



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

Advisory Circular

Subject: Aircraft Rescue and Fire
Fighting Communications

Date: 3/26/2024

AC No: 150/5210-7E

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 150/5210-7D, *Aircraft Rescue and Fire Fighting Communications*, dated April 14, 2008.

3 **Applicability.**

The Federal Aviation Administration (FAA) recommends the guidance and specifications in this advisory circular for aircraft rescue and fire fighting communications. This AC does not constitute a regulation, is not mandatory, and is not legally binding in its own right. It will not be relied upon as a separate basis by the FAA for affirmative enforcement action or other administrative penalty. Conformity with this AC is voluntary, and nonconformity will not affect rights and obligations under existing statutes and regulations, except as follows:

1. Use of the standards and guidance in this AC is mandatory for airports that receive funding under Federal grant assistance programs, including the Airport Improvement Program (AIP). See Grant Assurance #34.
2. Use of the standards and guidance in this AC is mandatory for projects funded by the Passenger Facility Charge (PFC) program. See PFC Assurance #9.

This AC provides one, but not the only, acceptable means of meeting the requirements of 14 CFR part 139, *Certification of Airports*.

4 **Principal Changes.**

The AC incorporates the following principal changes:

1. Updated AC with current references.
2. Incorporated latest National Fire Protection Association (NFPA) standard numbers and dates.

3. Rewrote selected paragraphs to provide clarification and promote comprehension.
4. Updated the format of the document and made minor editorial changes throughout.

Hyperlinks (allowing the reader to access documents located on the internet and to maneuver within this document) are provided throughout this document and are identified with underlined text. When navigating within this document, return to the previously viewed page by pressing the “ALT” and “ ←” keys simultaneously.

5 **Where to Find this AC.**

You can view a list of all ACs at

https://www.faa.gov/regulations_policies/advisory_circulars/. You can view the Federal Aviation Regulations at https://www.faa.gov/regulations_policies/faa_regulations/.

6 **Feedback on this AC.**

If you have suggestions for improving this AC, you may use the [Advisory Circular Feedback](#) form at the end of this AC.



John R. Dermody
Director of Airport Safety and Standards

CONTENTS

Paragraph	Page
CHAPTER 1. OVERVIEW OF AIRPORT EMERGENCY COMMUNICATIONS	1-1
1.1 Objective.....	1-1
CHAPTER 2. AIRCRAFT RESCUE AND FIRE FIGHTING COMMUNICATIONS SYSTEM	2-1
2.1 ARFF Communications System Considerations.....	2-1
2.2 ARFF Communications System Components.....	2-1
CHAPTER 3. INITIAL NOTIFICATION (ALARM) SYSTEM: COMMUNICATION OF ALARM FROM ALERTING AUTHORITY TO PRIMARY RESPONDERS	3-1
3.1 Alert Enhancement.....	3-1
3.2 Airports with an Operating Control Tower.....	3-2
3.3 Airports without a Control Tower.....	3-2
3.4 Off-Airport Fire Department.....	3-3
3.5 Multifunction Notification.....	3-3
3.6 Notification of Fire Fighters.....	3-3
3.7 Notification of Dual-Function Personnel.....	3-4
3.8 Notification of Mutual Aid Units.....	3-4
3.9 Dispatch Room Effectiveness.....	3-4
CHAPTER 4. COMMUNICATIONS BETWEEN ARFF PRIMARY RESPONDERS AND OTHERS	4-1
4.1 Control Tower.....	4-1
4.2 Emergency Aircraft Flight Crews.....	4-1
4.3 On Airports without a Control Tower.....	4-2
4.4 Radio Communication for Non-Towered Airports.....	4-2
4.5 Local and Mutual Aid Support.....	4-3
4.6 Airport Operations.....	4-3
CHAPTER 5. LOST COMMUNICATIONS PROCEDURES.....	5-1
5.1 Lost Communications between Control Tower and Emergency Aircraft/ARFF Responders.....	5-1

