



6 August 2019

Operations

MAFFS OPERATING PLAN

**OPERATIONS AUTHORITIES
AND INSTRUMENTS**

**MODULAR AIRBORNE FIRE FIGHTING SYSTEM (MAFFS)
DEPLOYMENT, OPERATIONS AND TRAINING**

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RELEASABILITY: Attachment 4 contains PII, shall not be released to the general public, and shall only be made available to authorized personnel.

This instruction implements Forest Service Operations Guidelines for the Modular Airborne Fire Fighting Systems (MAFFS) training and operations program. It provides guidance regarding the activation, operation, and training; and outlines actions associated with MAFFS operations. This publication applies to Air National Guard (ANG) Wings and Air Force Reserve (AFRC) Wings authorized for MAFFS deployment and agency employees holding the appropriate wildland firefighting certifications for MAFFS operations. Restrictions in this document may only be waived by the NMLO or Deputy NMLO unless otherwise specified. The attachments in this publication may be updated individually without the update of the whole instruction and will be dated accordingly to ensure that the most current copy of the attachment is referenced for operational purposes. A supplement to this instruction may be issued with each update. Attachments shall be identified as secure or releasable. Secure attachments shall not be released to the general public.

WARNINGS, CAUTIONS, AND NOTES

The following definitions apply “Warnings,” “Cautions,” and “Notes” found throughout the operations plan.

WARNING

Operating procedures, techniques, etc., which could result in personal injury and/or loss of life if not carefully followed.

CAUTION

Operating procedures, techniques, etc., which could result in damage to equipment if not carefully followed.

NOTE

An operating procedure, technique, or method considered essential to emphasize.

USE OF WORDS MUST, SHALL, MAY, AND WILL

The following definitions apply to words “shall,” “will,” “may” and “should” found throughout the manual:

Must or Shall – Action is mandatory and full compliance is required.

May – Action is optional.

Should – Action is mandatory, unless a justifiable reason exists for not taking action. The use of “should” signals extenuating circumstances are likely to occur at times.

Will – Does not convey a degree of restriction or mandate action. The use of “will” applies only to a statement of future condition or an expression of time.

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Supplement	Date	Description

Chapter 1

OBJECTIVE, POLICY AND RESPONSIBILITIES

1.1. Objective.

To provide a surge capability supplementing commercial large airtanker support on wildland fires through airborne delivery of fire retardant.

1.2. Policy.

Modular Airborne Fire Fighting Systems (MAFFS) are national resources and are used as a reinforcement measure when contract large airtankers are committed or not readily available. Requests for federal utilization of Department of Defense (DoD) aviation or other assets are reviewed and shall comply with the Economy Act of June 30, 1932. MAFFS may also be activated in several states when requested under an appropriate state Memorandum of Understanding (MOU); see Attachment 1 for copies of MOUs. MAFFS may also be made available to assist foreign governments when requested through the Department of State or other diplomatic MOU.

1.3. Responsibilities.

1.3.1. The National Interagency Coordination Center (NICC) at Boise, ID, in coordination with Forest Service Operations is responsible for ascertaining all suitable contract large airtankers nationally are committed to incidents or initial attack need, and not readily available, or are otherwise unable to meet the timeframe requirements of a request.

1.3.2. The Forest Service (FS) Assistant Director for Operations (ADO), located at the National Interagency Fire Center (NIFC) is the National MAFFS Liaison Officer (NMLO). The NMLO or their Acting is responsible for approving a request for MAFFS in coordination with the FS Assistant Director for Aviation. Alternatively, in their absence, the FS Assistant Director for Aviation, located in the Fire & Aviation Management (FAM) Washington Office (WO) is responsible. Once approval is given, the NICC Manager will activate the request through proper DoD channels; see 2.1.

1.3.3. The FS ADO, NIFC (or their Acting) will notify the Director, FAM, prior to MAFFS activation if at all reasonably possible.

1.3.4. The Governors of California, Wyoming and Nevada may activate the appropriate Air National Guard Unit for MAFFS missions within state boundaries or under state agreements to other states provided such action is covered by an appropriate MOU(s)/Agreements with the military authority and the FS.

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

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

1.3.7. The FS is responsible for the maintenance of the dispensing systems.

Chapter 2

OPERATIONAL PROCEDURES

2.1. Ordering Procedures.

2.1.1. Federal Domestic.

2.1.1.1. Federal requests will be placed through established channels, to NICC by the Geographic Area Coordination Center (GACC) or by direction of the National Multi-Agency Coordinating Group (NMAC).

2.1.1.2. The NICC will advise the FS ADO of the availability of suitable exclusive use contract airtankers. The NICC will, after receiving the FS ADO's approval, place a request to the DoD. The request will indicate number of MAFFS, activation location, and time needed. The NICC will coordinate response times with the AEG/CC or their staff. At a minimum a lead plane and retardant base will be identified prior to mission operations.

NOTE

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/CC may request a specific MAFFS Airlift Wing (AW) in lieu of the established callout plan. This request will normally be of shorter duration and the request will be terminated or amended once the need has been met.

2.1.1.2.1 MAFFS Ordering Procedures. Listed below is the ordering process for federal activation of MAFFS:

2.1.1.2.1.1. Initial request for MAFFS assistance should be placed directly with the NIFC Defense Coordinating Officer (DCO). In the event DCO is unavailable, order will go direct to USNORTHCOM.

USNORTHCOM – 24 Hours

Phone: (719) 556-0435, alternate 719-554-2359

FAX: (719)-554-7207

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

Contact: Joint Staff Watch Officer

2.1.1.2.1.2. Subsequent requests for MAFFS assistance will be placed to USNORTHCOM through the NIFC DCO. An example of the request to USNORTHCOM to activate MAFFS can be found in Attachment 1. Direct contact will be made with US NORTHCOM if DCO is unavailable.

2.1.1.3. Crew names (Aircraft Commander (AC), Copilot (CP), and Loadmaster (LM)) must correspond to the qualified list as updated on their DoD website. 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, Military will provide updated list to the National MAFFS Liaison Officer.

2.1.2. **International.** The Department of State, Office of Foreign Disaster Assistance (OFDA), will request the international use of MAFFS through the USFS International Programs (IP) Disaster Assistance Support Program (DASP). After the contact by OFDA the DASP will place the order through NICC, located at NIFC, Boise, ID.

2.1.3. **State.** 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 FS ADO or their designee prior to activation. When MAFFS are activated by a governor, the GACC or host agency will create a unique reimbursable/billable Fire Code (PNXXXX) for the activation. State agreements can be found in Attachment 1.

2.2. MAFFS Aircraft, Equipment, & Wing Assignments.

2.2.1 **MAFFS Aircraft Numbers.** MAFFS aircraft numbers are historical and may not correspond to the system number or color ID installed in the aircraft. See marking scheme diagram in Attachment 2.

2.2.2 **MAFFS Serial Numbers and Locations.** Location, type, weights, and identification information for MAFFS are located in Attachment 2.

2.2.3. **Compressors.** There are six (6) ground based diesel compressors available for deployment. The compressors are located with the Guard / Reserve AWs that operate MAFFS. Locations for these compressors can vary throughout the year. Preferred transport of compressors is by military aircraft. However, over road transport is an acceptable alternative when aerial transport is not timely or cost effective.

NOTE

One compressor should be deployed per activation within the first 5 days (see 2.6.4). Diesel compressor weight is 6,000 pounds and measures 297 cubic feet.

Insure that the following USFS MAFFS equipment is deployed with your Air Wings (AW) when you are activated or for training. **Please also insure that these items are returned** to their respective AW upon MAFFS deactivation.

The **STANDARD MAFFS** package will consist of the following items:

- a. MAFFS SYSTEM
- b. S DUCT AND CART
- c. DOOR AND CRADLE
- d. MAFFS PARTS/TOOLS CONTAINER
- e. GROUND AIR COMPRESSORS – First AW on site

OPTIONAL ITEMS THAT CAN BE DEPLOYED:

- a. GROUND AIR COMPRESSORS as additional AWs are ordered
- b. MAFFS TRAILER
- c. MAFFS PARTS DEPOT KIT (Located at NTD AND BOI)
- d. MAFFS SUPPORT PALLET (Located at NTD)

2.2.4. Portable Base Kit Pallet Locations. Three portable base kits (PBK), each with a backflow preventer valve, gasoline pump, water reservoir, and hoses are available at a designated air tanker base (currently at JEFFCO-11/28/17) for use during training exercises only. A current inventory sheet for each portable base shall be maintained and included in each kit. Portable base pallet weight is approximately 6,000 pounds. The Chair of the MABM Steering Group will coordinate with the MAFFS Training Officer (MTO) on locating the PBKs.

NOTE

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

2.3. MAFFS Operating Bases.

2.3.1. Base Requirements.

2.3.1.1. Airport Facilities. MAFFS operations require a large paved airport facility. runways, taxiways, loading ramp weight, aircraft clearance from structures, and qualified base personnel are required for FS and DoD approval of a facility.

CAUTION

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 (ST-165) gross weight for C-130J aircraft. Evaluation for Dual main gear provides an approximation where Single Tandem is not available. The AEG should be contacted for additional requirements needed for approval. Wing Tip clearance of less than 25 feet requires use of an aircraft marshaller. Minimum acceptable clearance is 10 feet.

