



Forest Service
U.S. DEPARTMENT OF AGRICULTURE

National Airtanker Program | March 2026

Forest Service (FS) Standards for Modular Airborne Fire Fighting System (MAFFS) Operations



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Preparation, Review, and Approval (Signatures)

The following signatures designate leadership roles in preparing, reviewing, and approving the Forest Service Standards for MAFFS Operations.

Prepared by MAFFS Steering Committee:

MAFFS Chair/ MAFFS Program Manager

MAFFS Vice Chair

Reviewed by:

Branch Chief, Fixed-Wing Operations

Branch Chief, Aviation Safety

Branch Chief, Airworthiness

Approved by:

Assistant Director, Aviation

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This publication is available digitally on the U.S. Forest Service and Interagency Aviation Publications web site: <https://www.fs.usda.gov/managing-land/fire/aviation/publications>

Purpose and Revision Schedule

This standards document identifies U.S. Forest Service (FS) guidelines for the Modular Airborne Fire Fighting Systems (MAFFS) program training and operations. It provides guidance regarding activations, operations, and training; and outlines actions associated with MAFFS operations. This publication applies to Air National Guard (ANG) Wings and Air Force Reserve Command (AFRC) Wings authorized for MAFFS deployment as well as agency employees holding the appropriate qualifications for MAFFS operations. Restrictions in this document may only be waived by the Forest Service Assistant Director Aviation (ADA) unless otherwise specified.

This standards document is reviewed and prepared by the MAFFS Steering Committee (MSC) annually. The appendices in this document may be updated individually without the update of the whole standards document and will be dated accordingly to ensure that the most current copy of the appendix is referenced for operational purposes.

Supersedes 2019 MAFFS Operating Plan

Distribution: USFS/FAM, BLM/AVN, NGB/A3, AFRC/A3, AMC/A3, AEG/CC, CAL FIRE

Chapter 1: Introduction

Background

MAFFS stands for Modular Airborne Fire Fighting System, an interagency program providing aerial firefighting response to wildfires. The MAFFS mission is a joint mission performed by the Air National Guard (ANG) and Air Force Reserve Command (AFRC) under the Department of War (DoW), and FS as a partnership with FS as the lead federal agency.

MAFFS units are portable fire retardant delivery systems that can be inserted into military C-130 aircraft. MAFFS units can discharge up to 3,000 gallons of retardant in less than five seconds.

Congress established the MAFFS program in the 1970s. The program was created to supplement existing commercial airtanker support on wildland fires. MAFFS has evolved to become a multi-mission tool that enables a suite of powerful uses for clients.

Policy

FS MAFFS units shall only be loaded with fire chemicals approved for airtanker use listed on the FS Long-Term Retardant Wildland Fire Management-Aerial Applications Qualified Products List located at https://www.fs.usda.gov/rm/fire/wfcs/qualified_products_long_term.php.

Requests for FS MAFFS units to drop water will follow the language in the Interagency Standards for Fire and Fire Aviation Operations (Red Book) Chapter 16, Airtanker Payloads.

The MAFFS program and all activations and exercises will follow policies, guidelines, and standards.

- Interagency Agreement for The Provision of Temporary Support During Wildland Firefighting Operations (Appendix A)

Requirements of this standards document:

- Air Force Manual 11-2C-130X Volume 3 Addenda B (ADDDB) https://static.e-publishing.af.mil/production/1/af_a3/publication/afman11-2c-130v3addb/afman11-2c-130hv3addb.pdf
- FSH 5709.16 https://www.fs.usda.gov/cgi-bin/Directives/get_dirs/fsh?5709.16
- FS Standards for Airtanker Operations <https://www.fs.usda.gov/managing-land/fire/aviation/publications>
- NWCG Standards for Airtanker Operations PMS 514 (SAO) <https://www.nwcg.gov/publications/pms514>
- NWCG Standards for Airtanker Base Operations PMS 508 (SABO) <https://www.nwcg.gov/publications/pms508>

- NWCG Standards for Aerial Supervision PMS 505 (SAS)
<https://www.nwcg.gov/publications/pms505>
- National Interagency Standards for Resource Mobilization
<https://www.nifc.gov/nicc/logistics/reference-documents>
- Interagency Standards for Fire and Fire Aviation Operations (Red Book)
<https://www.nifc.gov/standards/guides/red-book>
 - a) And any other applicable DoW or agency policies.

Responsibilities

Activation of C-130 DoW aircraft is under the authority and responsibility of DoW.

All MAFFS equipment is owned and maintained by the FS.

The FS and the DoW are responsible for maintaining proficient air crews and support personnel that can respond with promptness and reliability to the assigned mission.

Request and Approval Process

Requests for federal utilization of DoW aviation or other assets are reviewed and will comply with the Economy Act of June 30, 1932.

The National Interagency Coordination Center (NICC) is responsible for ascertaining nationally that all suitable commercial contract airtankers are committed to wildland fires, initial attack, or cannot meet timeframes of requesting units. When this occurs, NICC will notify the FS Assistant Director, Operations (ADO) located at the National Interagency Fire Center (NIFC).

The ADO and FS Assistant Director, Aviation (ADA) will communicate, collaborate, and coordinate with FS leadership, Fixed-Wing Branch, and the National Multi-Agency Coordination (NMAC).

Once the ADO and ADA approve the activation of MAFFS, and initial contact has been made with the Air Expeditionary Group (AEG), NICC will submit a Request for Assistance (RFA) to the DoW Liaison at NIFC.

If the ADA or ADO are absent, the FS Fire & Aviation Management (FAM) Deputy Director of Aviation and Operations, would be responsible for approving the request for a MAFFS activation. Approvals can be verbal but must be followed up with an email.