CONTENTS

Paragraph	Page
CHAPTER 6. RADIO DISCIPLINE	6-1
6.1 Terminology.....	6-1
6.2 Answering Calls.....	6-1
6.3 Prioritizing Calls.....	6-1
6.4 How to Contact the Control Tower.....	6-1
CHAPTER 7. RADIO CALL SIGNS.....	7-1
APPENDIX A. AIRPORT TRAFFIC CONTROL TOWER LIGHT GUN SIGNALS	A-1
APPENDIX B. TRAINING	B-1
B.1 Training for ARFF Personnel.....	B-1
B.2 Training for Air Crews.....	B-1
B.3 Training for Airport Operations, Alerting Authorities, and Local/Mutual Aid Responders.....	B-1
APPENDIX C. STANDARD AVIATION PRONUNCIATION AND RESPONSES	C-1
C.1 ICAO International Phonetic Alphabet.....	C-1
C.2 Radio Terminology	C-1
APPENDIX D. REFERENCE AND RELATED READING	D-1
D.1 ARFF Working Group.....	D-1
D.2 Federal Communications Commission (FCC).....	D-1
D.3 National Fire Protection Association (NFPA).....	D-1
D.4 Airport Trade/ Professional Associations.....	D-2
APPENDIX E. SAMPLE MEMORANDUM OF UNDERSTANDING (MOU) ESTABLISHING PROCEDURES FOR ARFF COMMUNICATIONS	E-1

TABLES

Table 4-1. Fuel Weight/Volume Conversion.....	4-2
Table A-1. Meaning of Control Tower Light Gun Signals.....	A-1

CHAPTER 1. OVERVIEW OF AIRPORT EMERGENCY COMMUNICATIONS

1.1 **Objective.**

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

1. The alerting authority, airport traffic control tower, flight service station, Airport Manager and/or Airport Operations Manager (as delegated), fixed-base operator, or airline office and the Aircraft Rescue and Fire Fighting (ARFF) service;
2. The control tower or flight service station and the ARFF responders en route to an aircraft emergency and at the accident or incident site;
3. The dispatcher and ARFF vehicles at the accident/incident site;
4. The ARFF Command and appropriate local and mutual aid organizations located on or off the airport, including an alert procedure for all auxiliary personnel expected to participate; and
5. The ARFF Command and the emergency aircraft.

1.1.1 The ARFF Command and the Emergency Aircraft.

1.1.1.1 **Discrete Emergency Frequency (DEF).**

The DEF establishes a direct link between the emergency aircraft crew and ARFF Command for providing critical information about the status of the emergency aircraft. ARFF Command relays information to the emergency aircraft crew about the external situation of the aircraft, whether or not evacuation is recommended, and other hazards that may not be readily apparent to the crew. Air traffic control instructs the emergency aircraft crew and ARFF Command to switch to the DEF, as specified in the ARFF Communications – Operating Procedures Memorandum of Understanding (MOU) (see sample MOU in Appendix E).

1.1.1.2 **Use of the DEF.**

Ensure transmissions are limited to air traffic control, the pilot of the emergency aircraft, and ARFF Command due to the critical and timely nature of the information transmitted on this frequency.

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CHAPTER 2. AIRCRAFT RESCUE AND FIRE FIGHTING COMMUNICATIONS SYSTEM

2.1 ARFF Communications System Considerations.

Ensure the ARFF communications system satisfies the airport's operational needs and address the needs of:

- 2.1.1 The initial notification method (alarm, dedicated telephone line (crash phone), two-way non-air traffic control radio, pager, dispatch service, etc.).
- 2.1.2 Direct and immediate communication of the applicable information to the primary responders.
- 2.1.3 Communication between primary responders and the following:
 1. Air traffic controlling agencies, control tower (tower, ground control, approach/departure control, flight service station), and Airport Manager and/ or Airport Operations Manager (as delegated).
 2. Emergency aircraft (DEF) and emergency aircraft at airports without a control tower or when the control tower is closed (Common Traffic Advisory Frequency (CTAF) or National Guard frequencies).
 3. ARFF responding unit(s) internal command and control (each ARFF vehicle).
 4. Individual ARFF personnel where operationally necessary.
 5. Supporting units (local jurisdiction and mutual aid organizations).
 6. Airport operations, maintenance, and security.

Note: Training for ARFF personnel, air crews, airport operations, alerting authorities, and local/mutual aid responders can be found in Appendix B.

2.2 ARFF Communications System Components.

ARFF communications systems include the following components:

2.2.1 ARFF Vehicles.

- 2.2.1.1 All ARFF Command vehicles have a hard-wired, permanently installed, selectable frequency transmitter and receiver (transceiver). These transceiver units are capable of operating on any 25-KHz channel in the 118.0–136.975 MHz frequency band.
- 2.2.1.2 All other ARFF vehicles have a hard-wired and permanently installed transceiver capable of communicating on control tower, ground, and/or UNICOM frequencies.
- 2.2.1.3 All transmitters are capable of transmitting a minimum of 5 nautical miles (9.26 km). License and operate all radios and transmitters in accordance

with Federal Communication Commission regulations (47 CFR Part 87, *Aviation Services*, subparts D (*Technical Requirements*) and L (*Aeronautical Utility Mobile Stations*)).

