Standards for Smokejumper Operations

January 2025

In accordance with Federal civil rights law and U.S. Department of Agriculture (USDA) civil rights regulations and policies, the USDA, its Agencies, offices, and employees, and institutions participating in or administering USDA programs are prohibited from discriminating based on race, color, national origin, religion, sex, gender identity (including gender expression), sexual orientation, disability, age, marital status, family/parental status, income derived from a public assistance program, political beliefs, or reprisal or retaliation for prior civil rights activity, in any program or activity conducted or funded by USDA (not all bases apply to all programs). Remedies and complaint filing deadlines vary by program or incident.

Persons with disabilities who require alternative means of communication for program information (e.g., Braille, large print, audiotape, American Sign Language, etc.) should contact the responsible Agency or USDA's TARGET Center at (202) 720-2600 (voice and TTY) or contact USDA through the Federal Relay Service at (800) 877-8339. Additionally, program information may be made available in languages other than English.

To file a program discrimination complaint, complete the USDA Program Discrimination Complaint Form, AD-3027, found online at www.ascr.usda.gov/complaint_filing_cust.html and at any USDA office or write a letter addressed to USDA and provide in the letter all the information requested in the form. To request a copy of the complaint form, call (866) 632-9992. Submit your completed form or letter to USDA by: (1) mail: U.S. Department of Agriculture, Office of the Assistant Secretary for Civil Rights, 1400 Independence Avenue, SW, Washington, D.C. 20250-9410; (2) fax: (202) 690-7442; or (3) email: program.intake@usda.gov.

USDA is an equal opportunity provider, employer, and lender.

Standards for
Smokejumper Operations
January 2025

Approvals

The Standards for Smokejumper Operations (January 2025) are approved as follows:

SARAH FISHER

Digitally signed by SARAH FISHER
Date: 2025.03.27 14:40:05 -06'00'

SARAH R FISHER
Director - Fire & Aviation Management
U.S. Forest Service

Date

GRANT BEEBE

Digitally signed by GRANT BEEBE
Date: 2025.03.31 09:18:56 -06'00'

GRANT BEEBE
Assistant Director of Fire and Aviation
Bureau of Land Management

Date

Table of Contents

1.0 Introduction 1

1.1 Objectives 1

1.2 Scope 1

1.3 Authority 1

1.4 Interoperability 1

1.4.1 Agency-Specific Needs and Equipment Development 2

1.4.2 Change Process for Standards for Smokejumper Operations 2

1.5 Key to Acronyms 3

1.6 Review and Revision 3

2.0 Administration 4

2.1 Smokejumper Base Reviews 4

2.1.1 Coordination 4

2.2 Smokejumper Incident Reporting 4

2.3 MARS Review Committee 4

2.3.1 Committee Composition 5

2.3.2 Committee Procedures 5

2.3.3 Annual MARS Report 5

2.3.4 MARS Classification 6

2.3.5 MARS Corrective Actions 6

3.0 Training and Qualification Standards 6

3.1 RATG/RATM Revisions and Amendments 6

4.0 Equipment Standards 6

4.1 Aircraft Accessories 6

4.2 Parachute Rigging 7

4.3 Paracargo 7

5.0 Operating Procedures 7
5.1 Booster Aircraft, Pilots, and Smokejumpers 7
5.1.1 Aircraft Familiarization 7
5.1.2 Pilot Orientation and Operational Familiarization 7
5.1.3 Smokejumper Orientation and Operational Familiarization 8
5.2 Spotter Commands 8
5.3 Pre-Jump Equipment Checks 8
5.4 Drop Criteria 9
5.5 Flight Techniques 9
5.6 Number of Smokejumpers per Stick 9
5.7 Streamer Dropping 9
5.8 Drop Altitudes 9
5.9 Exit Technique 9
5.10 Ground Procedures 9
5.10.1 Radio Communications 9
5.10.2 Ground-to-Air Signaling Techniques 10
6.0 Emergency Procedures 10
6.1 Non-Critical Emergency Exit 10
6.2 Critical Emergency Exit 10
6.3 Aircraft Crash on Takeoff 11
6.4 Crash Landing Procedures 11
6.5 Aircraft Fire in Flight 12
6.6 Cargo-in-Tow 12
6.7 Parachute Landing Injury Procedures 12
7.0 Appendices 13
7.1 Spotter Command Checklist 13

7.2 Interagency Smokejumper Interoperability 14
7.2.1 Intent 14
7.2.2 Operating Plan 14
7.2.3 Mixed-Load Operations 14
7.2.4 Mixed-Stick Operations 14
7.2.5 Training 15
7.2.6 Equipment Sharing 15
7.3 Ram-Air Equipment Checklists 16
7.3.1 Ram-Air Equipment Checklist 16
7.3.2 Ram-Air Secondary Equipment Checklist 18
7.4 Revision Summary 19
Glossary 20

This page intentionally left blank.