2.3.1.2. 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.

2.3.1.3. Additional Equipment. Additional requirements 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. See Attachment 4.

2.3.1.4. Mobile Retardant Base (MRB). Where the activation is not located at an existing permanent airtanker base, a contractor provided Mobile Retardant Base (MRB) must be ordered. The GACC may order equipment and personnel from the national contract. Sufficient MAFFS Base Specialist (MABS) and ramp support personnel shall be ordered to assist the MABM in conducting ramp operations for the activation.

2.3.2. Base Approval. Any base proposed for MAFFS operations requires prior concurrence and approval by the DoD and the US Forest Service. The AEG and MTO coordinate for these approvals.

NOTE

See Attachment 4 for a list of approved bases that should be capable of supporting a MAFFS operation and for bases approved for MAFFS reloading operations.

2.3.3. **Base Management.** Attachments 2 and 4 have a current listing of MAFFS airtanker base management and support personnel needed for activations.

2.4 Liaison.

2.4.1. **A MAFFS Liaison Officer and an Air Force EAS(P)-WFF/MC** shall be assigned to each activation. A listing of MAFFS Liaison Officers (MAFF) and a listing of EAS(P)-WFF/MC (MC) can both be found in Attachment 4. The MAFF (or MALO) and MC will normally arrive in advance of the MAFFS aircraft. Their arrival will not delay use if a leadplane and retardant are available. The MAFF duties are in Attachment 2.

2.4.1.1. The MAFF is responsible to the NMLO, for execution of the activation. Coordination with the Geographic Area Coordinator will occur as appropriate. The MAFF position is the liaison for the using agency or agencies and the DoD organization supplying MAFFS service.

NOTE

The MAFF shall be familiar with this MAFFS Operating Plan/Forest Service Instruction (FSI), the FS F&AM policies and procedures, and DoD operational assistance programs. See Attachment 2 Organizational and Operational Detail for current MAFF duties and responsibilities.

2.4.2. **EAS(P)-WFF/MC.** The EAS(P)-WFF/MC shall function as a non-flying **Mission Commander (MC)** for the DoD assets. On rare occasions, the MC may fly to retain mission currency. All information and orders from the MAFF shall be channeled through the MC unless the MC specifically requests otherwise.

2.4.3. **Lodging and Transportation.** The MAFF or their designee (normally the agency assigned purchase agent) shall have responsibility for working with the MC in arranging crew lodging and transportation. Consideration can be given to using nearby DoD facilities if available, to simplify support arrangements. Where advantageous to support fire operations MAFFS may Remain-Over-Night (RON) at the reload base with approval from MAFF and AEG. During RON situations the local base manager shall assist in security for the aircraft and lodging and transportation for the crew.

2.4.4. **International Assignments.** International assignments may be accepted after a risk assessment is completed for review from the Assistant Director of Operations, FAM, or acting. Final approval shall be obtained from the National Fire Director, FAM. Ideally, personnel requested will deploy with the aircraft tasked to support the international assignment. The MAFF, MABM, MAFFS Leadplane Pilot (LPIL), and MC positions will be filled for international MAFFS assignments. Two MAFFS Maintenance Personnel will be ordered. Military personnel may be requested to assist as needed in maintenance support of

the system while at the international location. Requesting U.S. Embassy will provide a representative and interpreter, if necessary, to assist the MAFF and MC.

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

2.4.5. State Activations. States with MAFFS aircraft may activate those aircraft for state needs after coordinating with ADO or their designee. Aircraft will only be released for a state activation after assessing national needs for MAFFS aircraft. For state activations, standard MAFF staffing is recommended. With approval of the ADO a reduced staffing with a MALO filling the role of the MAFF, or a MAFFS Airbase Specialist (MABS) filling the role as a MABM may be approved. A minimum of two MAFFS Maintenance Personnel shall be ordered. The state will order a qualified MAFFS Leadplane Pilot and aircraft to support the operation.

2.5. Pre-Mission Requirements.

2.5.1. Flight Crew Certification. The MAFF and MC shall verify that the MAFFS flight crews are current and proficient.

2.5.1.1. Currency. A structured certification exercise in conjunction with the Forest Service is required annually. MAFFS airdrop currency is required annually. Dispensing a minimum of three loads of retardant on actual fire missions may extend the flight currency an additional year if approved by the AMC/A3. The MTO will coordinate with AWs POC for support of the annual currency for flight crews.

2.5.2. MAFFS Communication. MAFFS aircraft shall have a VHF-FM 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 NIFC. (See Section 2.6.3) The NIICD Avionics Branch Chief will be point of contact for all MAFFS Communications issues. A current listing of MAFFS Communications Specialists can be found in Attachment 4.

2.5.3. MAFFS Communication Equipment. MAFFS communication equipment will be supplied from the National Interagency Radio Support (NIRSC) cache. A NFES 4660 Airbase kit is required at all MAFFS bases. Specific requirements for communication equipment and the duties of the MAFFS Communications Specialist can be found in Attachment 3.

2.5.4. Automated Flight Following. NIFC shall provide aircraft satellite tracking equipment for automated flight following of all MAFFS configured aircraft. Trackers should remain on for sorties from departing until returning to home station.

NOTE

Aircraft satellite tracking units must be charged daily or have batteries replaced after use to ensure signal reception throughout the flight period.

2.5.5. System Functional Check.

A Pre-Flight test of the MAFFS functionality should occur with a 2000 gallon water minimum discharge each time the system 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) First with the copilot pendant and a quantity at 1/6 tank volume and a coverage level setting at 4.
- b) Second with the Loadmaster pendant and a quantity at 1/6 tank volume and a coverage level setting at 4.
- c) While the drop is initiated from step B, execute an E-DUMP from the Loadmaster switch and allow the system to complete the E-DUMP command.

This check should occur at home station prior to departure.

2.6. Mission Support Requirements.

2.6.1. **Ground Personnel.** Organization support requirements are outlined in the MAFFS Standard Base Organization Guidelines contained in Attachment 2.

2.6.1.1. State and Federal employees engaged in MAFFS support functions are authorized to be transported via DoD aircraft point to point, subject to DoD/DOT restrictions.

2.6.2. **Leadplane.** MAFFS missions shall be flown under the supervision of a qualified MAFFS Leadplane /Aerial Supervision Module. Information on qualified MAFFS Leadplane Pilots can be found in Attachment 4.

2.6.2.1. On fire activations, Leadplane Pilots In Training may lead MAFFS aircraft while under the direct supervision of a Leadplane Instructor Pilot. Trainees will normally be well into phase 2 of their training, receive approval from their assigned mentor, and document a briefing with the instructor pilot in their training folder prior to leading MAFFS. Trainees may not lead MAFFS during the annual certification exercise.

2.6.2.2. International MAFFS missions shall utilize a qualified MAFFS Leadplane Pilot in the MAFFS aircraft to assist the Aircraft Commander 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 DoD approval must be obtained prior to flying civilian personnel aboard MAFFS aircraft.

2.6.3. **Communications.** All communications needs for MAFFS operations will be directed to the NIICD at NIFC. The NIICD Command Duty Officer (CDO) (208) 387-5644 will issue/approve all frequencies for MAFFS operations. The NIICD Chief, in consultation with the CDO, will approve all MAFFS equipment.

2.6.3.1. Incident operations require VHF-AM frequencies. These frequencies will be furnished to the activation by the CDO. FS Air Guard (168.6250 MHz w/Tone 110.9) shall constantly be monitored.

2.6.3.2. The NIICD shall furnish AWs one VHF-FM TDFM-136 aeronautical radio (NFES 4545) per MAFFS aircraft. These radios will be assigned to AWs during spring training or prior to the fire season. 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. This ensures radios are properly functioning and have current software.

2.6.3.3. MAFFS crews must be able to operate and be familiar with the capabilities of the VHF-FM radio prior to being assigned to MAFFS duty.

2.6.3.4. Communication kits to support ground MAFFS operations can be found in Attachment 2.

2.6.3.5. Additional NIICD Avionics Information is available at:
<http://www.nifc.gov/NIICD/index.html>

2.6.3.6. All MAFFS aircraft shall enter transponder code of 1255 enroute to, within, and from Fire Traffic Area (FTA) unless Air Traffic Control (ATC) assigns a different code.

2.6.4. **Compressors.** Ground compressors provide a direct charge to the MAFFS system and reduce recovery time between refill cycles. The MAFFS charge cycle when using ground compressors alone is approximately 14 minutes.

2.6.4.1. A ground compressor should be ordered by the MAFF for each domestic MAFFS activation. The compressor may be ordered after the activation base is established and the MAFF has coordinated with the MC for the best method of transportation.

2.6.4.2. Specific oils are needed for the diesel compressors. Contact MAFFS Maintenance personnel for more specific information.

2.6.4.3. Fuel purchases for the compressor diesel fuel and gasoline powered portable pumps are the responsibility of the agency. The ground based diesel compressors use approximately 15 gallons of diesel fuel per day. The pumps for loading water from the portable kits use gasoline. They use approximately 25 gallons per day. Contractors are required to provide fuel for contract operations from MRBs (See MRBs in 2.3).

