** Because of the critical and timely nature of the information transmitted on this frequency, transmissions should be limited to ATC, the Pilot of the Emergency Aircraft, and the ARFF IC.

(3) Emergency hand signals, described in Appendix 1, allow communication of evacuation recommendations from the ARFF IC to the Pilot and/or Cabin Crew in the event of radio communications disruption or failure of the DEF.

f. Each ARFF vehicle(s), including firefighters in the same ARFF vehicle where operationally necessary.

2. AIRCRAFT RESCUE AND FIREFIGHTING COMMUNICATIONS SYSTEM.

a. The ARFF communications system should be consistent with the airport's operational needs and address:—

(1) The initial notification method [alarm, dedicated telephone line (crash phone), two-way non-ATC radio, pager, dispatch service, etc.].

(2) Direct and timely communication of the applicable information to the primary responders.

(3) Communication between primary responders and the following:

(a) Airport controlling agencies, ATCT (Tower, Ground Control, Approach/Departure Control, FSS), and Airport Operations.

(b) Emergency Aircraft (DEF) and Emergency Aircraft at airports without an ATCT or when ATCT is closed [Common Traffic Advisory Frequency (CTAF) or National Guard frequencies].

(c) ARFF responding unit(s) internal command and control (each ARFF vehicle).

(d) Individual ARFF personnel where operationally required.

(e) Supporting units (local jurisdiction and mutual aid organizations).

(f) Airport Operations, Maintenance, and Security.

b. ARFF communications system should include the following:

(1) ARFF vehicles.

(a) Any vehicle that may be employed as the ARFF IC vehicle should have a hard-wired, permanently installed selectable frequency transmitter and receiver (transceiver), not to exclude hard-wired, and permanently installed bases for removable hand-held units. These transceiver units should be capable of operating on any 25-KHz channel in the 118.0–136.975 MHz frequency band.

(b) All other ARFF vehicles should have a transceiver capable of communicating on Tower, Ground, and/or UNICOM frequencies and be hard-wired and permanently installed (not to exclude hard-wired, permanently installed bases for removable hand-held units).

(c) All transmitters should be capable of transmitting 5 nautical miles (9.26 km). All radios and transmitters should be licensed and operated in accordance with Federal Communication Commission regulations (47 CFR Part 87, Aviation Services, subparts D and L apply).

(d) Individual hand-held transceivers with Fire Emergency and Airport Operations frequencies if required (in addition to fixed radios in vehicles).

(2) Dedicated telephone lines or cellular phones/personal paging devices.

(3) Wide-area audible alarms located in strategic places.

(4) Universal light gun signals (see Appendix 2).

(5) Emergency hand signals (see Appendix 1).

3. INITIAL NOTIFICATION (ALARM) SYSTEM: COMMUNICATION OF ALARM FROM ALERTING AUTHORITY TO PRIMARY RESPONDERS.

a. Alert Enhancement. The ARFF station dispatch room at airports with an ATCT should be linked by a non-ATC two-way radio and direct-line telephone to the ATCT, the FSS, or other ATC point.

(1) The emergency direct-line telephone should not pass through any intermediate automated switchboard or operator that could subject the alert calls to delays.

(2) The tone of the emergency telephone bell (or buzzer) should be distinctly different from all other communications signaling devices within hearing of personnel in the dispatch room, on the apparatus floor, or in living quarters, as applicable.

(3) Protection against delays due to telephone bell-buzzer failure should be provided by use of redundant warning lights activated by the same input signal as the telephone ringer. The lights should be strategically located throughout the dispatch room, the apparatus floor, and living space, as dictated by the fire station design and the normal activities of the ARFF personnel.

(4) The ARFF station alarm bells should be linked to the telephone ringer so a call on the emergency telephone circuit simultaneously activates the audible alarm throughout the firehouse.

(5) The alarm circuitry may activate an automatic door-opening device for the vehicle doors in the fire station upon sounding the alarm. Some conditions (climatic, security requirements, or airport noise levels) may make this technique impractical.

(6) At airports not equipped with ground-to-air radio or a formal fire service dispatch room, alarm activation stations should be provided near hangars, shops, fueling stations, and aircraft parking areas where vision of the operational runway is unobstructed, i.e., where service and maintenance personnel normally work, thereby allowing them to quickly activate an alarm upon seeing a need in the operational area for ARFF service.

(7) Passenger loading bridges or areas should be equipped with a method of rapidly alerting the emergency response system in the event of an emergency (e.g., direct access via telephone or alarm system).

b. Airports with an Operating ATCT. The ATCT provides the initial alarm to the ARFF department via one or more of the following methods:

(1) **Crash Phone** – A dedicated landline between the ATCT and ARFF station.

(2) **Alarm** – Siren or other audible device loud enough to be heard distinctly over typical airport noise levels that are audible in all areas where ARFF responders spend duty time.

(3) **Emergency Dispatch Center** – A central dispatching point that receives notice of an aircraft emergency, and alerts and dispatches ARFF responders.

(4) **Cellular Telephone/Paging Device.**

c. Airports without an ATCT. Airports without ATCTs (or at times when the ATCT is closed) should establish a system for notification of ARFF responders (and other emergency responders, if