- 2.2.1.4 Individual hand-held transceivers with fire emergency and airport operations frequencies where mandated (in addition to fixed radios in vehicles).
- 2.2.2 Dedicated telephone lines or cellular phones/personal paging devices.
- 2.2.3 Wide-area audible alarms located in strategic places.
- 2.2.4 Universal light gun signals (see Appendix A).

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

3.1 Alert Enhancement.

The ARFF station dispatch room at airports with a control tower should be linked by a non-air traffic control two-way radio and direct-line telephone to the control tower, the flight service station, or other air traffic control point.

- 3.1.1 Ensure the emergency direct-line telephone does not transmit through any system that could subject the alert call to delays or diminished clarity.
 - 3.1.1.1 Avoid the use of extensions or conference bridge capacity on the administrative phone system to perform the crash phone direct-line telephone function.
 - 3.1.1.2 Ensure that the network implements quality of service and class marks the crash-phone traffic higher than any other traffic (voice, video, or data) when implementing voice over an ethernet network. The network administration and management traffic may be marked higher than the crash-phone voice traffic.
 - 3.1.1.3 Ensure that any central components (PBX, conference bridge, call manager, core routers, virtualized server farms, etc.) are implemented in a fully redundant and fault-tolerant architecture. Use of multiple communications and geographically diverse communications paths are encouraged to provide fault tolerance.
 - 3.1.1.4 Provide a means for a configuration parameter that is selectable on a station by station basis to reduce false or accidental initiations when performing a crash-phone communication.
 - 3.1.1.5 Ensure there is enough capacity for all parties to connect to the conference circuit (see paragraph [3.5](#)) and that it is dedicated to the crash phone function.
 - 3.1.1.6 Connect all components of the crash phone system (including handset stations) to an uninterruptible power supply with an emergency standby power source per paragraph 3.9.2. Ensure the uninterruptible power supply has a minimum capacity to carry the entire load five times longer than the expected time to bring the standby power online.
 - 3.1.1.7 The use of visual indication of which stations have picked up the call is suggested as a best practice.
 - 3.1.1.8 Network monitoring of all devices in the crash phone network through a technology, such as Simplified Network Management Protocol, is encouraged.

- 3.1.2 Design the system to allow the tone of the emergency telephone bell (or buzzer) to be distinct from all other communications signaling devices and within hearing distance of personnel in the dispatch room, on the apparatus floor, or in living quarters, as applicable.
- 3.1.3 Ensure redundant warning lights are activated to provide protection against delays due to telephone bell-buzzer failure, and the warning lights are activated by the same input signal as the telephone ringer. Strategically locate the lights 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. Link the ARFF station alarm bells to the telephone ringer to allow calls on the emergency telephone circuit to simultaneously activate the audible alarm throughout the firehouse.
- 3.1.4 When requested by the airport, it is allowable to have the alarm circuitry open the bay doors upon sounding the alarm. Some conditions (climatic, security procedures, or airport noise levels) may make this technique impractical.
- 3.1.5 Provide alarm activation stations at airports not equipped with ground-to-air radio or a formal fire service dispatch room, locating these stations near hangars, shops, fueling stations, and aircraft parking areas where vision of the operational runway is unobstructed and where service/maintenance personnel normally work. These locations allow the personnel to quickly activate an alarm upon detection of an emergency in the operational area for ARFF service.
- 3.1.6 Equip passenger loading bridges, gates at ramp level, fuel farms, airline operations offices, and aircraft maintenance areas with a method of rapidly activating the emergency response system in the event of an emergency (direct access via telephone or alarm system).

3.2 **Airports with an Operating Control Tower.**

The control tower provides the initial alarm to the ARFF department via one or more of the following methods:

1. Crash Phone. A dedicated landline between the control tower 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 location that receives notice of an aircraft emergency, and alerts and dispatches ARFF responders.
4. Mobile Telephone.

3.3 **Airports without a Control Tower.**

Establish a system for notification of the ARFF department (and other emergency responders, if applicable) through flight service station, en route air traffic control

facilities, air carrier operations departments, public 911 calls, airport operations, and other possible avenues of emergency notification. There must be a secondary alerting system staffed with qualified personnel available for operation. Provide a means for availability of the appropriate communications and alarm control devices at the secondary alerting authority's operating location. They are operational during all times the primary alerting authority is not available to ensure:

1. There is no delay in sending messages.
2. The length and content of messages are appropriate and complete.
3. Information is not degraded by interference (electronic/objects/etc.).
4. Reliable means are used to transmit emergency messages and activate alarm control mechanisms.