1.0 Introduction

1.1 Objectives

Guidance in the Standards for Smokejumper Operations is based on the following objectives:

1. Promote safe, effective, and efficient interagency smokejumper operations.
2. Provide seamless interagency smokejumper support to fire management.
3. Support standardization of smokejumper operations, training, certification, currency, equipment, and operating procedures.

1.2 Scope

The standards and procedures established in the Standards for Smokejumper Operations apply to smokejumper operations conducted by both the USDA Forest Service (FS) and the USDI Bureau of Land Management (BLM) during interagency operations.

1.3 Authority

In addition to the authorities outlined in each agency's guiding documents, the following agreements apply to the Standards for Smokejumper Operations:

1. Interagency agreement among the U.S. Department of Agriculture, Forest Service; U.S. Department of Interior, Bureau of Land Management; U.S. Department of Labor, Occupational Safety and Health Administration for the Joint Operations of Smokejumper Parachute Delivery Systems (2016).
2. Memorandum of Understanding between the U.S. Department of Interior and U.S. Department of Agriculture (January 28, 1943).
3. Interagency Agreement between the U.S. Department of Interior, Bureau of Land Management and U.S. Department of Agriculture, Forest Service for the Joint Operation of Smokejumper Resources (April 12, 1985).

1.4 Interoperability

The interagency smokejumper program strives to maintain a high standard of operational support to fire management through the concept of total mobility and the seamless exchange of personnel regardless of agency or home base. To achieve this goal, the Forest Service and BLM shall work in a collaborative manner to ensure operating procedures and equipment are ***at least*** compatible for smokejumpers to operate with interagency mixed loads.

The agreed-upon level of interoperability will be identified in Section 7.2 of the Standards for Smokejumper Operations. Changes to interoperability levels will be agreed on by the Interagency Base Managers (IABM) and communicated to the Chief, Preparedness and Suppression Standards (BLM), AFS Fire Operations Branch Chief (BLM), and Assistant Director, Aviation (FS).

1.4.1 Agency-Specific Needs and Equipment Development

While recognizing that agency-specific needs may preclude standardization of all procedures and equipment, the interoperability of the two agencies' smokejumper programs shall be maintained. To ensure safe and efficient smokejumper operations, both agencies agree to work in a collaborative manner to ensure operating procedures and equipment remain compatible for interagency smokejumper operations. This is accomplished by adhering to the following:

1. The BLM will provide copies of proposed and informational MODOCs to the FS National Smokejumper Program Manager. Proposed MODOCs will be shared after approval to proceed to the MODOC Review Board. Informational MODOCs will be shared when finalized. Within 14 days of receiving a copy, the FS National Smokejumper Program Manager will provide comments on any potential adverse impacts.

2. The FS will provide a copy of equipment or procedural change proposals to BLM Smokejumper Base Managers during or immediately after FS Smokejumper Base Managers Council (SBMC) review, but prior to smokejumper functional area tasking. Proposals that reach testing or implementation phases will be provided to the BLM for comment on the risk analysis. Within 14 days of receiving a copy, BLM Smokejumper Base Managers will provide comment on any potential adverse impacts.

1.4.2 Change Process for Standards for Smokejumper Operations

Agency proposals to revise or modify contents of the Standards for Smokejumper Operations will be shared with the respective agency by November 1 each year. The Interagency Base Manager (IABM) group shall review the proposal(s) by December 15 with adoption of proposals contingent on both agencies' agreement.

Annually, the Interagency Base Manager group shall review the past season's significant events, and affirm or re-assess the status of interoperable procedures and equipment. Affirmation or change in status will be annotated in the meeting's minutes and Appendix 7.2.

1.5 Key to Acronyms

The following table explains acronyms used in the Standards for Smokejumper Operations.

Table 1.5: Acronyms

Acronym	Definition
AAD	Automatic Activation Device
AFS	Alaska Fire Service
AGL	Above Ground Level
BLM	USDI Bureau of Land Management
FS	USDA Forest Service
IABM	Interagency (Smokejumper) Base Managers
IRPG	Incident Response Pocket Guide
ISMOG	Interagency Smokejumper Operations Guide (replaced by Standards for Smokejumper Operations)
MARS	Malfunction Abnormality Reporting System
MODOC	Smokejumper Modification Document System (BLM)
NTDP	National Technology and Development Program
RATG	FS Ram-Air Parachute Training Guide
RATM	BLM Ram-Air Parachute Training Manual
RSL	Reserve Static Line
SAFECOM	Aviation Safety Communique
SASES	Smokejumper Aircraft Screening and Evaluation Subcommittee
SBMC	Smokejumper Base Managers Council (FS)

1.6 Review and Revision

The standards and procedures outlined in the Standards for Smokejumper Operations will be reviewed annually at the Interagency Base Managers (IABM) Meeting. Recommendations from this meeting for updating, amending, and making additions to the Standards shall be forwarded to the following officials for approval: FS – Assistant Director, Aviation, Washington Office, and BLM – Director of Fire and Aviation, National Office.

2.0 Administration

2.1 Smokejumper Base Reviews

Annually a minimum of two smokejumper bases shall receive a thorough review. Each smokejumper base shall be reviewed at least once every five years.