2.6.4.4 **When on board compressor use is necessary, the following procedures should be followed to minimize wear:**

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 system with air can take up to 16 minutes to load from 0 to 1,175 psi. If load time is a concern or causes a back-up of aircraft it is preferable to pre-charge air prior to arriving at tanker base with 400-500 PSI in HP reservoirs. Follow compression recommendation in paragraph 1 to reach desired pressure. Ground compressors will be able to load remaining air in reservoirs to 1,175 psi in same amount of time as retardant loading.

Ground Compressing With Piggy Backed Ground Compressors

If two or more ground compressors are connected together to simultaneously charge a system, there is no need to on-board compress at all to save time filling at base. The systems can be charged from 0 to 1,175 in less time than retardant can be loaded.

2.6.5. **Forklift.** A minimum 6,000 pounds capacity low mast forklift with long forks is required to offload compressors and spare parts. See MAFF duties, Attachment 2.

2.6.6. **Loading and Water Supply.** All loading of liquid concentrate retardants into MAFFS aircraft require a suitable mass flow metering device to insure the specific gravity and weight of the on-load. Where a mass flow meter is not readily available, one shall be ordered. A refractometer is provided in each field kit and will be used to take regular readings (every minute) in the absence of a mass flow meter. Powdered products that are batch mixed will be sampled for specific gravity prior to loading and at least once from the stream of retardant during the loading process. LAQA will be taken for each load.

Maximum aircraft loading rate should not exceed 500 g.p.m. The water supply to the water storage tank should provide a minimum of 100 g.p.m. Aircraft wash down capability should be provided at the activation location.

2.6.7. **High Visibility Marking.** The FS shall furnish high visibility fluorescent tape for mission and training flights.

2.6.7.1. The DoD shall apply tape to each MAFFS aircraft with minimum area as specified in Attachment 2.

Aircraft markings as described in Attachment 2 are required for firefighting operations.

MAFFS aircraft conducting aircrew certification flight shall be marked as per Attachment 2 requirements. Aircraft substituted for fully marked MAFFS aircraft can be considered on a case by case basis. Substituted aircraft must be marked with block areas on the wings, horizontal, and vertical stabilizers. No more than 1 substituted aircraft shall be marked without a MAFFS number or numerical marking to differentiate aircraft.

2.6.7.2. 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.

2.6.8. MAFFS Maintenance. All maintenance requirements of the MAFFS and ground compressors shall be coordinated by the FS National MAFFS Program Manager or their designee.

2.6.8.1. Each AW assigned MAFFS have a tool and spare parts bin (field kit) furnished to them by the FS. The AW should transport this bin to the activation base when reporting for MAFFS duty.

2.6.8.2. The Loadmaster of each MAFFS flight crew is required to enter in the MAFFS maintenance log each discrepancy experienced during the operation of the system. Each discrepancy shall be reported to and corrected by the MAFFS Maintenance Personnel assigned to the mission as soon as practical. A list of current MAFFS Maintenance Personnel can be found in Attachment 4.

2.6.9. Aircraft Fueling. C-130 aircraft require approximately 1,000 gallons of jet fuel per hour. Fuel purchase is the responsibility of the MC or Aircraft Commander (AC). A DoD source is first priority, commercial contract is second, and private commercial is last.

2.6.9.1. Types of fuel required are JP4, JP8, or commercial Jet A.

2.6.9.2. **Simultaneous fueling and retardant loading is not allowed.**

2.7. Mission Operations.

2.7.1. Standard Operating Procedures. All employment of MAFFS on incidents shall conform to standard operating procedures established for contract airtankers, unless specifically modified by this Operation Plan.

2.7.1.1. Other than assigned USAF aircrew members and limited assigned USAF Combat Camera staff, non-essential personnel shall NOT fly on MAFFS aircraft during a training or operational tactical mission. Waivers will be on a case by case basis requested through the MC to the AEG/CC and NMLO, in accordance with applicable directives. If the AEG/CC and NMLO or alternate grant a waiver, the MAFF shall document this on an ICS-214 and in the Operational Summary state the circumstances that the waiver was granted.

2.7.1.2. The MC will evaluate aircraft performance based on current conditions at the activation site. The aircraft commander is the final authority for launching DoD aircraft when aircraft performance is in question. Downloading the quantity of retardant is acceptable to meet performance criteria for the activation location.

2.7.1.3. If a dispatch is cancelled after loading of retardant, the MAFF will normally coordinate with the MC, MABM, and hosting base manager for the offload or jettison the load within appropriate timeframes.

2.7.1.4. For a divert or inflight redirection to a new fire assignment and/or a reload base within the GACC, the dispatch unit providing the information to the aircraft will also immediately notify the MAFFS Host Base ATBM of the new assignment, location, and expected reload base in order to insure MC visibility. The MC or AEG/CC may refuse the assignment if the new ORM evaluation exceeds military standards.

2.7.1.5. Flight crews should target an altitude closer to 150 feet above the vegetation for the most effective drop at all coverage levels.

2.7.1.6. MAFFS normally will not land fully loaded, so when necessary, jettison areas must be designated by the controlling agency. MAFFS should jettison at 500 feet or more above ground level (AGL). If the jettison location is designated by the controlling agency to be a fire incident, clearance from the controlling Incident Commander or controlling aerial supervision must be obtained prior to MAFFS entering the Fire Traffic Area (FTA) and in no case shall the drop occur below 500 feet AGL. If the load is jettisoned or dispensed adjacent to a runway or in an aerodrome environment the drop should be no lower than 150 feet AGL. A leadplane is not needed to jettison the load under either of these conditions. Emergency jettison of the load, not in the fire area, must be reported to MAFF with the altitude, volume, and location of discharge.

2.7.1.7. MAFFS airdrops shall be conducted during daylight hours. Daylight hours are defined as 30 minutes prior to sunrise, until 30 minutes after sunset. Airdrops after sunset are permitted with concurrence of the Aircraft Commander and the MAFFS Airtanker Coordinator (Leadplane Pilot) and in accordance with the Interagency Aerial Supervision Guide (IASG NFES 2544). Recoveries may be accomplished after daylight hours.

2.7.2 Flight and Duty Limitations. Flight time shall not be planned to exceed a total of 8 hours per day.

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

2.7.2.2. 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.

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

2.7.2.4. During any 16 consecutive days, aircrews shall be off duty for two full calendar days. Days off duty need not be consecutive. The MC and MAFF must assure this requirement is upheld. This requirement may be waived IAW DoD instructions and concurrence from the MC, the crew, and the MAFF.

2.7.2.5 Standby status. During an assigned shift, in the absence of flight operations or necessary maintenance tasks, DoD personnel are considered to be on standby status. The MAFF should provide for suitable, preferably climate controlled, areas on-base for flight and maintenance crews to stage. Under certain conditions the MAFF may authorize "hotel standby". This authorization is conditional and shall take into account current fire activity, anticipated short term conditions and the location where DoD personnel are lodged. If appropriate, the MAFF, after consultation with the MC and MABM, may authorize hotel standby provided the response time from the hotel does not exceed fifteen (15) minutes from the time of receipt of a new dispatch. The MAFF shall have sole authority to approve or revoke hotel standby at their discretion.

2.7.3. **Flight Following.** NIFC shall provide C-130 H/J mission deployed aircraft aircraft with satellite tracking equipment for automated flight following of all MAFFS configured aircraft.

NOTE

If aircraft satellite tracking equipment is not installed, or do not function correctly, flight following shall occur in accordance with the National Mobilization Guide (NFES 2092).

2.7.4. Deployment to New Location.

2.7.4.1. When MAFFS are requested to deploy 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 DoD channels.

2.7.4.2. NICC will keep the AEG/CC and MAFF informed on redeployment decisions.

2.7.5. Accident/Incident Reporting Procedures. NICC shall be informed immediately by the MAFF of all accidents/incidents. NICC will notify the National MAFFS Program Manager, NIFC DCO, the NMLO in Boise and the Assistant Director for Aviation in Washington DC of all accidents/incidents.

2.7.5.1. When a DoD aircraft being used on an Agency incident is involved in a mishap or incident, the Agency policy on accident/incident reporting shall be followed.

2.7.5.1.1. All incidents shall be reported to the Regional Office by the MAFF as soon as possible. (FS-5700-14 SAFECOM Aviation Safety Communiqué)

2.7.5.1.2. Additionally, make an initial report for any accident or incident with potential to 1-888-4MISHAP (888-464-7427). This task may be delegated to the Regional Aviation Safety Manager.

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

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

2.7.7. Operations Procurement Support. Upon MAFFS activation, DoD shall provide an estimate of cost for the operation to 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 DoD unit for authorization to expend funds for operational support for the MAFFS mission.

2.7.7.1. The authority of funds is for operational support for the MAFFS mission, and can include, but is not limited to, the items below. A copy of the interagency agreement is provided in Attachment 1.