3.4 **Off-Airport Fire Department.**

ARFF service is necessary on the airport during air carrier operations at Part 139 certificated airports, with limited exceptions. At non-certificated airports, ensure the off-airport fire station alarm(s) sounds upon activation of the direct emergency line when an off-airport fire department furnishes the rescue and fire-fighting equipment and personnel. The alerting/dispatch for airport emergencies is handled by an emergency direct-line telephone between the airport alerting authority and the off-airport fire department.

3.5 **Multifunction Notification.**

The notification of all units delegated to respond to an emergency at a large airport can be expedited using a "conference" circuit. Such an arrangement allows simultaneous notification. This "conference" circuit includes—

- ARFF service (receives alarm first and respond while remainder of list is being notified).
- Control tower, flight service station, or other control point.
- Airport police/security.
- Airport management (operations and maintenance).
- Military units (at joint-use airports).
- Other authorities on or off the airport as mandated by the Airport Emergency Plan (AEP).

3.6 **Notification of Fire Fighters.**

- 3.6.1 Equip fire stations where personnel are normally present for duty but may be preoccupied with "housekeeping" or training duties with a public address system. This is particularly important at fire stations where the dispatcher room, training room, and

living quarters are physically separated. A public address system can significantly enhance response time and fire fighter effectiveness by providing vital details of the emergency to the fire fighters during turnout, e.g., location of accident or incident site, type of aircraft, number of persons involved, aircraft fuel load, preferred vehicle routing, etc.

- 3.6.2 An integrated public address system may enhance notification to fire fighters at airports with a main ARFF station and one or more substations.

3.7 Notification of Dual-Function Personnel.

Install an audible alarm in all areas where auxiliary fire-fighting personnel are employed to notify them of an emergency recall for ARFF duties at airports employing dual-function personnel or auxiliary fire fighters. See paragraph 3.1.2 above. Provide an alarm with a distinct sound, and loud enough to be heard above the normal noise level.

3.8 Notification of Mutual Aid Units.

Provide a reliable voice communications capability between the ARFF services and any off-airport organizations expected to respond in the airport mutual aid plan. If there is more than one mutual aid responder, the multifunction notification (paragraph 3.5) is utilized.

3.9 Dispatch Room Effectiveness.

- 3.9.1 Design and operate the ARFF service dispatch room to support the control tower's request(s) for an aircraft's inquiry for assistance. Ensure an aircraft's request for assistance is received, evaluated, and acted upon immediately to support the control tower notification of an aircraft's request for assistance. All personnel assigned to dispatch room duties require training in communications equipment operations, proper communications procedures, and emergency plan implementation procedures. See Appendix B for training.

- 3.9.2 Test the communications equipment system daily and ensure there is an emergency standby power source in the event of a power outage.

CHAPTER 4. COMMUNICATIONS BETWEEN ARFF PRIMARY RESPONDERS AND OTHERS

4.1 Control Tower.

After receiving initial information about the emergency via the alarm system, ensure the ARFF/primary responders will receive clearance to proceed onto the airport movement area to the emergency location over the control tower-published ground control and/or control tower frequencies. Provide a means for alternate procedures to be specified in the ARFF Communications – Operating Procedures MOU for the DEF between the Airport Operator and control tower (see sample MOU in [Appendix E](#)).

4.2 Emergency Aircraft Flight Crews.

If available, the control tower provides a DEF to both the emergency aircraft and the ARFF Command in the event of a reported or observed in-flight or ground emergency. ARFF Command delays transmissions to the emergency aircraft crew until cleared by air traffic control, unless the nature of the transmission is **critical** to emergency operation (e.g., ARFF Command sees smoke coming from aircraft prior to landing).

4.2.1 The DEF allows the ARFF Command and the emergency aircraft flight crew to communicate with each other directly so the ARFF Command can issue critical information about the exact nature of, and hazards associated with, an emergency in progress as well as recommendations for action. The DEF is selected by air traffic control from operational frequencies available.

4.2.2 Ensure the DEF is available to the control tower. Air traffic control notifies the emergency aircraft and the ARFF Command in accordance with the MOU ([Appendix E](#)). Include the following elements in the transmission from air traffic control directing the emergency aircraft to the DEF:

1. Aircraft type.
2. The frequency.
3. Statements that ARFF is on the frequency with transmit-and-receive capability.
4. Identification is “ARFF Command”:
 - a. Transmit the following minimum information to the ARFF Command by the control tower or emergency aircraft when time permits: “Souls on Board” – total number of passengers and crew.
 - b. “Fuel on Board” – total quantity in pounds or kilograms. (See [Table 4-1](#).)
 - c. Location and type of any known dangerous goods/hazmat on board.
 - d. Type of emergency, if known.
5. Number and location of non-ambulatory passengers on board, if any, to be uniform with NFPA.