The focus of a base review is to ensure that smokejumper operations are conducted safely and efficiently and in accordance with standards.

Organizational structure, operational procedures, equipment, training, facilities, and record keeping systems shall be reviewed and assessed.

Examples of checklists that may be used to accomplish base reviews are the Forest Service Smokejumper Base Review Checklist (see Forest Service Standards for Smokejumper Operations) and BLM Preparedness Review Checklist.

2.1.1 Coordination

1. FS base reviews will be coordinated by the FS National Smokejumper Program Manager.
2. BLM base reviews will be coordinated by the BLM Division of Fire Operations (FA 300).

2.2 Smokejumper Incident Reporting

Each smokejumper base shall report smokejumper accidents, incidents, and injuries according to their agency's policies. Smokejumper operations are conducted in an intense, high-risk environment requiring attention to detail, standards, and accident/incident prevention.

Base Managers shall immediately notify other smokejumper bases when an incident occurs that involves an immediate risk to other bases. Circumstances of incidents or hazardous conditions should be documented on the MARS, SAFECOM, and/or SAFENET reporting systems.

2.3 MARS Review Committee

The MARS Review Committee reviews and analyzes all Malfunction Abnormality Reporting System (MARS) database entries to ensure inputs are complete and to identify trends. The committee reports on their findings at the annual Interagency Base Manager Meeting. For more detailed information about the composition of the committee and their operating procedures, contact the USFS Smokejumper Washington Office MARS committee representative.

2.3.1 Committee Composition

The committee is comprised of six representatives as follows:

1. Two BLM Smokejumper representatives (one from Alaska and one from Boise).
2. Two USFS Smokejumper representatives.
3. One representative from NTDP (serving as a non-voting SME consultant).
4. One representative from the USFS Smokejumper Washington Office (serving as a non-voting safety support consultant).

One of the six members will serve as the chair, as selected by the Interagency Base Managers. The chair will have a three-year term; other members will have a two-year term.

2.3.2 Committee Procedures

When a MARS is filed, the USFS Smokejumper Washington Office representative will disseminate it to the other committee members. From June through August, the committee will have at least three conference calls to discuss the MARS entries filed within that timeframe. Any MARS needing further information or input from SMEs and/or bases will be identified during those conference calls. A member of the committee is then assigned as a “steward” for that MARS, ensuring all necessary information is included and all bases have been provided an opportunity for feedback.

2.3.3 Annual MARS Report

The USFS Smokejumper Washington Office (WO) representative compiles a list of all the MARS for a given year. The committee meets annually before the Interagency Base Manager Meeting to review all the MARS generated that year.

The committee chair ensures completion of an annual MARS report that:

1. Summarizes the MARS of that year.
2. Identifies any trends.
3. Analyzes the MARS and trends compared to those of past years.
4. Ensures each MARS is complete.
5. Reports any significant findings to the Base Managers and relevant SME subgroups.

The annual report must be completed by mid-November to provide the Base Managers with adequate time for review. The report will be stored on each agency’s SharePoint site.

2.3.4 MARS Classification

The committee will review each MARS entry for appropriateness of classification. A MARS may be reclassified if necessary if all voting members concur. If voting members do not concur, classification will be pushed to a Base Managers executive session for a decision.

2.3.5 MARS Corrective Actions

The committee will work with the submitting unit to determine a corrective action, and when one is identified, enter it into the database. Corrective actions must include the correct procedures or specifications stated in the relevant agency guide or manual. The committee will review MARS corrective actions to ensure completion. If no corrective action can be identified, this will be noted, showing completion of the MARS.

3.0 Training and Qualification Standards

Agency specific training and qualification standards can be found in the BLM Ram-Air Parachute Training Manual (RATM) and the FS Ram-Air Parachute Training Guide (RATG). Each agency shall accept the other agency's training and qualification standards on the condition that they do not impede compatible operations.

3.1 RATG/RATM Revisions and Amendments

The RATG and RATM are reviewed annually by the FS and BLM, respectively, each fall/winter prior to the next year's training season. Emphasis will be placed on aligning the RATG and RATM as needed to maintain continued interoperability. Proposed revisions and/or amendments will be fine-tuned by each agency in a series of meetings following fire season and then presented and discussed at the annual Interagency Base Manager Meeting (usually held in December). Approval of RATG revisions/amendments remains with the USFS Smokejumper Base Managers Council, and approval of RATM revisions/amendments remains with the BLM Base Managers.

4.0 Equipment Standards

Agency-specific equipment standards can be found in the BLM Approved Equipment List and the FS Standards for Smokejumper Operations. Each agency shall accept the other agency's equipment standards on the condition that they do not impede compatible operations.

4.1 Aircraft Accessories

NTDP will maintain drawings and specifications for smokejumper aircraft accessories as applicable.

4.2 Parachute Rigging

Parachute rigging shall be conducted in accordance with each agency's policies, manuals, and guides.