The ADA will notify the National Director, FAM and Deputy Director Aviation and Operations, and the MAFFS Program Manager (MPM) prior to the RFA for a MAFFS activation.

Chapter 2: MAFFS Ordering Procedures

Federal Activations

Federal requests will be placed through the NICC utilizing the request and approval process in Chapter 1.

The request will indicate number of MAFFS, activation location, time needed, and anticipated duration of the need. The NICC will coordinate response times with the AEG or their staff. At a minimum a leadplane and retardant base will be identified prior to mission operations.

In most cases MAFFS will be operational within 48 to 72 hours from notification. Under circumstances where expedited response is necessary, the NICC in concurrence with the AEG may request a specific MAFFS Airlift Wing (AW) in lieu of the established MAFFS Force Presentation Guide. The guide is a schedule based on aircraft/aircrew availability and priority for currency to prioritize who would respond in what order to an RFA. This guide is used by the AEG in coordination with the POCs and MAFFS Council to fill the RFA, but it is very situation dependent.

The RFA for MAFFS assistance should be placed directly from the NICC to the DoW liaison officer (LNO). In the event the LNO is unavailable, the order will go direct to

USNORTHCOM.

USNORTHCOM – 24 Hours

Phone: (719) 556-0792 Alternate (719)-554-1659

Email: n-nc.peterson.n-ncn2c2.mbx.interagency-omb@mail.mil

Contact: Joint Staff Watch Officer

Subsequent requests for MAFFS assistance will be placed to USNORTHCOM through the DoW LNO. An example of the request to USNORTHCOM to activate MAFFS can be found in Appendix B.

A list of MAFFS qualified crew members will be provided to the ADA and MPM following the annual certification event(s). The assigned MAFFS Liaison Officer (MAFF) along with the Air Force Expeditionary Airlift Squadron (Provisional) Mission Commander (EAS(P)/MC or MC) will check flight crew qualification status from the current list. As qualification statuses change, the military will provide an updated list to the ADA and the MPM.

Each MAFFS outfitted aircraft will have four flight crew members for a C-130J model and six flight crew members for a C-130H model.

State Activations

MAFFS units will only be approved for a state activation after assessing national needs. During state activations, the national need will continue to be assessed and if it is

determined that the need is national in scope, then a federal activation will replace the state activation.

The Reciprocal Fire Protection Act authorizes the FS to negotiate the activation of MAFFS with States that have a Statewide Cooperative Fire Protection Agreement.

The Governor of a State may activate the Air National Guard AW having MAFFS equipment and qualified crews for fires under their own state or state to state jurisdiction. Approval for use of the MAFFS equipment must be obtained from the ADA prior to activation. Requests and approval can be verbal but must be followed up with an email. When MAFFS are activated by a governor, the Geographic Area Coordination Center (GACC) or host agency will create a unique reimbursable/billable financial code for the activation. For state activations, it is incumbent upon the state and FS Region to ensure proper agreements are in place.

Standard MAFFS staffing is required regardless of the agency requesting the activation. See Appendix C for standard MAFFS staffing. The MPM may approve alternate staffing on a case-by-case basis. A minimum of one contracted MAFFS maintenance personnel will be ordered by the MPM.

The state will order a MAFFS qualified leadplane to support the operation.

International Activations

MAFFS may also be made available to assist foreign governments when requested through the United States Department of State or other diplomatic agreements or channels.

The Department of State will request the international use of MAFFS through the USFS International Programs (IP). After the contact by the Department of State, the request will follow the request and approval process in Chapter 1 ordered through the NICC.

The MPM will identify the following resources to be requested to support the international assignment: MAFFS Liaison Officer (MAFF), MAFFS Airtanker Base Manager (MABM), MAFFS qualified leadplane pilot. The Mission Commander (MC) position will be identified by the AEG for international MAFFS assignments. One contracted MAFFS maintenance personnel for every one unit will be ordered by the MPM. Military personnel may be requested to assist as needed in maintenance support of the unit while at the international location. Request U.S. Embassy assistance to provide a representative and interpreter, if necessary, to assist the MAFF and MC.

Initially no more than two units will be committed to allow for adequate surge capability on domestic fires. Additional requests for support beyond two units will be made to the National Fire Director, FAM, after the first two units have arrived in the host country.

Chapter 3: MAFFS Aircraft and Equipment

MAFFS Aircraft Numbers

MAFFS aircraft numbers are historical and may not correspond to the color ID installed in the aircraft. See marking scheme diagram in Appendix G.

MAFFS Serial Numbers and Locations

Location, type, weights, and identification information for MAFFS units are in Appendix E.

Supplemental Equipment

There are six (6) ground-based diesel compressors available for deployment. Generally, the compressors are located with the Guard / Reserve AWs that operate MAFFS. Locations for these compressors can vary throughout the year. For specific location, contact MPM. Care should be taken when transporting by truck without air ride and shipping material as structural damage can occur. Ground compressors may be transported utilizing DoW assets with MPM approval.

A minimum 6,500 pounds capacity low-mast forklift with long forks is required to offload compressors and spare parts.