2.7.7.1.1. Flight Hours (deployment, crew swap, support, and redeployment)

2.7.7.1.2. Salary and overtime

2.7.7.1.3. Lodging and Meals

2.7.7.1.4. Rental Cars/Gas

2.7.7.1.5. Support Equipment (Reefer trucks, Port-a-potties, Trailers, Copier, Facsimile, etc.)

2.7.7.1.6. Miscellaneous Supplies (Pens, Pencils, Copy Machine Paper, etc.)

2.7.7.1.7. Rental of Office Space

2.7.7.1.8. Immediate Medical Treatment (Agency Provided Medical Care, APMC)

2.7.7.2. While the RFA is normally written for 30 days, for financial estimates, initially anticipate that the DoD length of assignment (deployment) may last up to 14 consecutive days maximum. Cost tracking methods must be in-place at all times by category. Cost estimates should be sent by the MAFF to the USFS Financial Manager at NIFC daily. The AEG staff should provide information nightly as requested by the MAFF to meet this requirement.

2.8. MAFFS Operation Safety.

It is the responsibility of all personnel involved with a MAFFS operation to be aware and practice safety.

WARNING

MAFFS operations have a number of inherently hazardous conditions that require greater vigilance. Attachment 2 establishes those actions, roles and responsibilities, and compliance standards for all MAFFS operations.

2.9. Release and Deactivation.

Under the authorization of the FS ADO the following shall apply:

2.9.1. When fire conditions moderate or a sufficient number of commercial airtankers become available nationally, MAFFS will be released by NICC with NMAC approval. Advance notification of 24 to 36 hours is requested to provide for an orderly release of personnel and equipment.

2.9.2. When release is contemplated by the GACC, NICC will be informed for determination of possible redeployment to other areas.

2.9.3. MAFFS Deactivation Release Checklist

2.9.3.1. Geographic Area Coordinators will initiate deactivation through normal channels to NICC. Information required:

2.9.3.1.1. Number of systems to be released.

2.9.3.1.2. C-130 aircraft identification and Aircraft Commander's name.

2.9.3.1.3 Base from which they will be released.

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

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

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

2.9.3.5. Geographic Area Coordinator will report actual time of departure (ATD) of MAFFS aircraft to NICC. The actual time of arrival (ATA) is reported by the AW to the AEG who will report this information back to NICC.

2.9.3.6. MAFFS retardant tanks will be flushed two times with water after final retardant load. A ground flush is preferred. If this is not an option, an airborne flush may be performed. See jettison procedure under Standard Operating Procedures, 2.7.1.3.

2.9.3.7. While on international assignments, the MAFF, upon notification of release, will notify NICC of release and expected return to USA. NICC will then notify the NIFC DCO. The DCO will make appropriate notification within DoD.

Chapter 3

MAFFS SYSTEM MAINTENANCE AND PERFORMANCE INFORMATION

3.1. MAFFS System Maintenance.

3.1.1. **MAFFS Systems.** MAFFS systems shall be maintained in accordance with the manufacturer's publications and follow on agency guidance. The MAFF provides oversight authority for this contract and may further designate government personnel to provide day to day oversight of the MAFFS Maintenance Personnel. Inspection, maintenance, and repair of MAFFS are the responsibility of the FS National MAFFS Program Manager in coordination with the Aviation Airworthiness Branch Chief or their designee. Any issues on availability and maintenance will be reported by the MAFF to the FS National MAFFS Program Manager or their designee.

3.1.1.1. When systems are deployed to a MAFFS exercise or activation, MAFFS Maintenance Personnel are ordered. Attachment 4 contains a current list of MAFFS MAINTENANCE PERSONNEL.

3.1.1.2. During an activation, all maintenance and repair of the systems shall be communicated to and coordinated as soon as practical with the MAFF (or their designee) by the MAFFS Maintenance Personnel on site.

3.1.1.3. MAFFS Maintenance Personnel should generally arrive an hour before the morning briefing to verify status of the system. At the end of the day MAFFS Maintenance Personnel accomplish a post flight inspection and attempt to clear discrepancies, resolve deficiencies, and schedule necessary preventative maintenance. MAFFS Maintenance Personnel are normally released with others unless there is critical work to be accomplished to return systems to ready status.

3.1.1.4. MAFFS Maintenance Personnel are 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 16 day period. The days off do not need to be consecutive.

3.2. MAFFS Performance Information.

3.2.1. MAFFS Capability.

3.2.1.1. Pressure controlled system produces coverage level 1 through 8 as needed per drop with quantities of full, half, one third, or one sixth of the full load.

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

3.2.1.3. Currently operated at volumes up to 3,000 gallons of retardant. System capacity may be capable of up to 3,300 gallons with less dense liquids.

3.2.1.4. C-130 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.

3.2.1.5. Aircraft has military low visibility paint design. High visibility markings are added to wing tips and vertical stabilizer for visual detection.

3.2.1.6. Delivery altitudes are most at 150 above the vegetation.

Chapter 4

TRAINING AND QUALIFICATIONS

4.1. Modular Airborne Fire Fighting System (MAFFS). The MAFFS mission is a joint mission performed by ANG, AFRC, and US Forest Service (USFS) personnel as a partnership with USFS as the lead federal agency.

4.1.1. This section describes initial certification and continuation training requirements for MAFFS-certified C-130 crewmembers. OG/CCs of MAFFS Wings may provide additional guidance or clarification in local training procedures. However, this guidance shall not change or modify the MAFFS training program outside of the waiver authority. AFI 11-2C-130, Volume 1 is the controlling document for aircrew training.

4.2. Requirements.

4.2.1. Conduct MAFFS Certification for pilots, navigators, flight engineers, and loadmasters IAW the approved training syllabus. For planning purposes the normal crew ratio for MAFFS Airlift Wings is 5.0 crews per MAFFS system. Two loadmasters are required per crew. Upon completion of training, as detailed in this instruction and the syllabus, crewmembers shall be certified for MAFFS missions.

4.2.1.1. NGB/A3 and AFRC/A3 in coordination with AMC/A3 is the approval and waiver authority for MAFFS aircrew training requirements.

4.2.1.2. Time Period for Mission Certification Training. Annual MAFFS Certification will be coordinated by the MTO 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 NLT 31 May of each year.

4.2.2. MAFFS Training Prerequisites. Aircrew will be designated by the OG/CC for course entry. **Table 4.1** reflects AFI 11-2C-130V1 requirements for MAFFS initial certification or upgrades.

Table 4.1 C-130H/J MAFFS Initial Certification / Upgrade Prerequisites.

From	To	C-130 Hours	Actual Fire Drops (Note 1,5)	Seasons (Note 2)	Deployments (Note 3)
FPQ/FP L/MP/IP	MAFFS Copilot	750 C-130 or 1,200 total hours & 500 C- 130	N/A	N/A	N/A
MAFFS Copilot	MAFFS AC	1,800 C-130 or 2,500 total hours & 750 C- 130 AC	15	2	2
MAFFS AC/ML	MAFFS Instructor	1,500 (Note 4)	30	4	6
MAFFS MN/FE	MAFFS Instructor	1,200 (Note 4)	20	2	4
MN	MAFFS MN	750	N/A	N/A	N/A
MF	MAFFS FE	750	N/A	N/A	N/A
ML	MAFFS ML	750	N/A	N/A	N/A

NOTES:

1. Actual fire drops can include multiple incremental drops during one sortie. However, OG/CCs will ensure crewmembers have a variety of actual fire drop experience (flat land, high altitude, steep terrain, full load drops, incremental drops, multiple incidents, etc).
2. Cumulative total since initial MAFFS certification. A season is experience gained between annual continuation training cycles. For example, if a Wing conducted training 6-10 May each year, the season would be defined as 11 May through 5 May. The season may be more or less than a year in length dependent on when training dates fall throughout the year.
3. Cumulative total since initial MAFFS certification. A deployment is experience gained through deploying, preferably performing actual fire drops during, and re-deploying during any one season.
4. Must be an Instructor in respective crew position. Pilots and Loadmasters shall have 100 instructor hours. Navigators and Flight Engineers shall have 50 instructor hours.
5. Total number of actual fire drops in current crew position. For example, to upgrade to MAFFS IP a total number of 30 drops as an MAFFS AC is required.

4.2.3. MAFFS Initial Certification and Upgrade Training. Accomplish initial and upgrade ground and flight training under the supervision of a MAFFS instructor. All training shall be conducted IAW the approved MAFFS Syllabus during the annual USFS-coordinated training exercise in coordination with the designated MAFF. A flight evaluation is not required.

4.2.4. MAFFS Instructors. MAFFS instructor candidates should be selected from among the most qualified MAFFS crewmembers and experienced in all phases of MAFFS flying operations, including actual wildfire airdrops. Prior to MAFFS Instructor training, candidates shall complete MAFFS continuation training to certify for the season.

4.2.5. MAFFS Continuation Training This section outlines ground and flying continuation training requirements for MAFFS-certified crewmembers. MAFFS currency duration shall be based on the annual MAFFS training program and when the training exercise is offered by the USFS. Accomplish ground training IAW Table 4.2 and flying training IAW Table 4.3. A certified MAFFS instructor shall supervise all ground continuation training. MAFFS continuation training shall be accomplished in coordination with USFS at their annually provided training event. The USFS shall provide a lead plane for annual MAFFS flight training and provide required ground training. If individuals are unable to attend training during the time specified for their Wing, they should attend training at an alternate MAFFS Wing location where training is being offered. If a crewmember does not attend a training session, they are considered non mission ready for MAFFS missions and can regain MAFFS mission ready status as directed by paragraphs 4.2.7.2 and 4.2.7.3.