- 4.2.3 The ARFF Command, control tower, and the emergency aircraft is transmitted only on the DEF.

Note: If the emergency aircraft has dumped fuel after declaring emergency with air traffic control, revised fuel on board is passed to the ARFF Command.

Table 4-1. Fuel Weight/Volume Conversion

Note: Conversion Factors: 6.7 lb/gal – 3.04 kg/gal

Pound	Gallons		Kilograms	Gallons
2,000 lbs	300 gal		2,000 Kg	658 gal
5,000	746		5,000	1,645
10,000	1,492		10,000	3,290
15,000	2,239		15,000	4,934
20,000	2,985		20,000	6,579
25,000	3,731		25,000	8,224
30,000	4,478		30,000	9,868
35,000	5,224		35,000	11,513
40,000	5,970		40,000	13,158
45,000	6,716		45,000	14,803
50,000	7,463		50,000	16,447
100,000	14,925		100,000	32,895
150,000	22,388		150,000	49,342
200,000	29,850		200,000	65,789
250,000	37,313		250,000	82,237

4.3 On Airports without a Control Tower.

On airports without a control tower or when the control tower is closed, the emergency aircraft contacts the ARFF Command on the CTAF published for the airport or the civil emergency frequency (121.5 MHz). (Military aircraft emergency frequency - 243 MHz and Marine VHF radio channel 16; short range maritime use 156.8 MHz.)

4.4 Radio Communication for Non-Towered Airports.

ARFF Command should use established non-air traffic control emergency frequency networks for internal communications.

4.5 Local and Mutual Aid Support.

Communications with local and mutual aid follow-on responders are on assigned emergency frequency networks, not the DEF. See paragraphs 2.1 through 2.1.3 for ARFF communications system considerations.

4.6 Airport Operations.

ARFF response units communicate with airport operations personnel over established non-air traffic control communications networks operating on assigned emergency frequencies, not the DEF.

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CHAPTER 5. LOST COMMUNICATIONS PROCEDURES

In the event of the loss of radio communications, and/or loss of communication between ARFF vehicle(s) and control tower, use the information from *Introduction to Aircraft Rescue and Firefighting (ARFF)*, Section 5, Airport Emergency Communications, https://www.faa.gov/airports/airport_safety/aircraft_rescue_fire_fighting/arff-videos/#ARFF-intro. The guidance provided in the video is to be used in the event of radio communications failure. The ARFF vehicle faces the control tower with all emergency lights on and flash the headlights to signal the tower. If control tower personnel see the signal, they use the emergency light signals.

5.1 **Lost Communications between Control Tower and Emergency Aircraft/ARFF Responders.**

Universal control tower light gun signals are transmitted to the aircraft (for clearance to land) and to the ARFF responders in the movement area on the airport (for clearance to cross active runways and taxiways). See [Appendix A](#). Light guns are used for permission to enter and move within the movement area during loss of communications between the control tower and emergency aircraft/ARFF responders.

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CHAPTER 6. RADIO DISCIPLINE

6.1 Terminology.

Use plain language using standard terms and phrases. Avoid occupation-specific jargon and codes (e.g., “10 codes”). In airport/aircraft emergencies, standard aviation pronunciation and references are used. See [Appendix C](#).

6.2 Answering Calls.

Answer calls promptly and concisely. Pronounce words distinctly and slowly, without emotion.

6.3 Prioritizing Calls.

During critical phases of flight (final approach, transition to landing, and touchdown), only control tower and the emergency aircraft transmit on the DEF unless the emergency dictates otherwise (e.g., ARFF Command sees smoke coming from aircraft prior to landing). If there is more than one emergency at an airport simultaneously, the tower designates another frequency or frequencies, other than the DEF (e.g., the landing runway tower frequency), and the same rules and restrictions apply to the tower designated frequency as noted for use of the DEF above.

6.4 How to Contact the Control Tower.

Responders should not assume open field clearances during emergency operations. Prior ATCT authorization is required to avoid increased safety hazards. When using the radio, be careful not to “step on” (transmit over) other transmissions. Provide:

1. name of the receiving facility – who you are calling is identified first,
2. your call sign or vehicle identification,
3. your position,
4. your request,
5. and route if you so desire.
6. After receiving instructions from the control tower, repeat the instructions provided by the control tower.
7. Advise the control tower when your vehicle is clear of the active runway.

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CHAPTER 7. RADIO CALL SIGNS.