Ensure that the USFS MAFFS equipment listed below is deployed with Air Wings (AW) when activated or for exercises. Ensure that these items are returned to their respective AW upon MAFFS deactivation. The MPM in coordination with the AEG will determine the most efficient means of transportation for the following:

- a) 1 each MAFFS Unit per tail
- b) 1 each S Duct and Cart per tail
- c) 1 each Door and Cradle per tail
- d) 1 each MAFFS Parts/Tools Container per AW (Field Kit)
- e) Ground Air Compressors (Quantity determined by MABM and MPM)

Optional Items that can be Deployed:

- b) MAFFS Trailer(s)
- c) MAFFS Support Pallet (Located at NTD)

Additional parts, equipment, and tools are available from the MAFFS Parts Depot Kit located at Channel Islands and another site to be determined, which are maintained and inventoried by MAFFS maintenance contractor in cooperation with designated DoW personnel. MAFFS maintenance personnel and/or DoW personnel can request access to these items from the MPM.

Portable Base Kit

Two portable base kits (PBK), each with a backflow preventer valve, gasoline pump, fittings, water reservoir, mass flow meter, hoses, and tools are available at an airtanker base designated by the MPM. A current inventory sheet for each portable base will be maintained and included in each kit. The MPM is the custodian for these kits. The PBK weight is approximately 6,000 pounds. Dimensions: (green PBK 9'x7.2'x7.4') (tan PBK 7'x8.7'x7.6'). All fuel for support equipment will be the responsibility of the activating agency.

Normally retardant for fire activations will be provided from an existing airtanker base or from a contractor provided Mobile Retardant Base (MRB) rather than a PBK.

Chapter 4: MAFFS Operating Bases

Base Approval

Any base or airport proposed for MAFFS operations requires prior concurrence and approval by the DoW and the FS. The AEG and MPM will coordinate for these approvals. Base surveys will be conducted by identified DoW personnel and will occur every three years.

Airport Facilities

Runways, taxiways, and ramps are required to allow operations with Single Tandem main gear at 155,000 pounds (ST-155) gross weight for C-130H aircraft and 165,000 pounds (ST165) gross weight for C-130J aircraft. Evaluation for dual main gear provides an approximation where Single Tandem is not available. The MPM should coordinate with the AEG for additional requirements needed for approval. Consider wing tip clearances. Clearances of less than 30 feet and 3 feet in height requires the use of an aircraft wing walker. Minimum acceptable clearance is 10 feet.

Aircraft Spacing

A typical loading area for portable base operations must have 240 feet separation, nose wheel to nose wheel of the next aircraft. Where C-130H aircraft are used exclusively the separation distance may be reduced to 200 feet. Refer to Appendix G for aircraft dimensions.

Additional Equipment

Additional requirements may include availability of single point jet fuel, liquid oxygen (LOX) and a generous parking area for support aircraft. It is also desirable to have a military C-130 support facility (bed down base) within a 300-mile radius for repair support.

Mobile Retardant Base (MRB)

Where the activation is not located at an existing retardant base, a contractor provided Mobile Retardant Base (MRB) must be ordered. The GACC may order equipment and personnel from the National Retardant On-Demand Contract.

Chapter 5: Personnel

This section provides an overview of the personnel and qualifications required for the FS MAFFS program, as well as a summary of their respective roles and responsibilities. The MAFFS program involves a collaborative effort between the FS, the DoW, and the National Guard Bureau and units to deploy aerial firefighting resources for wildfire suppression. The personnel involved in the program must possess specialized skills, training, and certifications to ensure the safe and effective operation of the MAFFS-equipped aircraft.

See Appendix F MAFFS Personnel Roles and Responsibilities and Appendix C MAFFS Standard Base Organization and Chart for more specific information.

MAFFS Program Management

The following are Washington Office level positions responsible for direct oversight of the MAFFS program.

MAFFS Program Manager (MPM)

The FS MPM is responsible for overseeing the effective and efficient operation of the MAFFS program, ensuring that all aspects of aerial firefighting are properly coordinated and executed. This includes managing the deployment and readiness of C-130 aircraft equipped with MAFFS units. The program manager is tasked with supervising the coordination between the FS, Air Expeditionary Commander, the U.S. Air Force, National Guard Bureau and units, and other federal, state, and local firefighting agencies to ensure a unified response to wildfire incidents.

Key duties involve overseeing training programs for both flight crews and ground personnel, ensuring compliance with safety protocols, and managing resources to maintain operational readiness throughout the fire season. The manager also handles logistical planning, including equipment maintenance, scheduling aircraft for deployment, and administering the MAFFS maintenance contract. Additionally, the program manager is responsible for tracking the performance of the MAFFS units, analyzing after-action reports, and implementing improvements to enhance the program's effectiveness in future fire suppression efforts.

Air Expeditionary Group/Commander (AEG)

The DoW Air Expeditionary Group commander (AEG) plays a critical role in supporting the FS MAFFS program providing the necessary air support, coordination, and operational management required for aerial firefighting efforts. The AEG is responsible

for the mobilization, deployment, and operational readiness of military aircraft—specifically the C-130s equipped with the MAFFS units. Their duties include ensuring that all personnel involved in the aerial firefighting operations, including pilots, aircrew, and aircraft maintenance teams, are properly trained and prepared to conduct safe and effective fire suppression missions. The AEG works in close collaboration with the MAFFS Program Manager, the U.S. Air Force, and the National Guard Bureau and units to coordinate the logistics of firefighting operations ensuring that the aircraft are ready to respond to fire emergencies at a moment's notice.

Furthermore, the AEG is responsible for the maintenance and servicing of the MAFFS-equipped aircraft to ensure that they are operational throughout the fire season. During firefighting operations, the AEG helps monitor the status and activity of the MAFFS aircraft. The AEG also plays a key role in post-operation analysis, identifying any operational challenges or improvements that can enhance future firefighting efforts. Overall, the AEG serves as a bridge between military and civilian firefighting assets, ensuring smooth integration of the MAFFS program into larger wildfire response operations.