4.2.6. MAFFS AW/CC will certify individual crewmember qualifications to the USFS upon successful completion of all required training items.

Table 4.2. MAFFS Ground Continuation Training Events

Event	Frequency	Position (H)	Position (J)
Operational MAFFS Wing Provided Training			
MAFFS Annual Refresher Training	A	All	All
Operating in the MAFFS Environment	A	P,N,FE	P
FM Radio Operations/Flight Following Procedures	A	N	P
MAFFS Loading, Retardant & Air Servicing Procedures	A	L	All
USFS Provided Training			
Communication & Dispatch Procedures	A	P, N	P
Tanker Base Operations	A	All	All
Fire Tactics & Behavior	A	P,N,FE	P
Chemicals	A	All	All
A-Annual *. The NMLO or their delegated representative may adjust this annual training requirement for recertification under certain conditions (ie: some portion of wing personnel unavailable for annual scheduled training due to foreign deployment) in coordination with the Wing Commander. Currency will expire at the end of the calendar month, one year after training.			

Table 4.3 MAFFS Mission Continuation Flying Requirements

Code	Event	All Crew Positions	Notes
	MAFFS Mission Events		
MD51	MAFFS Training Drop Event	9	1
MD52	MAFFS Training Drop (Wet)	3	
MD53	MAFFS Training Heavy Weight Go Around	1	2
MD54	MAFFS Training Emergency Escape	1	2
NOTES: Requirements may be accomplished during one sortie unless the MAFFS IP determines additional continuation training is required. To credit flying continuation training requirements, MAFFS training drops sll be under the supervision of a USFS or other agency provided lead plane. 1. MD51 events can be credited by accomplishing MAFFS wet or dry drops 2. Fully loaded system required. Will simulate one MAFFS heavy weight go around and one MAFFS Emergency Escape Procedure. Actual emergency dumping of load is not required.			

4.2.7. Proficiency. Proficiency on actual fires is desirable to ensure safe operations and for crewmembers to acquire sufficient experience to upgrade to next higher qualification in a timely, predictable manner. In order to maximize proficiency AEG/CC can leverage interfly opportunities. Minimum recommendations for actual fire proficiency are provided in Table 4.4.

Table 4.4 MAFFS Mission Actual Fire Proficiency Recommendations		
	Annual (Note 1)	Biennial (Note 2)
Actual Fire Deployments		
Crewmembers ≤ 5 years since certification or ≤ 2 years in current qualification)	1	2
Crewmembers > 5 years since certification and >2 years in current qualification)	0	1
Crewmembers ≥ 10 years since certification and ≥ 5 years in current qualification)	0	0
Actual Fire Drops (Note 3)		
Crewmembers ≤ 5 years since certification or ≤ 2 years in current qualification)	5	10
Crewmembers > 5 years since certification and >2 years in current qualification)	0	5
Crewmembers > 10 years since certification and >5 years in current qualification)	0	0
NOTES: 1. Annual period is defined as the period between one annual continuation training cycles. 2. Biennial period is defined as the period between two annual continuation training cycles. 3. Actual fire drops can include multiple incremental drops during one sortie.		

4.3. Interagency Personnel.

Training and qualifications for MAFFS positions shall be in accordance with the PMS 310-1 Supplement and standards developed by the MAFF Steering Committee and approved by the NMLO. The Committee consists of four senior MAFFs, the MAFFS Training Officer, and a representative from the MABM community. The MAFFS Steering Committee will select a Chairperson from its membership.

NOTE

The MABM Steering Group is designated by the MAFFS Training Officer and consists of 3 senior MABMs, one of which may serve on the MAFFS Steering Committee.

4.3.1. Assistant MAFFS Liaison Officer – Initial Experience (MALO-IE).

4.3.1.1. Prerequisites and Preparation.

4.3.1.1.1. Must be willing to serve as a Trainee and have concurrence of the individual's supervisor.

4.3.1.1.2. Apply to the Chair of the MAFFS Steering Committee prior to 1 March to attend a MAFFS training exercise.

4.3.1.1.3. Must be approved by the MAFF Steering Committee to attend the exercise.

4.3.1.1.4. Prior to attending an exercise must demonstrate having successfully completed S-110 Basic Wildland Fire Orientation, L-180 Human Factors in the Wildland Fire Service, S-190 Introduction to Wildland Fire Behavior, NIMS IS-700 National Incident Management System, an Introduction, and IS-800 National Response Framework, an Introduction. Either IQCS record or equivalent, or letter from training officer stating all required classes are completed shall be sent with application to steering committee chair.

4.3.1.2. MALO Initial Experience (N-9015 MAFFS Liaison Officer Training).

4.3.1.2.1. Attend a MAFFS exercise FS briefing session with the flight crews and exercise personnel (approximately 3 hours).

4.3.1.2.2. Attend Flight-line familiarization at an exercise with the flight crews and MAFFS qualified agency personnel (approximately 3 hours).

4.3.1.2.3. Attend classroom instructions on FS, DoD and State agreements, roles for MAFFS personnel, and activation operational procedures and expectations.

4.3.1.3. After completing the MALO Initial Experience, must be recommended by the MAFF Steering Committee before receiving a training assignment as an MALO-T.

4.3.2. Assistant MAFFS Liaison Officer (MALO) Qualifications. Must be willing to serve as an MALO and have concurrence of individual's supervisor.

4.3.2.1. MALO Trainee (MALO -T)

4.3.2.1.1. Must assist on at least two activations as an MALO-T. An MALO-T must get a startup or close out assignment. An assignment on a MAFFS exercise cadre may be credited for only one activation. Performance reports shall be completed for personnel and forwarded to the MAFFS Steering Committee Chair.

4.3.2.1.2. Must have successfully completed ICS-200 Basic ICS, S-260 Interagency Incident Business Management, and S-270 Basic Air Operations, or their equivalent as determined by the MAFFS Steering Committee.

4.3.2.2. After completing the MALO training, must be recommended by MAFFS Steering Committee and approved by the NMLO or their delegated representative before being designated as an MALO.

4.3.2.3. Recurrent Training.

4.3.2.3.1. Must attend a MAFFS training exercise or have an operational assignment no less than every third year. The NMLO or their delegated representative may extend this time requirement upon request of the MALO.

4.3.3. **MAFFS Liaison Officer (MAFF in ROSS) Qualifications.** Must be willing to serve as MAFF and have concurrence of individual's supervisor.

4.3.3.1 MAFF Training.

4.3.3.1.1. Must have assisted on at least 2 activations as a fully qualified MALO. It is recommended that one or more be with a minimum of 4 MAFFS aircraft. An assignment on a MAFFS training exercise cadre may be credited for only one activation.

4.3.3.1.2. Must have successfully completed L280 Followership to Leadership, or the State equivalent as determined by the NMLO or their delegated representative.

4.3.3.1.3. Must be familiar with the positions and duties of personnel needed to be ordered for MAFFS activations. Must be familiar with the setup, teardown, required documentation, daily accountable actions, packing/shipping of radio kits commonly ordered for MAFFS, and the operation of the base station radios, handheld portables.

4.3.3.1.4. Must have minimum of one exercise training assignment and one activation training assignment as acting MAFF under a mentoring MAFF. Demonstrate the ability to work effectively with Mission Commanders and other support personnel as evidenced by performance reports.

4.3.3.1.5. Must demonstrate the qualities to plan for various contingencies, effectively work through difficult situations, make and communicate decisions effectively, and lead others in a challenging Forest Service mission.

4.3.3.2. After completion of MAFFS training, must be recommended by mentor to the MAFFS Steering Committee and approved by NMLO or their delegated representative before being designated as an MAFF.

4.3.3.3. Recurrent Training.

4.3.3.3.1. Must attend a MAFFS training exercise or have an operational assignment no less than every third year. The NMLO or their delegated representative may extend this time requirement upon request of the MAFF.

4.3.4. **MAFFS Airtanker Base Specialist (MABS) Qualifications.**

4.3.4.1. Must be willing to serve as a MABS and have concurrence of individual's supervisor.

4.3.4.2. Must be recommended by the MABM Steering Group for entry into the MABS training program.

4.3.4.3. MABS Initial Training.

4.3.4.3.1. Must be current (last assignment within a 3-year period) in a Single Engine Air Tanker (SEAT) or Large Airtanker Base position. These positions include; Air Tanker Base Manager (ATBM), Assistant ATBM, Mix Master Specialist (MXMS), Ramp Manager (RAMP), or similar. Produce agency documentation (red card, qualification committee letter, etc.) for that prerequisite position. 4.3.4.3.2. Must receive training in US Air Force (AF) aircraft marshaling procedures to be used when marshaling AF aircraft. 4.3.4.3.3. Must attend a MAFFS exercise and be recommended by a MABM Mentor in a performance rating for qualification (N-9041 MAFFS Training).

4.3.4.3.4 Knowledge of set up, tear down, repack and inventory of loading pit equipment contained in the “MAFFS Pit Kits”.