4.3 Paracargo

Load, position, and secure paracargo on aircraft consistent with the manufacturer's instructions concerning weight and balance limitations for each aircraft.

5.0 Operating Procedures

The management of safe and efficient smokejumper delivery missions is the responsibility of all personnel involved and is enhanced through standardized procedures. This section provides guidance for interagency smokejumper operations.

5.1 Booster Aircraft, Pilots, and Smokejumpers

To facilitate the mobility and use of smokejumpers, aircraft, and pilots, the following procedures shall be followed:

5.1.1 Aircraft Familiarization

Smokejumpers shall receive an operational briefing on aircraft types they have not had training on during the current season. This briefing shall include, but not be limited to the following items:

1. Personnel loading and restraint.
2. Jump door opening procedures.
3. Hook-up and exit procedures.
4. Aircraft ground evacuation procedures.
5. Aircraft in-flight emergency hook-up and exit procedures ~~mockup~~.
6. Aircraft safety and emergency procedures briefing from pilot.

5.1.2 Pilot Orientation and Operational Familiarization

All new pilots shall receive a briefing before conducting flight operations from any given base. The briefing shall include, but not be limited to the following items:

1. Base organization, staffing, and operations.
2. Dispatching, communications, and operational controls.
3. Aircraft loading, restraint, and manifest requirements.

4. Spotter coordination, cargo dropping commands, and communications.
5. Operating area familiarization, including local hazards and flight safety information.
6. Requirements and limitations on using backcountry airfields.

5.1.3 Smokejumper Orientation and Operational Familiarization

Each base shall prepare an orientation package. Smokejumpers shall receive a briefing before being assigned to any incident. (This does not apply to initial attack requests). The briefing shall include information about the following:

1. Base organization, staffing, and operations.
2. Current fire situation and status, and fire weather forecasts.
3. Smokejumper aircraft.
4. Fire call procedures.
5. Jump procedures.
6. Radio systems and communications procedures.
7. Fire management procedures and standards.
8. Equipment return procedures.
9. Work and physical training (PT) schedules.
10. Timekeeping procedures.
11. Meals, lodging, and transportation arrangements.
12. First aid equipment and procedures.
13. General policies.

5.2 Spotter Commands

A copy of the Interagency Spotter Command Checklist (See Appendix 7.1) shall be posted near the jump door of all smokejumper aircraft.

The commands and procedures specified in the Interagency Spotter Command Checklist will be used in all interagency operations.

5.3 Pre-Jump Equipment Checks

Smokejumpers will receive pre-jump equipment checks by qualified personnel either on the ground or in-flight. See Interagency Ram-Air Equipment Checklist and Secondary Equipment Checklist in Appendix 7.3.

5.4 Drop Criteria

1. BLM jump/no jump decisions shall be made using BLM spotting criteria outlined in agency policy documents.
2. FS jump/no jump decisions shall be made using FS spotting criteria outlined in agency policy documents.

5.5 Flight Techniques

For flight techniques, refer to the latest versions of the FS Ram-Air Parachute Training Guide (RATG) and BLM Ram-Air Parachute Training Manual (RATM).

5.6 Number of Smokejumpers per Stick

Smokejumpers per stick will range from one to four based on agency policy and spotter discretion.

5.7 Streamer Dropping

Standard 20-foot drift streamers will be dropped at 1,500 feet AGL.

5.8 Drop Altitudes

1. Smokejumpers using a ram-air parachute system will be dropped at a minimum of 3,000 feet AGL.

5.9 Exit Technique

1. Smokejumpers using a ram-air parachute system will use a sitting exit on all aircraft.

5.10 Ground Procedures

Maintaining safe, efficient, and effective incident operations and post-fire operations is imperative. Prior to taking action on any incident, the smokejumper-in-charge shall ensure a thorough briefing is conducted using the components of the briefing checklist in the IRPG.

5.10.1 Radio Communications

1. The smokejumper-in-charge shall have a radio. It is recommended that all smokejumpers be issued a radio.
2. On landing, if conditions have substantially changed, the first smokejumper should immediately contact the aircraft and inform the spotter. If jump conditions differ from those originally anticipated, the spotter will reevaluate the conditions.

3. The smokejumper-in-charge should ensure that the spotter is informed when all smokejumpers are safely on the ground and ready to receive cargo.
4. As soon as possible, the smokejumper-in-charge shall establish communication with the local dispatch authority.

5.10.2 Ground-to-Air Signaling Techniques

1. Each smokejumper shall carry a streamer to signal the aircraft when radio communication is not possible. In the absence of radio contact with the smokejumper aircraft, smokejumpers landing outside the established jump spot will place an individual “L” signal streamer to signal safety.
2. Each smokejumper should also carry a streamer to hold aloft as a wind indicator. The first smokejumper in the jump spot, or their jump partner, should hold a streamer aloft until all smokejumpers are on the ground.

6.0 Emergency Procedures

The Standards for Smokejumper Operations shall be the “source” document for emergency procedures. If these procedures are duplicated in training materials, other manuals, or guides, care should be taken that they align with this document.