DoW Operational Oversight

The following is a DoW non-fly aircrew member located at the base of operations with prior MAFFS experience. Refer to AFMAN11-2C-130XV3ADDB (ADDB) Chapter 2.2 for more specific information.

Mission Commander (MC)

The MC will function as a non-flying liaison for the DoW assets. On occasion, the MC may fly to retain mission currency. All information and orders from the agency MAFFS Liaison Officer (MAFF) will be channeled through the MC unless the MC specifically requests otherwise. Agency preference is to maintain the same MC throughout activations and trainings.

Agency MAFFS Support Personnel and Qualifications

The following positions are qualifications for MAFFS operations. Not all of these positions will be filled on every exercise or activation. Refer to the Federal Wildland Fire Qualifications Supplement at <https://iqcsweb.nwcg.gov/federal-wildland-fire-qualifications-supplement> for the qualification requirements. Refer to Appendix F for job duties and description. Responders seeking qualification should follow their local Fire Qualification RedCard Committee (FQRC) or certifying official process for approval.

MAFFS Liaison Officer (MAFF)

The role of a MAFF is to serve as the agency's primary point of contact and coordinator between the FS, the DoW, the GACC, and other firefighting agencies during wildfire suppression efforts. The MAFF is responsible for ensuring effective communication and collaboration between all parties involved in aerial firefighting operations during an activation or exercise. The MAFF also ensures that safety protocols are followed, assists in the logistical coordination of aircraft deployment, and addresses any operational issues that may arise during the firefighting efforts. Their ability to

communicate and coordinate effectively is essential in maintaining a unified, efficient response to large-scale wildfires.

The MAFF will ensure there is an agency purchase agent assigned. The purchase agent will have responsibility for working with the MC in arranging crew transportation. Where advantageous to support fire operations MAFFS may Remain-Over-Night (RON) at the reload base with approval from the MAFF and MC.

MAFF Kit:

It is recommended that the MAFF should have the following documents, forms and other optional items readily available during activation through hard copies and/or digital format.

- a) Military Use Handbook
- b) Current FS Standards for MAFFS Operations
- c) USDA/USDI-DoW Memorandum of Understanding/Collection Agreement
- d) The Request for Assistance (RFA) the activation is operating under.
- e) DoW MAFFS OPOD
- f) National Interagency Standards for Resource Mobilization (NFES 2092)
<https://www.nifc.gov/nicc/mobguide/index.html>
- g) NWCG Standards for Interagency Incident Business Management (NFES 2160) <https://www.nwcg.gov/publications/pms902>
- h) Medical Plan ICS-206
- i) General Message ICS-213
- j) Unit Log ICS-214
- k) Incident Personnel Rating ICS-225
- l) MAFFS Daily Summary
- m) FC 119 Incident or accident reporting
- n) Interagency Aviation Mishaps Guide
- o) National and GACC Mobilization Plans

MAFFS Airtanker Base Manager (MABM)

When a MAFF is in place, the MABM coordinates directly with the MAFF. The agency MABM is responsible for overseeing the operations and logistics at the airbase during wildfire suppression missions. Their role includes coordinating the deployment and maintenance of MAFFS-equipped aircraft, ensuring the readiness of aircrews and support staff, managing airfield operations, and facilitating the loading and unloading of fire retardant. They also ensure effective communication between the airbase, ramp personnel, air crews, and MAFFS maintenance personnel to ensure compliance with safety and operational procedures. The MABM plays a key role in maintaining the efficiency and effectiveness of aerial firefighting operations.

MAFFS Airtanker Base Specialist (MABS)

When a MABM is in place, the MABS coordinates directly with the MABM. The MABS is responsible for supporting the operational readiness of the airbase during wildfire suppression missions. Their role includes managing the logistics of aircraft operations, such as coordinating the loading and unloading of fire retardant, ensuring the proper maintenance of MAFFS equipment, and assisting with the setup and teardown of airbase operations. They also help maintain communication between aircrews and ground support teams to ensure smooth and efficient mission execution.

Chapter 6: Operations

Pre-Mission Requirements

Flight Crew Certification

The AEG and MPM will verify that the MAFFS flight crews are current and proficient. Training and certification requirements are identified in Attachment 4 of the AFMAN11-2C-130XV1.

MAFFS Communication Equipment

MAFFS aircraft will have a VHF-FM TDFM-136 radio installed and tested prior to deployment. The MAFFS FM Radio and associated technical services will be supplied by the National Interagency Incident Communication Division (NIICD) at the NIFC. The NIFC Telecommunications Specialist/Communications Coordinator will be a point of contact for all MAFFS Communications issues.

All radios assigned to AWs must be annually exchanged with like radios from the NIICD at the end of the fire season, no later than December 30. The NIICD will initiate the exchange by sending replacement radios prior to the Wings returning the current radios. This ensures radios are properly functioning and have current software. All MAFFS aircraft will enter transponder code 1255 enroute to, within, and from the Fire Traffic Area (FTA) unless Air Traffic Control (ATC) assigns a different code.

MPM will provide aircraft satellite tracking equipment for Automated Flight Following of all MAFFS configured aircraft. Tracking equipment should remain onboard and turned on at all times when deployed for the MAFFS mission, when leaving home guard or reserve station until their return. Functionality of the AFF transponder if not confirmed at home station will be confirmed at the activation or exercise upon arrival. If the tracking equipment is not installed, or does not function correctly, flight following will occur in accordance with the Standards for Resource Mobilization.

If needed, radios, headsets, and connection equipment for ramp operations can be ordered through the operating GACC.

If needed, internet connection equipment can be ordered through the operating GACC.