4.3.4.3.5 Ability to operate MAFFS Diesel Air Compressor Units and Loading pumps

4.3.4.3.6 General knowledge on how to construct and maintain loading pits.

4.3.4.3.7 Ability to mitigate any unsafe condition on the ramp and loading pit areas.

4.3.4.3.8 Develop skills in marshalling MAFFS aircraft proficiently.

4.3.4.3.9 Required coordination and communication with the MAFFS organization. (Agency, Military, Contractor, FBO's, State Personnel etc.)

4.3.4.3.10 Trained to function independently to support MAFFS.

4.3.4.3.11 Understanding State requirements: a MABS can be ordered as a MABM for State Activations and must have the knowledge to function in that capacity.

4.3.4.3.12 Understand the MAFFS mechanics responsibilities.

4.3.4.3.13 Process for MABS-R to maintain qualifications: annually watch MAFFS ATB DVD, Review Hand Signals, Sign Required Training Documents and file in employees training folder.

4.3.4.4. MABS Recurrent Training:

4.3.4.4.1. Must attend a MAFFS training exercise or participate in an actual MAFFS activation no less than every third year.

4.3.4.5. MABS at Reload Bases: Agencies personnel shall meet the minimum requirements as at all MAFFS reload locations that includes: Attend a MAFFS training exercise or participate in an actual MAFFS activation no less than every third year.

4.3.4.5.1. Must have at least one MABS qualified person on site.

4.3.4.5.2. Review the MAFFS Reloading Training Video annually.

4.3.4.5.3. All training received must be documented according to their agency process.

4.3.5. MAFFS Airtanker Base Manager (MABM) Qualifications.

4.3.5.1. Must be willing to serve as MABM and have concurrence of individual's supervisor and must be recommended by the MABM Steering Group for entry into the MABM training program. MABM qualified individuals may be deployed nationally and must be able to work in a wide variety of situations.

4.3.5.2. MABM Initial Training.

4.3.5.2.1. Must be a current ATBM (last ATBM assignment within a 3-year period) and produce agency documentation (red card, qualification committee letter, etc.) for that position.

4.3.5.2.2. Must have at least one assignment as a MABS on an actual MAFFS activation as an assistant to the MABM with four or more aircraft, or more than one activation with two or more aircraft. Qualifying assignment(s) shall include either a set-up or a close out for an activation.

4.3.5.2.3. Must attend a MAFFS training exercise and be designated as the trainee MABM. From documentation in performance reports; must be recommended for qualification from the MABM mentor(s) to the Steering Group.

4.3.5.3. MABM Recurrent training.

4.2.5.3.1. Must attend a MAFFS training exercise or participate in an actual MAFFS activation with at least two MAFFS aircraft in the activation no less than every third year.

NOTE

MAFFS Base Personnel at an Activation or Reload location must have documented training in reloading MAFFS.

4.3.6. MAFFS Safety Officer. (Endorsement/ No Identifier) Must be willing to serve as a MAFFS Safety Officer and have concurrence of individual's supervisor. Individuals assigned as a MAFFS Safety Officer shall not be assigned other responsibilities. Safety is the first and primary responsibility for this position.

4.3.6.1. Must be current, qualified and ordered as either a MALO, MABM, MABS, or THSP. THSP may be used when RASM personnel are used with MAFFS Safety documented in the special needs section of the order. The person filling the position must produce agency documentation (red card, qualification committee letter, etc.) if requested.

4.3.6.2. Must be recommended by the MAFFS Steering Committee or MABM Steering Group for entry into the MAFFS Safety Officer training program.

4.3.6.3. Attend a MAFFS exercise in the Safety Officer position and be recommended by mentor in a performance rating for endorsement.

4.3.6.4. Attend a MAFFS training exercise or participate in an actual MAFFS activation no less than every third year.

4.3.6.5. The MAFF Steering Committee will review the performance rating and identify individuals approved for this endorsement.

4.3.7. MAFFS Communications Specialist (no NWCG identifier). Must be willing to serve as a MAFFS Communications Specialist and have concurrence of individual's supervisor. The MAFFS Communications Specialist is a multi-discipline position encompassing aviation communications (AVIN), ground radio & telephone (COMT/COML), and information technology (CTSP). All MAFFS Communications Specialists shall be approved by the NIICD Avionics Branch Chief.

4.3.7.1. Must be current and qualified as an AVIN, COMT, COML or THSP and produce agency documentation (red card, qualification committee letter, etc.) for the position.

4.3.7.2. Non-federal personnel must possess a valid FCC General Radio Telephone license. Federal personnel should possess a valid FCC General Radio Telephone license.

4.3.7.3. Must possess knowledge of, and be able to setup, operate, make field repairs, and troubleshoot a MAFFS radio in a C-130 and NIRSC kits typically assigned to a MAFFS operation.

4.3.7.4. Must be able to request and manage incident frequencies.

4.3.7.5. Must be able to setup, operate, and troubleshoot remote networks and laptops typically operated on a MAFFS operation.

4.3.7.6. Must be able to order, maintain and install telephones typically operated on a MAFFS operation.

4.3.7.7. Attend and participate in briefings with the MAFF, MABM and the DoD as appropriate.

4.3.7.8. Must attend a MAFFS training exercise or participate in an actual MAFFS activation no less than every third year.

4.3.7.9. In the event no qualified MAFFS Communications Specialist is available, individual AVIN, COMT/COML, and CTSP should be ordered.

4.3.8. Administrative and Ground Support Positions. Must be willing to serve in a supporting role to MAFFS and have concurrence of individual's supervisor.

4.3.8.1. Must be current and qualified in the assigned position (such as TIME, PA25,) and produce agency documentation (red card, qualification committee letter, etc.) for the position.

4.3.8.2. Attend initial briefings by the MAFF, MABM and the DoD as appropriate to the position.

ATTACHMENT 1
REQUEST LETTER EXAMPLE / MEMORANDUMS OF UNDERSTANDING (MOU)
RELEASABLE MAFFS OPERATIONS INFORMATION

A1.1. Example of MAFFS Request to US Northern Command.

Figure A1.1. Example of a request from NIFC to NORTHCOM to activate MAFFS.

National Multi-Agency Coordinating Group
3833 South Development Avenue; Boise, ID 83705

June XX, 20XX

To: Executive Secretary of Department of Defense JDOMS through Region X DCO

From: The National Interagency Fire Center

Subject: Request for Military Support

The western states continue to experience elevated drought conditions. Fire activity has increased in terms of large fires, emerging fires and initial attack activity. Exclusive Use Large Airtanker support requests have exceeded current capability. Given the dry fuel conditions and forecast for hot, windy conditions fire activity is expected to continue.

The National Interagency Fire Center (NIFC) requests DoD's support with the following Wildland Firefighting (WFF) assets:

- Request two (2) C-130s capable of transporting and employing the MAFFS, along with appropriate command, control and support personnel to assist in firefighting as outlined in the 2014 MAFFS Operating Plan (MOP).
- Initial MAFFS C-130 Deployment location is Boise, Idaho (KBOI) on the Airtanker Base (ATB) ramp. Aircraft are to be operational and ready to receive launch order requests on or before Sunday XX July 2014 at 1030.
- MAFFS operations are to be conducted within the western states in support of Geographic Area Coordination Centers (GACC) from ATBs mutually approved by USFS and DoD as outlined in the MOP.

The anticipated duration of need is thru XX August 2014 unless released earlier.

All DoD incurred costs in support will be reimbursed in accordance with 31 USC, Section 1535 of the Economy Act to include pay and allowances. Sufficient funds will be obligated upon receipt

of estimated DoD costs for this exercise. This request has been reviewed by COL XXX XXXX, NIFC DCO, 425-487-4790.

The POC for financial issues at NIFC is Ms. Renee Crawford, 208-387-5677.

If you have questions concerning this Request for Assistance, contact Kim Christensen, National Interagency Fire Center, 208-387-5949.

/s/ Kim Christensen, Deputy Assistant Director – Operations, USDA-FS NIFC



INTERAGENCY AGREEMENT
for the
**PROVISION OF TEMPORARY SUPPORT DURING
WILDLAND FIREFIGHTING OPERATIONS**

among the

U.S. DEPARTMENT OF THE INTERIOR,

the

U.S. DEPARTMENT OF AGRICULTURE,

and the

U.S. DEPARTMENT OF DEFENSE

DOI (BLM-FAD) Agreement No. L15PG00057

USDA (Forest Service) Agreement No. 15-IA-11132543-040

I. INTRODUCTION.

Wildland fire management, suppression, and safety are of national importance and are an ongoing concern of the U.S. public. Considerable cooperation and coordination already exist among the Department of the Interior (DOI), the Department of Agriculture (USDA), and the Department of Defense (DoD) for discharging these responsibilities.