Emergency communications only use location/function specific call signs. Make “ARFF Command” the universal identification for who is in charge of the ARFF.

1. Use airport/facility name followed by function.
2. Aircraft use their air traffic control assigned call signs (e.g., American 30, Delta 340, November 123 Papa Alpha, etc.).

Note: Two or more airports in proximity to each other may exercise flexibility in the universal command designation. The airport has the option to use “(Airport Name) Command” to eliminate confusion in identifying a specific incident to the incident commander when communicating over multiple radio systems, instead of the universal designator “ARFF Command”.

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APPENDIX A. AIRPORT TRAFFIC CONTROL TOWER LIGHT GUN SIGNALS**Table A-1. Meaning of Control Tower Light Gun Signals**

Color and Type of Signal	Signal To –		
	Moving Vehicles, Equipment, and Personnel	Aircraft on the Ground	Aircraft in Flight
Steady green	Cleared to cross, proceed or go	Cleared for takeoff	Cleared to land
Flashing green	Not applicable	Cleared for taxi	Return for landing (to be followed by steady green at the proper time)
Steady red	STOP!	STOP!	Give way to other aircraft and continue circling
Flashing red	Clear the taxiway/runway	Taxi clear of runway in use	Airport unsafe, do not land
Flashing white	Return to starting point on airport	Return to starting point on airport	Not applicable
Alternating red and green	Exercise extreme caution	Exercise extreme caution	Exercise extreme caution

Note: See Airport Traffic Control Tower Light Gun Signals Table in Chapter 4 of the Aeronautical Information Manual for the most current information.

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APPENDIX B. TRAINING**B.1 Training for ARFF Personnel.**

1. Demonstrate knowledge of the phonetic alphabet – Appendix C.
2. Be able to identify radio frequencies and channels used by their organization and mutual aid organizations.
3. Demonstrate the use of communication equipment used by their organization.
4. Identify the procedures for receiving an emergency alarm.
5. Identify procedures for multiple or simultaneous alarms and mutual aid.
6. Demonstrate the proper procedure for obtaining clearance from the control tower or other responsible authority for apparatus movement.
7. Identify the local method used to communicate with aircrew personnel.
8. Give an initial status report for a simulated aircraft accident.
9. Be thoroughly familiar with ARFF/control tower/air crew emergency communications procedures (for ARFF Command and anyone who may assume that duty).
10. Review radio discipline section – Chapter 6.
11. Be familiar with standard aviation pronunciation and responses – Appendix C.
12. Comply with Federal Communication Commission rules and procedures.
13. Review lost communications procedures – Chapter 5.

B.1.1 Identify control tower light gun signals – Appendix A.

B.2 Training for Air Crews.

- B.2.1 Familiarize aircrews with ARFF/control tower/air crew emergency communications procedures.
- B.2.2 Review lost communications procedures – Chapter 5.

B.3 Training for Airport Operations, Alerting Authorities, and Local/Mutual Aid Responders.

- B.3.1 Ensure that all participants are practiced and familiar with their duties under the Airport Emergency Plan procedures and duties.
- B.3.2 Review DEF use and procedures.

B.3.3 Practice knowledge of system operation for notification of ARFF responders (and other emergency responders, if applicable).

B.3.4 Familiarize yourself with standard aviation pronunciation and responses – Appendix C.

Note: Training in this AC may be accomplished in conjunction with established recurrent training after initial familiarization.

APPENDIX C. STANDARD AVIATION PRONUNCIATION AND RESPONSES**C.1 ICAO International Phonetic Alphabet**

A	Alpha	(AL-FAH)	S	Sierra	(SEE-AIR-RAH)
B	Bravo	(BRAH-VOH)	T	Tango	(TANG-GO)
C	Charlie	(CHAR-LEE) (or SHAR-LEE)	U	Uniform	(YOU-NEE-FORM) (or OO-NEE-FORM)
D	Delta	(DELL-TAH)	V	Victor	(VIK-TAH)
E	Echo	(ECK-OH)	W	Whiskey	(WISS-KEY)
F	Foxtrot	(FOKS-TROT)	X	X-ray	(ECKS-RAY)
G	Golf	(GOLF)	Y	Yankee	(YANG-KEY)
H	Hotel	(HOH-TELL)	Z	Zulu	(ZOO-LOO)
I	India	(IN-DEE-AH)	1	Wun	
J	Juliett	(JEW-LEE-ETT)	2	Too	
K	Kilo	(KEY-LOH)	3	Tree	
L	Lima	(LEE-mah)	4	Fow-er	
M	Mike	(MIKE)	5	Fife	
N	November	(NO-VEM-BER)	6	Six	
O	Oscar	(OSS-CAR)	7	Sev-en	
P	Papa	(PAH-PAH)	8	Ait	
Q	Quebec	(KEH-BECK)	9	Nin-er	
R	Romeo	(ROW-ME-OH)	0	Ze-ro	

C.2 Radiotelephony**“MAYDAY”**

The international radiotelephony distress signal. When repeated three times, it indicates imminent and grave danger and that immediate assistance is requested.