Unit Functional Check

A functionality test of the MAFFS unit functionality should occur with a 2000-gallon water minimum discharge each time the unit is installed on an aircraft prior to loading

with retardant. This check should occur in three parts to test drop control pendants and emergency dump functionality. A concrete surface and location will be identified by local airfield management and/or Airtanker Base Manager (ATBM).

This check can occur at home station prior to departure or at operating base. Coordination with base management will occur in this instance. Refer to ADDB for procedures.

Mission Support Requirements

Ground Personnel

Organization support requirements are outlined in the MAFFS Standard Base Organization Guidelines contained in Appendix C.

Leadplane

MAFFS missions will be flown under the supervision of a qualified MAFFS leadplane pilot. The annually updated Leadplane Pilot, Identifiers, and Qualifications list is located at <https://usfs.app.box.com/folder/308629357466>. For any issues accessing the list contact the MPM.

International MAFFS missions will utilize a qualified MAFFS leadplane pilot in the MAFFS aircraft to assist the Aircraft Commander (AC) with tactical requirements. Tactical requirements could include coordinating with other aircraft over the fire, communicating with ground crews, recommending retardant placement locations, and recommending coverage levels.

Appropriate DoW, activated agency, and pilot agency approval must be obtained prior to flying civilian personnel aboard MAFFS aircraft. DoW flight crew will need to follow the same approval process to fly on an agency leadplane.

Compressors

Ground compressors provide a direct charge of air to the MAFFS unit and reduce recovery time between refill cycles. The MAFFS charge cycle when using ground compressors alone is approximately 14 minutes.

The MABM will coordinate with the MPM to determine an appropriate amount of ground compressors that will be deployed per activation to the activation base and/or anticipated reload base(s). The diesel compressor weight is 6,000 pounds and measures 10' x 7.5' x 6' (297 ft³).

MAFFS contract maintenance personnel are responsible for ground compressor maintenance. All maintenance requests should be coordinated with the MPM, who is the Contracting Officer Representative (COR) on the MAFFS maintenance contract.

Onboard Compressing without Ground Compressor Assistance:

Watch gauges and only compress 300 to 500 psi at a time. If compression is slow, turn off compressors and wait 5 to 10 minutes for them to cool off, turn them back on, repeat the process until you get 1,050 psi for a full load release. If doing multiple drop

loads compress to 1,175 psi. The on-board compressors cannot run continuously to charge from 0 to 1,175 psi without putting undo stress on compressor motors.

Onboard Compressing with Ground Compressor Assistance:

When loading at a base with a single ground compressor, filling the unit with air can take up to 14 minutes to load from 0 to 1,175 psi. If load time is a concern or causes a backup of aircraft, it is preferable to pre-charge air prior to arriving at an airtanker base with 400-500 psi. Follow compression recommendation in above paragraph to reach desired pressure. Ground compressors will be able to load remaining air to 1,175 psi.

High Visibility Marking

The FS will furnish high visibility fluorescent tape for mission and training flights. The DoW will apply tape to each MAFFS aircraft with minimum area as specified in Appendix D. The tape is manufactured by 3M and is listed by them as: 334-4340 3M Scotchcal ElectroCut 7725SE-414 Red-Orange 24" X 50 yards.

Aircraft Fueling

MAFFS aircraft fuel purchase is the responsibility of the DoW.

Aircraft Rescue and Fire Fighting (ARFF) Requirements

Operational MAFFS missions are authorized to reload at airfields having ARFF vehicles with at least a 1500-gallon capacity and at least 3 firefighters.

Waivers to ARFF requirements may be available for short term use. Contact the MPM to request a waiver.

For airports that do not meet the ARFF minimums and do not have a waiver, MAFFS will be limited to seven landings per month. Contact the MPM to request required ARFF equipment or personnel if more landings are necessary.

Mission Operations

Types of Bases

MAFFS airtanker bases are surveyed and approved by the DoW. The approval levels include the following:

Reload (R)—loading retardant from an approved airtanker base using existing pits.

Hub (H)—loading retardant from an approved airtanker base using existing pits and may also be used for overnight and staging of maintenance and support.

Full Activation (FA)—approved for loading retardant using existing pits and may also be used for overnight and staging of maintenance and support. Additionally, this location may be used to set up MAFFS specific temporary pits and set up larger operating facilities.

The working survey document is held by the DoW and FS for approved locations and is available upon request from the MPM. Approvals will be re-certified every three years and will include a site visit. For any proposed new MAFFS operating bases contact the MPM.

The NWCG Airtanker Base Directory located at <https://egp.wildfire.gov/atbdirectory/> contains the approval levels for established airtanker base locations.

Standard Operating Procedures

Utilization of MAFFS will conform to agency/interagency policies, guides, safety requirements, and standards established for contract airtankers, unless specifically modified by this standards document.

MAFFS activations and exercises require a base operating plan. When operating from an existing airtanker base, the MABM will ensure that MAFFS operations are included in their local base operations plan. If a base operations plan does not exist or MAFFS operations are not addressed, the MABM will utilize the local base operations template to create one found in the NWCG Standards for Airtanker Base Operations (SABO) Appendix C.

Refer to Air Force Manual 11-2C-130X Volume 3 Addenda B (ADDDB) for non-essential crewmembers on board during training or operational tactical mission. If the MAFF does not agree with the AEG decision, they shall immediately contact the MPM.

MAFFS should not land fully loaded; however, it is permissible to do so when landing performance and conditions permit.

MAFFS will not perform tandem drops.