The National Multi-Agency Coordinating Group (NMAC) consists of representatives from the U.S. Department of the Interior (Bureau of Land Management (BLM), Bureau of Indian Affairs (BIA), Fish and Wildlife Service (FWS), National Park Service (NPS)), the USDA - Forest Service, the U.S. Fire Administration (USFA), and the National Association of State Foresters (NASF). The NMAC representatives from Federal land management agencies within the Departments of the Interior and Agriculture (in this document, the "requesters"), through delegated authority from their respective agency directors, are responsible for providing national coordination and logistical support for the activities related to the control of forest and range fires within the United States, which includes all 50 States and the District of Columbia, and fires on State and private lands, as well as in all U.S. Territories and Possessions. The National Interagency Coordination Center (NICC), through oversight from the NMAC, is the focal point for coordinating the mobilization of resources for wildland fires throughout the United States and internationally, when requested. The NICC is jointly managed by the Departments of Agriculture and the Interior.

The Assistant Secretary of Defense for Homeland Defense and Global Security (ASD(HD&GS)), as the successor to the office of the Assistant Secretary of Defense for Homeland Defense and Americas' Security Affairs, is assigned in DoD Directive 5111.13, "Assistant Secretary of Defense for Homeland Defense and Americas' Security Affairs (ASD(HD&ASA))," January 16, 2009, to serve as the principal civilian advisor to the Secretary of Defense and the Under Secretary of Defense for Policy on Defense Support of Civil Authorities (DSCA). The Secretary of Defense delegated to the ASD (HD&GS) the authority to approve certain requests for assistance from civilian authorities, such as those related to DoD Components (including the Military Departments and DoD agencies) providing wildland fire emergency assistance to Federal agencies through the NMAC.

II. PURPOSE.

The purpose of this Interagency Agreement (Agreement) is to establish the general guidelines, terms, and conditions under which requesters will request and DoD will provide temporary support to Federal agencies through the NMAC in wildland fire emergencies occurring within any State, U.S. Territory or Possession, or the District of Columbia, including fires on State and private lands. It is also intended to provide the basis for reimbursement of DoD expenditures under the Economy Act (31 U.S.C. §§ 1535-36) for goods and services provided through the NMAC to the various Federal land management agencies for response to wildland fire emergencies.

III. AUTHORITIES.

- A. The Economy Act of June 30, 1932, as amended (31 U.S.C. §§ 1535, 1536)
- B. Department of the Interior and Related Agencies Appropriations Act for FY 2015 (Division F of the Consolidated and Further Continuing Appropriation Act, 2015, Public Law No. 113-235), and Appropriations Acts for subsequent fiscal years
- C. Federal Land Policy and Management Act of 1976 (43 U.S.C. § 1701 et seq.)
- D. National Park Service Organic Act of August 1916 (16 U.S.C. § 1)
- E. National Wildlife Refuge System Administration Act of June 27, 1998, as amended (16 U.S.C. § 668dd)
- F. National Indian Forest Resources Management Act of 1990 (25 U.S.C. § 3101 et seq.)
- G. Forest Service Organic Act of 1897 (16 U.S.C. 551 et seq.)
- H. Cooperative Forestry Assistance Act of 1978 (P.L. 95-313, 92 Stat. 365, as amended; 16 U.S.C. §§ 2101 (note), 2101-2103, 2103a, 2103b, 2104-2105)
- I. National Forest Management Act of 1976 (16 U.S.C. § 1600)
- J. DoD Directive 3025.18, Defense Support of Civil Authorities (DSCA), December 29, 2010, as amended
- K. DoD Directive 5111.13, Assistant Secretary of Defense for Homeland Defense and Americas' Security Affairs (ASD(HD& ASA)), January 16, 2009
- L. DoD Instruction 6055.6, DoD Fire and Emergency Services (F&ES) Program, December 21, 2006
- M. DoD Financial Management Regulation (FMR), DoD 7000.14-R, Volume 11A, Reimbursable Operations
- N. DoD Financial Management Regulation (FMR), DoD 7000.14-R, Volume 11B Reimbursable Operations –Working Capital Funds (WCF)

- O. Department of the Interior and Department of Agriculture Service First Authority (43 U.S.C. § 1703), as amended

IV. RESPONSIBILITIES.

A. On behalf of the requesters, the Forest Service agrees to:

1. Submit initial requests for DoD support through the DoD Executive Secretariat. All subsequent requests will be submitted through the Defense Coordinating Officer (DCO), once a DCO is assigned to the NMAC.
2. Provide to DoD an appropriate funding agreement and ordering document referencing this Agreement. The document will describe the DoD capabilities requested, when and where the resources are needed, an estimate of the length of time the resources are required, agency fund code(s), billing instructions, and acquisition authority. The Forest Service will ensure that funds are available to reimburse DoD for goods and services provided, and that the request is in the best interest of the government.
3. Ensure that requests for utilization of DoD aviation or other assets will be reviewed and comply with the Economy Act of June 30, 1932, as amended (31 U.S.C. §§ 1535, 1536), the Federal Acquisition Regulations (FAR), and any other applicable laws and regulations, as appropriate.
4. Provide appropriate personnel, training, equipment, supplies, and other resources as required to prepare DoD personnel for the following wildland fire suppression duties:
 - a. Modular Airborne Fire Fighting System (MAFFS) annual certification.
 - b. Ground firefighting and overhead support personnel training prior to assignment to a fire.
 - c. Rotary-wing aircrews and support personnel training for external load water bucket operations prior to utilization on a fire.
 - d. Communications training in the use of the National Interagency Incident Communications Division radios, if installed and certified for the designated DoD aircraft.
 - e. Aircrew training with civilian fire manager(s) on-board aircraft during flight operations.
5. Reimburse DoD for the actual costs of the goods and services (e.g., personnel, equipment, aircraft, supplies, and fire protection services) provided in wildland fire management operations.
 - a. Actual costs include all direct costs attributable to providing such goods or services. Actual costs also include indirect costs (overhead) if the personnel, equipment, aircraft, supplies, and fire protection services are provided for the benefit of requesters.
 - b. Reimbursement will be in accordance with DoD Financial Management Regulation (FMR) DoD 7000.14-R. A summary of the rules for determining the reimbursable amounts to be collected by DoD Components is found in the FMR in Volume 11A, Chapter 1, addendum 1, addendum 2, and any subsequent related addenda.
 - c. Transfer of funds will be made directly to the appropriate DoD Component via the Intra-governmental Paying and Collection (IPAC) System.

6. Provide a summary by agreement number of the cumulative DoD approved billings, DoD reimbursements, and an estimate of the outstanding billings based on DoD obligation estimates by DoD Components for the prior calendar year by February 15 of each calendar year.

B. DoD agrees to:

1. Provide assistance in the form of personnel (military or certified DoD civilian firefighters meeting standards set forth in the National Wildfire Coordinating Group (NWCG) publication PMS 310-1), equipment, aircraft, supplies, and/or fire protection services on a reimbursable basis when a request for assistance complies with the requirements of this Agreement and DoD is able to provide the requested resources.
2. Provide MAFFS-capable aircraft, MAFFS-trained aircrews, and appropriate support personnel to conduct aerial dispersal of fire retardant for fire suppression on a reimbursable basis when requests for this type of assistance comply with the requirements of this Agreement and DoD is able to provide the requested support. The Forest Service owns and will provide MAFFS units for deployment on DoD MAFFS-capable aircraft.
3. Provide rotary-wing aircraft, NMAC-trained aircrews, and support personnel capable of conducting external load, water bucket operations on a reimbursable basis when requests for this type of assistance comply with the requirements of this Agreement and DoD is able to provide the requested support.
4. Provide Incident Awareness and Assessment (IAA) assets and support personnel capable of conducting IAA on a reimbursable basis when requests for this type of assistance comply with the requirements of this Agreement and DoD is able to provide the requested support.
5. Ensure servicing DoD Components provide the Forest Service with an obligation estimate for DoD resources at the time of request, including updates as needed. DoD will coordinate closely with the Forest Service and the Defense Finance and Accounting Service (DFAS) (as prescribed by DoD FMR, Volume 11A, Chapter 3) to ensure appropriate billing procedures are followed. DoD will also provide a single point of contact within each DoD Component.
6. Provide the Forest Service invoices from each DoD Component for goods and services using a Standard Form (SF) 1080 billing document.
 - a. Submit invoices to: USDA Forest Service, Financial Manager, 3833 South Development Avenue, Boise, Idaho, 83705.
 - b. Invoicing for actual expenditures for reimbursements (performance of work or services, payments to contractors, or delivery from inventory) will begin within sixty (60) calendar days after the month in which performance occurred. Final billing invoices will be submitted within ninety (90) calendar days of the termination of the supported event.

- c. Supporting documentation is required for each billing invoice (SF-1080) and should include: Agreement number, DoD point of contact (POC), POC commercial phone number, financial data, copies of actual invoices documenting expenditures, and whether the invoice is a partial or final billing.
 - d. DoD Components will cite the obligation document number upon the Forest Service approval of the SF- 1080 billing document and submit it to the appropriate DFAS paying station.
 - e. Acceptable methods of transmitting the SF-1080 billing document and back-up documentation to the Forest Service include a printed copy via standard U.S. mail or overnight service, fax, or e-mail.
- 7. Retain the right to disapprove or modify any request that interferes with the Department's operational readiness or that DoD is otherwise unable to approve or perform.
 - 8. Provide, upon Secretary of Defense approval and on a reimbursable basis, wildland firefighting support beyond that for which approval authority has been delegated in the Secretary of Defense-approved Standing Defense Support of Civil Authorities Execute Order.