Situations that require an emergency exit vary. The spotter-in-charge shall be responsible for maintaining control during an emergency. Detailed instructions on emergency procedures are specified in agency-specific training manuals/guides, including the BLM Ram-Air Parachute Training Manual (RATM), and FS Ram-Air Parachute Training Guide (RATG).

6.1 Non-Critical Emergency Exit

The pilot shall inform the spotter on the nature of the emergency and the course of action. If an emergency exit is necessary, the spotter shall be responsible for maintaining control over the smokejumpers and for ensuring that the emergency exit is orderly and timely. Emergency exit procedures in a non-critical emergency are usually the same as those for an operational jump. In some cases, the spotter may even select a jump spot.

6.2 Critical Emergency Exit

The spotter must assume control in a critical emergency to ensure that exits proceed as smoothly and quickly as possible. The following are considerations and procedures for an emergency exit in a critical emergency:

1. **Center of Gravity Limitations.** A pilot cannot maintain adequate control of an aircraft with an aft center of gravity; therefore, a spotter must not allow smokejumpers to rush toward the aircraft door if they anticipate an emergency exit.
2. **Decision to Initiate Emergency Exit.** The pilot shall be the primary authority in matters pertaining to the aircraft's condition and the necessity for an emergency exit. The pilot shall notify the spotter to initiate an emergency exit. Before initiating an emergency exit, the spotter must be certain that a crash is imminent and that the aircraft is high enough for a parachute to open. During a critical emergency exit from a smokejumper aircraft, gloves, helmets, and other protective equipment may be left behind. The standard callout for an emergency bailout is **"BAILOUT, BAILOUT, BAILOUT."**
3. **Critical Emergency Exit Procedures with Main Parachute.** If smokejumpers are wearing main parachutes when the pilot or spotter orders an exit, the smokejumpers shall use the designated emergency cable. Depending on the aircraft accessories, smokejumpers may need to keep one hand on the static line snap to guide it along the cable while moving toward the door. This prevents the main parachutes from opening accidentally in the aircraft.
4. **Exit Procedures with Reserve Parachute.** Smokejumpers shall jump with their emergency parachute when it is impractical to hook their static lines to the emergency cable or if they are not equipped with main parachutes.

6.3 Aircraft Crash on Takeoff

1. All personnel shall be prepared for an aircraft crash on takeoff. Smokejumpers and spotters shall use proper seating arrangements for the model aircraft used in the operation and must know where all the emergency exits are located and how to use them.
2. If the aircraft crashes on takeoff, personnel shall evacuate the aircraft as soon as the aircraft stops moving.
3. Be alert to smokejumpers and crewmembers who may have been hurt or incapacitated in the crash, and get them out quickly.
4. Evacuate away from any fire that exists, depart the crash upwind, and account for all personnel.

6.4 Crash Landing Procedures

Whenever possible, follow the procedures below when a crash landing is imminent:

1. Put on helmet and gloves. Assume a fetal position, arms close to the body, with seat belt or restraint device snugly attached. Occupants of side-facing seating shall attempt to face 45 degrees to the front of the aircraft.

2. Because the pilot's control of the aircraft may be very limited in an emergency, restrict unnecessary movement in the aircraft.
3. Locate emergency escape hatches and equipment.
4. After a crash, vacate the aircraft quickly and in an orderly manner. Be alert to smokejumpers or crewmembers who may have been hurt or incapacitated in the crash, and get them out quickly. Evacuate and depart the aircraft upwind, and account for all personnel.

6.5 Aircraft Fire in Flight

The spotter and pilot shall make a coordinated decision concerning appropriate action if a fire occurs in flight. The spotter must maintain control of the situation and take aggressive action to control the fire. If the fire becomes uncontrollable, begin emergency evacuation procedures.

6.6 Cargo-in-Tow

Unless briefed otherwise prior to cargo operations, cargo-in-tow will be cut away and the pilot immediately notified.

6.7 Parachute Landing Injury Procedures

If a jump injury occurs, the spotter will assess the situation and take appropriate action. Responsibilities are outlined in the following table. In addition to compliance with agency policies and procedures, all smokejumper jump injuries shall be reported to NTDP for inclusion in their Parachute Landing Injury Database.

Table 6.7: Parachute Landing Injury Responsibilities[1]

Smokejumper-in-Charge	Spotter	Medical Personnel
1. Notify spotter. 2. Coordinate patient care, helispot construction, and incident activities. 3. Utilize protocols for medical response listed in the IRPG.	1. Maintain communication with smokejumper-in-charge, dispatch, and medevac transport. 2. Aircraft will remain on scene as appropriate. 3. Drop all requested emergency medical supplies and medical personnel. 4. Direct medevac transport to scene.	1. Assess patient. 2. Render patient care.

[1] The jump injury responsibilities outlined in the above table are also included in the Forest Service Standards for Smokejumper Operations (Table 7.6.1). Any updates to this table should be made in both places.