Each airtanker base has identified jettison areas, however if the jettison area is not appropriate or available, then one will be designated by the controlling agency. MAFFS should jettison at a minimum of 500 feet above ground level (AGL). If the load is jettisoned or dispensed adjacent to a runway, or in an aerodrome environment, the drop shall be no lower than 150 feet AGL. A leadplane is not needed to jettison the load. All jettisons, including an emergency jettison must be reported to the MAFF with the altitude, volume, and location of discharge.

MAFFS airdrops will be conducted during daylight hours. Airdrops after sunset are permitted with concurrence of the AC and the leadplane pilot and in accordance with the SAS. Recoveries may be accomplished after daylight hours.

Flight Operations Administration

All dispatches will be given to MAFFS flight crews in accordance with the SABO.

Per ADDDB Attachment 3, airtanker base personnel shall relay on and off times, gallons, aircraft and MAFFS unit's status to the AEG.

- a) Alpha 1 (A1) Aircraft and unit are fully functional.
- b) Alpha 2 (A2) Aircraft and/or unit has a minor issue.
- c) Alpha 3 (A3) Aircraft and/or unit is out of service.

A divert to a new fire assignment and/or a reload base will be communicated by the dispatch unit providing the divert to the aircraft and will also immediately notify the sending base of the new assignment, location, and expected reload base. The MABM

will notify the MC. The MC or AEG may refuse the assignment if the new operational risk management (ORM) evaluation exceeds military standards.

If a MAFFS mission is turned down, please fill out and submit the Airtanker/Scooper Assignment Turndown Form. Located at:

<https://forms.office.com/pages/responsepage.aspx?id=5zZb7e4BvE6GfuA8-g1GI-mf0A-oWjlPnP4rpKv8TqBUNzhXWUNFODFIS1A1R0RXNU9ETloxR0RYTC4u&route=shorturl>
|

The MABM is responsible for entering and verifying operations data into the FLIGHT program for tracking of flight times, retardant gallons, and any other recordable activities. The MABM may delegate these duties to an Aircraft Time Keeper (ATIM) or MABS.

MAFFS Capability

MAFFS is a pressure-controlled system that is capable of producing coverage level 1 through 8 as needed per drop with quantities of full, half, one third, or one sixth of the full load.

Dispenses a continuous line at light application rates for up to ½ mile in length.

C-130H/J is a high-performance aircraft. Cruise speed with MAFFS pintle installed is approximately 285 to 300 knots for both the H and J model aircraft.

Delivery altitudes are most effective between 150 and 200 ft AGL.

Ramp Operations

If needed, a ramp frequency can be ordered through the operating GACC.

A qualified MABM or a MABS shall be present on the base during all MAFFS operations that require the involvement of agency or agency contracted personnel and/or equipment.

The MABM or MABS will brief agency, DoW, and contract personnel and confirm all MAFFS operational protocols that are to be implemented on the aircraft ramp in accordance with the SABO.

Qualified Fixed Wing Parking Tenders (FWPTs) and Ramp Managers (RAMPs) may facilitate MAFFS ramp operations if there is a qualified MABS or MABM onsite of an activation or exercise.

At reload bases, at a minimum a MABS trainee shall be onsite during MAFFS operations.

Retardant Loading

Base operations will conform to standard operating procedures established in the SABO and this standards document. In the event of conflict with DoW procedures, the more restrictive procedure will be followed.

All loading of retardant into MAFFS aircraft will require a calibrated mass flow meter. If a mass flow meter is not readily available, one will be ordered through the operating GACC prior to loading the MAFFS aircraft.

MAFFS will be loaded up to 3,000 gallons, although the load capacity of these units is up to 3,300 gallons.

Retardant loading operations will cease when the first sign of the following events occur:

- a) Loadmaster calls for stop of retardant loading operations,
- b) Load capacity indicator, positioned on the loading manifold, indicates 3,000 gallons (27,000 lbs) or,
- c) Payload of 3,000 gallons (27,000 lbs) is reached per the mass flow meter.

Retardant Loading Considerations

MAFFS retardant loading operations are accomplished exclusively on the right side of the aircraft. Parking patterns and pit configuration should allow for direct approach for retardant loading operations. If retardant loading operations require equipment and personnel to move from the left to the right side of the aircraft (behind the pintle), confirmation that the unit is disarmed by validating that the strobe light is not flashing.

FS has approved the operation of simultaneous fueling and loading (DoW concurrent servicing) of MAFFS C-130s. Refer to the SABO and SABO Appendix F for approvals and procedures.

Retardant hot loading operations not approved at this time.

The potential for an accidental ground discharge of the MAFFS unit presents an extreme hazard to personnel and equipment. The unit should always be considered armed when the strobe light on the discharge nozzle is flashing. Do not stand directly behind the pintle or in the path of the discharge.

The MABS, FWPT, or RAMP will accomplish confirmation of MAFFS unit status with the aircrew/loadmaster via radio communications/aircraft intercom.

Loading operations on the right side of the aircraft may cause the loading hoses to be bowed or bent. Personnel should stand to the left of the paratroop door when loading hoses are attached to the aircraft and a bend is present. If the hose(s) should become accidentally unattached, the force and momentum could cause damage.

Downloading the quantity of retardant is acceptable to meet performance criteria for the operating location. The download will be reported via the Over//Underfilling Retardant on USFS Contracted Airtankers QR code by the MABM or MABS.

If a dispatch is cancelled after loading retardant, the MABS will coordinate with the MC, MABM, and the hosting base manager to either sit loaded, offload, or jettison.

Aircraft Washdown

MAFFS aircraft are rinsed by DoW personnel as necessary after each retardant delivery mission or at least daily. Personnel focus on removing residual retardant from the horizontal stabilizer and aircraft control surfaces. Cleaning efforts can be done concurrent with retardant and compressor operations.