“PAN-PAN”

The international radiotelephony urgency signal. When repeated three times, indicates uncertainty or alert followed by the nature of the urgency. Do not block or interfere on frequency.

“ROGER”

I have received all of your last transmission. It should not be used to answer a question requiring a yes or a no answer.

“GO AHEAD”	Proceed with your message. Not to be used for any other purpose.
“WILCO”	I have received your message, understand it, and “will comply” with it.
“NEGATIVE”	“No” or “permission not granted” or “that is not correct”.
“AFFIRMATIVE”	“Yes”.
“ETA”	Estimated time of arrival – (runway-on time or at gate).
“SOULS ON BOARD”	Total number people on aircraft (passengers and crew).
“SAY AGAIN”	Used to request a repeat of last transmission. Usually specifies transmission or portion thereof not understood or received.
“FUEL ON BOARD”	Total quantity of fuel on board aircraft in pounds or kilograms.

Examples of other terminology can be found in the International Fire Service Training Association (IFSTA) *Aircraft Rescue and Fire Fighting* (6th edition). Referenced document can be found at: <https://www.ifsta.org/>. The most current Radiotelephony definitions may be found in the Pilot/Controller Glossary at: https://www.faa.gov/air_traffic/publications/.

APPENDIX D. REFERENCE AND RELATED READING**D.1 ARFF Working Group.**

A non-profit international organization dedicated to the sharing of ARFF information between airport fire fighters, municipal fire departments, and others concerned with aircraft fire fighting. For more information, contact the ARFF Working Group:

P.O. Box 1539
Grapevine, TX 76051
(972) 714-9412
<https://arffwg.org/>

D.2 Federal Aviation Administration (FAA).

FAA Publications can be downloaded at <https://www.faa.gov/>.

D.3 Federal Communications Commission (FCC).

The FCC is the Federal agency that regulates interstate and international communications by radio, television, wire, satellite, and cable. For information, including forms or license status, contact the FCC:

445 12th Street, SW
Washington, DC 20554
Toll-free at (888) 225-5322
<https://www.fcc.gov/>

D.4 National Fire Protection Association (NFPA).

The NFPA's mission is to reduce the burden of fire on the quality of life by advocating scientifically based consensus codes and standards, research, and education for fire and related safety issues, including—

- Publication 402 – *Guide for Aircraft Rescue and Fire Fighting Operations*. Describes operational procedures for both airport and structural fire departments with ARFF responsibilities for non-military aircraft.
- Publication 403 – *Standards for Aircraft Rescue and Fire Fighting Services at Airports*. Covers requirements for providing and maintaining ARFF services at airports.

For more information, contact NFPA:

NFPA
1 Batterymarch Park
P.O. Box 9101 Quincy, MA 02269-9101
(617) 770-3000
<https://www.nfpa.org/>

D.5 Airport Trade/ Professional Associations.

Additional information may be obtained from airport associations, including the American Association of Airport Executives (AAAE) and the Airport Council International – North America (ACI-NA). For more information, contact—

AAAE
601 Madison St
Alexandria, VA 22314
(703) 824-0504
<https://www.aaae.org/>

ACI-NA
1615 L St NW #300
Washington, DC 20036
(202) 293-8500
<https://airportsCouncil.org/>

APPENDIX E. SAMPLE MEMORANDUM OF UNDERSTANDING (MOU) ESTABLISHING PROCEDURES FOR ARFF COMMUNICATIONS

(Identifying name) Airport Authority (Air Traffic Control facility) Airport Traffic Control Tower

Memorandum of Understanding Effective: (date)

Subject: Aircraft Rescue and Fire Fighting Communications – Operating Procedures

1. Purpose. To establish operating procedures for direct radio communication between the (identifying name) Aircraft Rescue and Fire Fighting – Incident Commander (ARFF Command), an aircraft flight crew, and the (air traffic control facility) Airport Traffic Control Tower (facility identifier).

2. Scope. The procedures outlined herein describe the authorization, use, and limitations of Discrete Emergency Frequency (DEF) use by aircraft, ARFF, and control tower elements during an aircraft emergency. This MOU is used in conjunction with, and subordinate to, the MOU between (identifying name) airport authority and (facility identifier) control tower to provide emergency services.