7.0 Appendices

7.1 Spotter Command Checklist

- The spotter in charge of each mission should be clearly identified.
- Note: Prior to dropping ram-air smokejumpers, spotter should request from pilot any noticeable wind changes at 3,000 feet AGL. Adjust exit point accordingly. Although rarely necessary, streamers thrown from 3,000 feet AGL are always an option.
- Spotter signals to the smokejumpers the number in the stick.

Spotter Command	Details
1. "Are you ready?" & "Leg straps tight?"	These two questions are asked of the first smokejumper in each stick, who then answers for the entire stick. Being ready means you have been checked, PG bag is hooked up, and helmet is on.
2. "Hook up."	This command is given to the entire stick. FS-14 smokejumpers hook up to the appropriate cable (vertical/horizontal/floor). Ram-air smokejumpers hook to appropriate extender handed them by the spotter.
Pre-Jump Briefing End the briefing by asking, **"Any questions?"**	Should include as a **minimum**: jump spot confirmation, jump spot hazard identification (if any), estimated streamer drift, type of drop pattern, jump spot elevation, and pertinent wind info at 3,000 feet AGL (ram-air smokejumpers only).
3. "We are at 3,000 ft."	This command prompts ram-air jumpers to arm or verify the AAD is armed. (The spotter, before giving this command, will confirm with the pilot that the aircraft has leveled off at 3,000 feet AGL.) This command will always be given prior to the jumper getting in the door. The spotter will verify ram-air jumpers have armed their AADs prior to getting in the door.
4. "Get in the Door."	This command is given to the first smokejumper in the stick before or after the pre-jump briefing for FS-14 smokejumpers and after the briefing for ram-air smokejumpers. This command also prompts the ram-air smokejumper's 4-point check. All ram-air exits will be sitting. FS-14 exits will be using the step or standing, depending on the type of aircraft.
5. "Turning final 1,500/3,000 ft. Static Lines Clear."	Confirmation given so that each smokejumper in the stick can hear. The spotter may have notified the smokejumper that their static line is clear and confirmed the jump altitude, but this is a final check. Pilot confirms "On Final, 1,500/3,000 feet" with spotter. Minimum FS-14 altitude is 1,500 feet AGL. Ram-air drop altitude is 3,000 feet AGL.
6. "Get Ready."	Command given just prior to slapping first smokejumper out the door. **FS-14:** Slap only the first smokejumper in the stick. **Ram-air:** Slap each smokejumper, spacing smokejumpers a minimum of three seconds apart. Exiting ram-air jumper's drogue static lines can be cleared for the next smokejumper in the stick by sliding it toward the upper left corner of the door after the drogue has deployed from the deployment bag.

7.2 Interagency Smokejumper Interoperability

7.2.1 Intent

The interagency smokejumper program strives to maintain seamless operational support to fire management entities through the concept of total mobility and the interchange of personnel regardless of agency or home base.

7.2.2 Operating Plan

Interoperability is achieved through either mixed-load operations with FS and BLM ram-air jumpers or through mixed-stick operations with FS and BLM ram-air jumpers.

7.2.3 Mixed-Load Operations

Mixed loads consist of BLM and FS ram-air jumpers operating on the same aircraft but not jumping in the same stick.

Interagency components include:

1. Adherence to the procedures and protocols in the Standards for Smokejumper Operations.
2. Adherence to the Interagency Spotter Command Checklist (see Appendix 7.1.)

7.2.4 Mixed-Stick Operations

Mixed sticks consist of BLM and FS ram-air jumpers operating on the same aircraft with the capacity to jump in the same parachute stick.

Interagency components include:

1. Adherence to the procedures and protocols in the Standards for Smokejumper Operations.
2. Adherence to the Interagency Spotter Command Checklist (Appendix 7.1).
3. Adherence to the Interagency Ram-Air Equipment Check and Secondary Equipment Check procedures (Appendix 7.3).
4. Compatible jump count procedures ensuring equal deployment altitudes.
5. Annual training for jumpers and spotters will include: (1) stick sorting tactics to mitigate differences in body weight, canopy types, and jump experience; and (2) parachute flight training incorporating compatible vertical and horizontal separation techniques, flight patterns, and approaches.

Agencies or bases may opt to restrict mixed stick operations to same canopy type and/or to training jumps.

7.2.5 Training

Jumpers from both agencies may conduct or receive training from either agency when the following criteria is met:

1. Established process to communicate change proposals involving smokejumper training guides or manuals is in place and being executed.
2. Procedural and/or equipment differences are identified and mitigated through sending/receiving training supervisors.
3. All mixed-load or mixed stick components are implemented.

7.2.6 Equipment Sharing

Jumpers from both agencies may utilize equipment from either agency when the following criteria is met:

1. Established process to communicate change proposals to approved equipment and rigging procedures is in place and being executed.
2. Smokejumper equipment components are manufactured to same or equivalent technical drawings.
3. Personnel parachutes are rigged according to the same or equivalent rigging manuals.

7.3 Ram-Air Equipment Checklists

7.3.1 Ram-Air Equipment Checklist

Start at the bottom and work up, touching each item as you go. If you find a mistake, fix it, then return to the previous item and begin again.