When the MAFFS have been released, the RFA will continue for up to 12 days to accommodate for a more thorough inspection and cleaning of the mission aircraft. During this time, DoW will rinse the MAFFS units with MAFFS maintenance personnel onsite.

Flight and Duty Limitations

Flight time will not exceed a total of 8 hours per day.

A normal duty day for MAFFS operations is limited to 12 hours. Non-MAFFS operations may be authorized beyond 12 hours IAW current DoW instruction. (Reference AFMAN 11-2C-130X, Vol. 3).

Duty includes flight time, ground duty of any kind, and standby or alert status at any location.

Within any 24-hour period, aircrews shall have a minimum of 12 consecutive hours off duty immediately prior to the beginning of any duty day.

During any 14 consecutive days, aircrews shall be off duty for two full calendar days. Days off need not be consecutive. The MC and MAFF will ensure this requirement is upheld.

MAFFS Wings that require crew swaps will follow the following process. The Wing POCs will inform the MC of the requested crew swap, to include number of crew, location, time and date. The MC will then inform the MABM and MAFF of the request and the AEG. The AEG and the MAFF/MABM will inform the FS MPM for the planned crew swap for approval and concurrence.

Standby status

During an assigned shift, in the absence of flight operations or necessary maintenance tasks, DoW personnel are considered to be on standby status. The MAFF will provide for suitable, preferably climate controlled, areas on-base for flight and maintenance crews to stage. When appropriate, the MAFF, in coordination with the GACC, MC and MABM, may authorize hotel standby provided the response time from the hotel to the base does not exceed 15 minutes from the time of receipt of a new dispatch. The same entities above can revoke hotel standby.

Deployment to New Location.

When MAFFS are requested to reposition to a new location after initial activation/deployment (whether within or to another GACC), NICC will provide written

notification of relocation to the NIFC Defense Coordination Officer (DCO). The DCO will process the relocation notification through DoW channels.

NICC will keep the AEG, MPM, and MAFF informed on redeployment discussions.

Accident/Incident Reporting Procedures

The MAFF will immediately inform the MPM and the NICC of all accidents/incidents. The NICC will notify the NIFC DCO, the ADO, the ADA, and the MPM will notify the Fixed Wing Branch Chief (FWBC) of all accidents/incidents.

When a DoW aircraft being used on a FS incident is involved in a mishap, incident, or accident the agency policy on accident/incident reporting will be followed.

All incidents will be reported to the Regional Office by the MAFF as soon as possible and immediately follow up with a (FS-5700-14 SAFECOM Aviation Safety Communiqué) <https://www.safecom.gov/>.

Additionally, the MAFF will make an initial report for any accident or incident with potential to 1-888-4MISHAP (888-464-7427). This task may be completed by the Regional Aviation Safety Officer (RASO).

The DoW will be responsible for accident investigations of their aircraft. Agency employees will assist in securing the accident site if required and facilitating the DoW accident team investigation. An agency may request participation in any accident involving DoW aircraft on their incidents. Agency participation may be in a formal or informal capacity at the discretion of the DoW.

Public Information Releases

The MAFF and MC will work in cooperation with an agency Public Information Officer (PIO) and an AEG Public Affairs Officer (PAO) to provide the necessary coverage of MAFFS operations. All media releases will be coordinated through the agency PIO and the AEG PAO.

Chapter 7: Logistics, Administration, and Demobilization

Operations Procurement Support

Upon MAFFS activation, the AEG will provide an estimate of cost for the operation which will be provided to the FS Financial Manager at NIFC. This estimate will be used to authorize funding. The FS will execute a reimbursement/advance of funds agreement (AD-672) to the appropriate DoW unit for authorization to expend funds for operational support for the MAFFS mission.

The authority of funds is for operational support for the MAFFS mission, and can include, but is not limited to, the following items:

- a) Flight hours (deployment, crew swap, support, and redeployment)

- b) Salary and overtime
- c) Lodging and meals
- d) Rental cars/gas. Refer to Appendix H
- e) Support equipment (reefer trucks, port-a-potties, trailers, copier, etc.)
- f) Miscellaneous supplies (pens, pencils, copy machine paper, etc.)
- g) Rental of office space
- h) Immediate medical treatment (Agency Provided Medical Care (APMC))

Cost tracking methods must always be in-place by category. Cost estimates will be sent by the MAFF to the distribution list approved by the MPM. The AEG staff will provide this information in a Situation Report (SITREP) nightly to meet this requirement.

Administration

MAFFS Mission Record Requirements

The MAFF will collect, prepare, and deliver the following information to the activating agency and retained by the MPM. Copies of these records are available by request to the MPM.

- a) Daily narrative of activities
 - 1. Incident weather conditions – summary if supporting more than one incident
 - 2. Incident situation reports – summary if supporting more than one incident
 - 3. Significant events/problems (i.e. aircraft/MAFFS unit issues, utilities shut-off, not enough logistical support, ran out of retardant, etc.)
- b) MAFFS daily situation report – joint agency and DoW report. The MAFF shall use FLIGHT for these cost reports.
 - 1. Number of sorties by aircraft
 - 2. Flight hours (incident) including estimated flight hours returning home
 - 3. Gallons of retardant delivered and retardant costs
 - 4. Incident name and “P” number
- c) MAFFS workbook (All-in-1, soon to be replaced by MAFFS Daily Reporting online tool)
 - 1. Daily report
 - 2. Operational summary
- d) MAFFS DoW costs
 - 1. Total cost summary
 - 2. Federal personnel costs
 - 3. Miscellaneous support costs
- e) FS and cooperating agency support organization
- f) Online news articles/magazine or other media coverage items