3. Responsibilities. Each party to this agreement is responsible for compliance by personnel under their authority with the provisions contained herein. Training, both initial and recurrent, of involved personnel is also the responsibility of the signatories.

4. Airport Authority Procedures.

a. Recognizing the (identifying name) airport authority's overall control of the airport, it has the need to monitor the DEF in use during an emergency for awareness of the situation and for planning purposes. If an aircraft emergency is in progress, the DEF is designated for communications between the ARFF Command, flight crew, and the control tower.

b. The ARFF Command, call sign "(airport) Command" initially utilizes the ground control frequency established for emergency response and maintain contact with (facility identifier) control tower on such frequency until directed to switch to the DEF.

c. When directed to switch to the DEF, the ARFF Command utilizes that frequency for emergency communications with the flight crew. Air traffic control personnel use the phraseology "(airport) Command, (aircraft call sign) on (frequency)."

d. The ARFF Command may request permission from (facility identifier) control tower to establish direct communications, on the DEF, with the flight crew of the aircraft involved in the emergency. The ARFF Command receives direct authorization from (facility identifier) control tower and be assigned to the DEF prior to transmitting on it.

e. At no time during direct communication with the emergency aircraft will the ARFF Command make issue with an air traffic control instruction or clearance. Terminology on the DEF is in accordance with this AC.

f. The ARFF Command notifies the control tower when the status of the emergency allows the release of the DEF. (Facility identifier) control tower then directs the

emergency aircraft and all responding vehicles to return to the normal ground control frequency or as otherwise directed.

5. [Facility identifier] Control Tower Procedures.

a. Once an emergency response has been initiated, the control tower supervisor may elect to have a separate controller coordinate the emergency on the DEF.

b. The controller assigned to coordinate the emergency coordinates (with all appropriate operating positions) for the arrival of the aircraft and the intent/request of responding vehicles to proceed toward the site before issuing clearance for such.

c. Aircraft/vehicles already assigned to the DEF, but not involved in the emergency, is assigned another frequency.

d. The controller assigned to coordinate the emergency approves the ARFF Command to communicate directly with the flight crew of the emergency aircraft, as appropriate.

e. Air traffic control issues instructions for the ARFF Command and aircraft to switch to the DEF. Phraseology: For ARFF Command, “(airport) Command, (aircraft call sign) on (frequency)”. For aircraft, “(aircraft call sign), (airport) Command on (frequency) with transmit and receive capability.”

f. When the DEF is in use, (facility identifier) control tower issues control instructions and information to the flight crew and ARFF vehicles on the DEF.

g. When notified by the ARFF Command that the status of the emergency allows the release of the DEF, (facility identifier) control tower then directs the emergency aircraft and all responding vehicles to return to the normal ground control frequency or as otherwise directed.

Air Traffic Manager,
(Airport name) Airport Traffic Control Tower

Airport Manager
(identifying name) Airport Authority

Chief,
(airport name) Aircraft Rescue and Fire Fighting

Advisory Circular Feedback

Paperwork Reduction Act Burden Statement: A federal agency may not conduct or sponsor, and a person is not required to respond to, nor shall a person be subject to a penalty for failure to comply with a collection of information subject to the requirements of the Paperwork Reduction Act unless that collection of information displays a currently valid OMB Control Number. The OMB Control Number for this information collection is 2120-0746. Public reporting for this collection of information is estimated to be approximately 20 minutes per response, including the time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, completing and reviewing the collection of information. All responses to this collection of information are voluntary FAA Order 1320.46D Send comments regarding this burden estimate or any other aspect of this collection of information, including suggestions for reducing this burden to: Information Collection Clearance Officer, Barbara Hall, 800 Independence Ave, Washington, D.C. 20590.

If you find an error in this AC, have recommendations for improving it, or have suggestions for new items/subjects to be added, you may let us know by (1) mailing this form to Manager, Airport Safety Policy Branch, Federal Aviation Administration ATTN: AAS-310, 800 Independence Avenue SW, Washington DC 20591 or (2) faxing it to the attention of the Office of Airport Safety and Standards at (202) 267-5383.

Subject: AC 150/5210-7E

Date: _____

Please check all appropriate line items:

- An error (procedural or typographical) has been noted in paragraph ____ on page ____.
- Recommend paragraph _____ on page _____ be changed as follows:

- In a future change to this AC, please cover the following subject:
(Briefly describe what you want added.)

- Other comments:

- I would like to discuss the above. Please contact me at (phone number, email address).

Submitted by: _____

Date: _____