1. Are you ready for a check?
2. You are jumping a _____. (Jumper gives positive response).
3. Jump pant stirrups under boot.
4. Zippers on jumpsuit pants down.
5. Leg pockets cinched with no excess cargo hanging out.
6. Harness leg straps over crotch protector, untwisted, and snapped, metal to metal.
7. All 3 PG bag straps clear and routed correctly.
8. Main container belly bands routed through belly band loops; attachment hardware snapped into reserve.
9. Good due date on reserve.
10. Reserve handle properly seated.
11. Curved reserve locking pins properly seated and sealed.
12. Lower RSL properly routed from locking pins to lower snap shackle and closed.
13. Upper RSL properly routed to upper snap shackle and closed.
14. Have you done a self-test? (CYPRES) / Is your AAD armed? (Vigil)
15. Reserve knife blade good? (Snapped in place facing away from jumper).
16. Carabineer through harness droop risers, barrels fully closed with light pressure.
17. Chest strap properly routed through buckle and seated on Velcro if equipped, otherwise chest strap is routed through elastic keeper.
18. Drogue release handle properly seated.
19. Main release/cutaway handle properly seated.
20. Left and right 3-ring release assemblies properly attached to parachute risers. Lightly pull cable housing to verify proper connection and routing. *(Inboard, medium ring through large ring, small ring through medium ring, soft loop through small ring,*

through grommet, through ring terminal, cable through soft loop and stowed.) Verify assemblies are free from any debris and are not wet.

21. Drogue release 3-ring assembly properly attached to drogue bridle. *(Large ring up, medium ring through large ring, small ring through medium ring, soft loop through small ring, through grommet, cable through soft loop and stowed).* Verify assembly is free from any debris and is not wet.
22. Rubber band keeper is connected correctly to drogue bridle and drogue 3-ring assembly is in proper alignment.
23. Pull-the-dot snaps attaching main container to harness are connected and routed correctly.
24. Curved locking pin properly seated on main container.
25. Drogue bridle below pin extends to bottom of pin cover flap.
26. Static line in good condition.
27. Static line weak link in good condition.
28. Static line clip is functional.
29. Give static line clip to jumper; ask if he or she has at least the following items: helmet, gloves, and letdown rope.

7.3.2 Ram-Air Secondary Equipment Checklist

Start at the bottom and work up, touching each item as you go. If you find a mistake, fix it, then return to the previous item and begin again.

1. PG bag straps routed correctly and hardware connected.
2. Main container belly band through belly band loops, attachment hardware snapped into reserve.
3. Left and right 3-ring release assemblies properly attached to parachute risers. Lightly pull cable housing to verify proper connection and routing. *(Inboard, medium ring through large ring, small ring through medium ring, soft loop through small ring, through grommet, through ring terminal, cable through soft loop and stowed.)* Verify assemblies are free from any debris and are not wet.
4. Drogue release 3-ring assembly properly attached to drogue bridle, large ring up. *(Large ring up, medium ring through large ring, small ring through medium ring, soft loop through small ring, through grommet, cable through soft loop and stowed.)* Verify assembly is free from any debris and is not wet.
5. Rubber band keeper of the harness is connected correctly to drogue bridle and drogue 3-ring assembly is in proper alignment.
6. Curved locking pin properly seated on main container.
7. Drogue bridle below pin extends to bottom of pin cover flap.

7.4 Revision Summary

The Standards for Smokejumper Operations (January 2025) was developed from and replaces the Interagency Smokejumper Operations Guide (ISMOG). Extensive revisions were made to bring the material up to date.

A complete list of revisions made is on file with the U.S. Forest Service National Smokejumper Program Manager. This list may not include formatting changes; minor edits such capitalization, punctuation, and/or spelling corrections; or rewording for clarity that does not change meaning or intent.

Glossary

Additional definitions may be found in the FS Ram-Air Training Guide and BLM Ram-Air Training Manual.

AAD – (Automatic Activation Device) A device designed to automatically activate a parachute.

Accessory – For a parachute, the part of a parachute assembly necessary to complete the unit as designed by the manufacturer; for example, a parachute pack retaining belt. For an aircraft, a device that smokejumpers use, such as a step or static line cable, to facilitate the delivery mission.

AFS – Alaska Fire Service.

AGL – Above Ground Level.

Canopy – The part of a parachute assembly that opens up and fills with air. Two canopy styles are currently in use by the interagency smokejumper community: (1) FS-14 “round” canopies and (2) ram-air “square” canopies.

Container – The part of a parachute assembly that contains a folded canopy and suspension lines.

Critical Emergency – An emergency requiring immediate action to prevent or reduce the loss of life, limb, or property.

Deployment Bag – A container that provides sequential parachute deployment, retaining the canopy until the suspension lines are fully deployed.

Drift Streamer – A weighted device dropped from an aircraft to predict wind drift and to estimate aircraft altitude above the drop zone. Also referred to as a Streamer.