- g) Procurement/purchasing documents
- h) Incident/accident reports

MAFF Mission Report Format

At the end of an activation or exercise an overview report will be prepared by the MAFF to summarize the mission and submitted to the MPM within 10 days. The report will normally be succinct, 6-8 pages, and will include the following:

1. Title Page
 - a. Mission (Incident) Name
 - b. Geographic Location
 - c. Inclusive dates of the deployment
 - d. MAFF(s) Assigned
2. MC Assigned
3. Mission Summary
 - a. Summary – brief 1–2-page narrative including:
 - (1) Events leading to activation
 - (2) Significant mission events
 - (3) MAFFS Report Summary (from MAFFS workbook)
 - (4) MAFFS Operational Summary Table (from MAFFS workbook)
 - b. Cost summary
 - c. Recommendations and Evaluation
 - d. Table of assigned personnel – FS, DoW and civilian
 - e. Distribution of Final Report and Records – Send records to Administrative Officer, FS-NIFC
 - f. Copy of last DoW Report
 - (1) Distribution by MAFF: MPM
 - (2) Distribution by MPM: NIFC, ADO, ADA, FWBC, AEG, National Airtanker Program Manager (NATPM)
 - (3) Distribution by NIFC: Regional Fire Directors, Regional Fire Operations Directors, Regional Aviation Officers
 - i) Distribution by AEG: DoW Units

Release and Deactivation

Procedures

Under the authorization of the FS ADA the following will apply:

When fire conditions moderate or a sufficient number of commercial airtankers become available nationally, MAFFS will be released by the NICC with NMAC approval. Advance notification of 24 to 36 hours is preferred, but not required, to provide for an orderly release of personnel and equipment.

MAFFS Deactivation Release Checklist

ADA will initiate deactivation through normal channels to the MPM and the NICC. Information required:

- a) Number of units to be released.
- b) Date and time of the release.
- c) Base from which they will be released.

NICC will report release information to NIFC External Affairs and the NIFC DCO.

NICC will confirm DoW release information through the Geographic Area Coordinator to the MAFF and the MC.

MAFF will provide the MPM and the NICC with estimated time of departure (ETD) and estimated time of arrival (ETA) times for released MAFFS aircraft.

Geographic Area Coordinator will report actual time of departure (ATD) of MAFFS aircraft to NICC. The final flight time is reported by the AEG in the final SITREP.

For MAFFS equipment demobilization and washout refer to ADDB, and any other approved and agreed upon memo to the ADDB.

While on international assignments, the MAFF, upon notification of release, will notify the MPM and the NICC of release and expected return to USA. NICC will then notify the NORTHCOM Region 10 DCO. The DCO will make appropriate notification within DoW.

Chapter 8: MAFFS Unit Maintenance

MAFFS units shall be maintained exclusively by the MAFFS contract maintenance personnel (contractor) in accordance with the manufacturer's publications (available through the MPM) and will follow all agency guidance. The MPM is the COR for the MAFFS maintenance contract and coordinates all maintenance needs of the units with the contractor. Any issues on availability and maintenance will be reported by the MAFF to the MPM or their designee.

MAFFS Unit Maintenance for Exercises and Activations

When MAFFS units are deployed to, or anticipation of, a MAFFS exercise or activation, the MPM in coordination with the MAFF will order the necessary contract personnel. Refer to the MAFFS Maintenance Contract for specific language on response requirements. The MPM has a current list of contract personnel.

During an activation, all maintenance and repair of the units shall be communicated to and coordinated as soon as practical with the MPM and MAFF (or their designee) by the contractors on site.

The contractor should arrive an hour before the morning briefing, dependent on prior duty day, to verify status of the units. At the end of the day, the contractor will accomplish a post flight inspection and attempt to clear discrepancies, resolve deficiencies, and schedule necessary preventative maintenance. The contractor may be released for the day with aircrews unless there is critical work to be accomplished to return the units to ready status.

The contractor is limited to a 16-hour duty day, will normally have a 30-minute break at least every 6 hours, and shall have 2 days off in any 14-day period. The days off do not need to be consecutive.

The inventory of all MAFFS equipment is maintained by the MPM and will be updated as needed. The contractor is responsible for maintaining a current list including location of agency owned parts and tools.

MAFFS Units Maintenance During Non-Operational Periods

When maintenance of the MAFFS units is needed during non-operational periods, contact the MPM who will coordinate the contractor and the Air Wing.

Winter maintenance of the MAFFS units involves a complete disassemble of the unit and will be only done one unit per wing at a time, always allowing for operational capability of at least one unit per Wing.

Chapter 9: MAFFS Aircrew Training and Qualifications

For DoW training, qualifications, and certification requirements refer to ADDB, AMC Syllabus C-130H/J MAFFS, and AIR FORCE MANUAL 11-2C-130H VOLUME 1.

Annual MAFFS Certification will be coordinated by the MPM with each individual AW. Due to the complexity of scheduling a training event of this nature, there is no hard expiration date between annual training cycles. However, MAFFS training generally occurs no later than 31 May of each year. The FS requires MAFFS flight crews and personnel to attend annual agency led ground school.

Chapter 10: Safety

MAFFS base operational safety will follow the PMS 508 SABO Chapter 8. <https://fs-prod-nwcg.s3.us-gov-west-1.amazonaws.com/s3fs-public/publication/pms508.pdf>

As well as the local base operations plan to identify safety measures, hazards, and processes associated with the area of operations.

The MABM or designee will serve as the primary point of contact for safety of MAFFS operations at a base of operation.

MAFFS flight crews and support personnel will adhere to their safety protocols found in the ADDB.