Drogue – A small parachute designed to stabilize the body position of a jumper during the exit from the aircraft and then to act as a pilot chute to extract the main from the container when the drogue release handle is pulled.

Emergency Parachute – A parachute intended for emergency use only.

Equipment Check – A pre-jump equipment safety check performed for each smokejumper by another appropriately qualified smokejumper. Also commonly referred to as a Buddy Check.

Exit Point – A point determined by the spotter where the smokejumper receives the signal to exit the aircraft. It is sometimes referred to as the Release Point.

Exit Technique – A standardized body position that the smokejumper assumes immediately before and when exiting the aircraft. Approved exit positions vary, depending on the type of aircraft, accessories used, and parachute system.

Harness – The part of a parachute assembly designed to carry the body or object and to attach the canopy to its load.

"Hook up" – A signal for smokejumpers to attach static line snap to the aircraft static line cable.

IRPG – Incident Response Pocket Guide.

Jump Spot – A specified landing area in which personnel intend to land. Also referred to as the Drop Zone.

Jumpsuit – Protective clothing worn by smokejumpers.

Malfunction – Any parachute system abnormality that requires a reserve parachute activation.

Malfunction Abnormality Reporting System (MARS) – MARS is a database used to track any abnormality or malfunction in the equipment involved in getting a smokejumper from the airplane to the ground.

Mixed Load – Mixed loads consist of BLM and FS ram-air jumpers operating on the same aircraft but not jumping in the same stick.

Mixed Stick – Smokejumper flight that includes BLM and FS ram-air jumpers with the capacity to jump in the same parachute stick.

Modification – A change in a parachute assembly configuration.

MODOC – Smokejumper Modification Document System (BLM).

National Technology and Development Program (NTDP) – Technology and Development Program of the U.S. Forest Service. NTDP includes the U.S. Forest Service's Parachute Technology Project at its Missoula facility.

Non-Critical Emergency – A situation that can be solved or mitigated without immediately resorting to extraordinary measures.

"On Final" – A term used to describe the final leg of an aircraft pattern when dropping smokejumpers or paracargo.

PG Bag (Personal Gear Bag) – A bag attached to a smokejumper's harness during parachute jumping that usually converts to a gear pack for operational use on the ground.

Project Proposal – The FS procedure for documenting, communicating, tracking, and analyzing proposed modifications in smokejumping equipment and/or procedures that potentially affect multiple bases and/or agencies. The BLM equivalent is their MODOC system.

RATG – FS Ram-Air Parachute Training Guide. The BLM counterpart is the Ram-Air Parachute Training Manual (RATM).

RATM – Ram-Air Parachute Training Manual (BLM). The FS counterpart is the Ram-Air Parachute Training Guide (RATG).

Reserve Parachute – The secondary parachute that a person making an intentional jump wears. Also referred to as an Auxiliary Parachute.

Reserve Knife – A hook blade knife carried on top of the reserve parachute that a smokejumper uses for emergencies and letdowns.

Rigging – The inspection, minor repair, and re-packing of parachutes, which includes fitting and adjusting harnesses.

Riser – The part of a parachute assembly connecting the suspension lines to the harness. Risers usually are made from a length of webbing and are attached using connector links or canopy releases.

RSL – Reserve Static Line.

SAFECOM – Aviation Safety Communique used to report aviation mishaps or hazards.

Secondary Equipment Check – A safety check performed on emergency parachutes to ensure they are in safe, usable condition. This includes checking the ripcord pins, re-pack date, and overall appearance of the parachute. Also referred to as a Pin Check.

Smokejumper Aircraft Screening and Evaluation Subcommittee (SASES) – An interagency board of Forest Service and Department of the Interior aviation managers responsible for reviewing and recommending smokejumper and paracargo aircraft and aircraft accessories for evaluation and approval. Representatives from fire and aviation management organizations and smokejumper bases are on the board. National Technology and Development Program (NTDP) personnel serve as technical advisors to the board.

Smokejumper Base Manager – The person who oversees and is responsible for all phases of a local smokejumper program including; administration, operations, loft operations, training, fire operations, aircraft, etc.

Smokejumper Spotter – An aircraft crew member responsible for selecting jump spots, drop zones, directing delivery of personnel and cargo, navigating, and managing smokejumper and paracargo delivery missions. The spotter must be an active smokejumper and hold a squad leader position or above.

Smokejumper-in-Charge – The smokejumper designated to lead an activity or project, such as a practice jump, training activity, or work project.

Spotter-in-Charge – When multiple spotters are on board a smokejumper aircraft during a mission, a spotter-in-charge is designated to lead spotting activities.

Spotting – The act of determining wind drift, altitude, jump hazards, jump spot, exit point, and signaling the smokejumper to exit the aircraft.

Static Line – A line attached to an anchor point or cable in an aircraft and to the parachute, which initiates deployment of the parachute as the load falls away from the aircraft.

Stick – One to four smokejumpers who exit an aircraft during a single pass over the exit point.

Suspension Lines – Nylon cord or webbing or other fabric that connects the parachute canopy to the risers or harness.