C. The DOI, USDA, and DoD mutually agree to:

- 1. Conduct an annual pre-season coordination meeting or conference call not later than May 1, as well as an annual post-season meeting or conference call not later than December 20, to share plans and to review lessons learned, current procedures, and department policies and to make any revisions, as necessary.
- 2. Conduct a financial review at the post-season meeting. The appropriate DoD Components and the Forest Service will review all DoD support to requesters for the previous fire season, complete outstanding reimbursement transactions, update points of contact, and train new personnel on the reimbursement process (if necessary). Reimbursement procedures will also be reviewed for the upcoming fire season.

V. TERMS OF AGREEMENT.

- A. This Agreement will become effective and will remain in effect for a period of five (5) years commencing on the date of the final signature on this Agreement unless otherwise agreed in writing. This Agreement will be reviewed by all parties to determine suitability for renewal, revision, or termination. Extensions to this agreement will be in writing and signed by all signatories, or authorized representatives, to this Agreement.
- B. Any party may terminate its participation in this Agreement by providing thirty (30) calendar days' written notice prior of such termination to the other parties. The parties understand that reimbursement for any expenses properly incurred before the cancellation date will be made in accordance with the terms of this Agreement. The remaining parties may continue participation under the provisions of this Agreement as long as DoD remains a party.

- C. This Agreement does not supersede or modify existing mutual aid agreements, assistance agreements, memoranda of understanding, or other contract procedures between individual DoD installations and local communities.
- D. This Agreement, upon becoming effective, supersedes the Interagency Agreement Among the Departments of Agriculture (FS No. 10-IA-11130206-008), the Interior (BLM No. L10PG00548), and Defense for the *Provision of Temporary Support During Wildland Firefighting Operations*, effective June 2, 2010.

VI. GENERAL PROVISIONS.

- A. All obligations of the parties to this Agreement will be subject to the availability of funds for such purposes. All parties agree to undertake obligations in good faith reliance on the other parties' good faith representations that funds are, in fact, available to satisfy obligations.
- B. Any signatory department may initiate a modification to this Agreement to incorporate any changes that are mutually agreed to by the parties. Such modifications will be in writing and will identify the specific activities as appropriate and any other pertinent details of the modification. The Forest Service is designated as the agency responsible for all administrative oversight and preparation of modifications to this Agreement. A modification will not take effect until documented and signed by authorized signatories for the departments.

VII. RESOLUTION OF DISAGREEMENTS.

In the event of a disagreement in the interpretation of the provisions of this Agreement, or amendments and/or modifications thereto, that cannot be resolved at the operating level, the areas of disagreement will be stated in writing by each party and presented to the other parties for consideration. If agreement on interpretation is not reached within thirty (30) days, the parties will forward the written presentation of the disagreement to senior officials within their respective organizations for appropriate resolution, and/or make use of dispute resolution resources as may be available to the Departments.

Nothing herein is intended to conflict with current DoD, USDA, and DOI directives. If the terms of this Agreement are inconsistent with existing directives of the Departments entering into this Agreement, then those portions of the Agreement that are determined to be inconsistent will be invalid, but the remaining terms and conditions not affected by the inconsistency will remain in effect. At the first opportunity for review of the Agreement, all necessary changes will be accomplished either by an amendment to this Agreement or by entering into a new agreement, whichever is deemed to be in the best interest of all parties.

VIII. PRINCIPAL CONTACTS.

A. For the National Interagency Fire Center:

TECHNICAL CONTACT

NICC Manager
National Interagency Fire Center
3833 South Development Avenue
Boise, Idaho 83705-5354
208/387-5400 – Office
208/387-5414 – Fax

ADMINISTRATIVE CONTACT

Assistant Director, Operations
USDA, Forest Service
National Interagency Fire Center
3833 South Development Avenue
Boise, Idaho 83705-5354
208/387-5605 – Office
208/387-5398 – Fax

AGREEMENTS CONTACT

Grants and Agreements Specialist
USDA, Forest Service
National Interagency Fire Center
3833 South Development Avenue
Boise, Idaho 83705-5354
208/387-5616 – Office
208/387-5398 – Fax

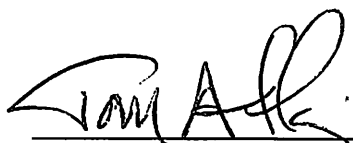
B. For the Department of Defense:

ADMINISTRATIVE CONTACT

Director, Defense Support of Civil Authorities
Office of the Assistant Secretary of Defense
(Homeland Defense & Global Security)
2600 Defense Pentagon, Room 5D337
Washington, DC 20301-2600
703-697-5822 – Office
703-697-5991 – Fax

IX. SIGNATORIES.

By signature below, the Departments certify that the representatives listed in this document are authorized to act on matters related to this agreement and agree that the Departments will use their best efforts to carry out this Agreement.



Tom Atkin

Acting Assistant Secretary of Defense for Homeland Defense and Global Security

U.S. Department of Defense

1 APR 2016

Date




Robert Bonnie

Under Secretary for Natural Resources and Environment

U.S. Department of Agriculture

5/9/16

Date



Kristen J. Sarri

Principal Deputy Assistant Secretary, Policy, Management and Budget

U.S. Department of the Interior

3/25/2016

Date

A1.3

CAL FIRE# 7CA02773
NPS# PI5AC00969
USFS # 18-FI-1 1052012-101
BLM# MOU-CA933-1607
Cal OES# 6053-5
CMD# 3001-15-01

RECIPROCAL FIRE PROTECTION COOPERATIVE AGREEMENT FOR STATE OF CALIFORNIA MILITARY DEPARTMENT ASSETS

MODULAR AIRBORNE FIRE FIGHTING SYSTEMS (MAFFS)

BY AND BETWEEN

STATE OF CALIFORNIA
DEPARTMENT OF FORESTRY AND FIRE PROTECTION

STATE OF CALIFORNIA MILITARY DEPARTMENT

UNITED STATES DEPARTMENT OF AGRICULTURE
FOREST SERVICE
CIFIC SOUTHWEST REGION

COOPERATIVE FIRE PROTECTION AGREEMENT**EXHIBIT E****MODULAR AIRBORNE FIRE FIGHTING SYSTEMS****(MAFFS) STATE ACTIVATIONS**

The procedures contained in this exhibit apply to State activations of MAFFS. Federal activations of MAFFS are covered in "Operations Order Coronet Forest" and the current Forest Service "MAFFS Operating Plan."

A. ASSUMPTIONS, RESTRICTIONS, AND LIMITATIONS

1. The FOREST SERVICE maintains MAFFS equipment for use in fire suppression. If not being used for a federal activation, the FOREST SERVICE may loan MAFFS units to CAL FIRE for fire suppression efforts.
2. CAL FIRE will only request the use of MAFFS equipment and FOREST SERVICE support in emergency situations when life and/or property is immediately threatened, when civilian resources are not reasonably available, and/or when it has been determined that other available resources are not appropriate.
3. State activation of MAFFS includes all necessary personnel, equipment, and aircraft of the California Air National Guard's Channel Islands Air National Guard Base (ANGB).
4. Missions involving support of national security contingencies will have precedence over state emergency response.
5. One or both of the MAFFS units, being the property of the FOREST SERVICE, maybe recalled for federal activations by FOREST SERVICE.
6. The CAL FIRE will reimburse FOREST SERVICE for all costs, including overhead, related to providing services of the Lead Plane or Aerial Supervision Module, FOREST SERVICE MAFFS Liaison Officer, and any additional costs incurred as a direct result of providing support to CAL FIRE.

When CAL FIRE, during fire emergencies has determined that the California Air National Guard aircraft are required for MAFFS, the following procedures shall be followed:

B. FOREST SERVICE SHALL:

1. Loan two Channel Islands-based MAFFS to the CAL FIRE in emergency situations. When BUREAU, NPS or FOREST SERVICE has need of the MAFFS, FOREST SERVICE will redirect it to federal service through the National Mobilization Plan.
2. Furnish qualified MAFFS Liaison Officers for each activation request by state, until state can provide qualified personnel.
3. Request reimbursement from CAL FIRE for all costs, including overhead, related to providing the services of the Lead Plane or Aerial Supervision Module, MAFFS Liaison Officer, and any maintenance service requested **IAW** paragraph B. 1-3 of this exhibit.

c. CAL FIRE SHALL:

1. Upon presentation of a bill for collection, reimburse FOREST SERVICE for all costs defined in paragraph B. 4. of this exhibit. Reimbursement to FOREST

SERVICE shall be made payable to the United States Department of Agriculture, Forest Service, for deposit to the appropriation originally obligated. Mail to:

USDA, Forest Service
Albuquerque Service
Center 101 B Sun
Avenue NE
Albuquerque, NM 87120

2. Use only FOREST SERVICE approved retardants.
3. Return MAFFS units to the FOREST SERVICE in the same condition as received. All maintenance and operating costs incurred during CAL FIRE operations will be paid by the State.
4. Notify FOREST SERVICE through the Southern Geographical Area Coordination Center (GACC), immediately upon activation. The Southern GACC will notify the Region 5 Regional Aviation Officer and Director of Fire and Aviation Management and Forest Service, Assistant Director or Deputy for Operations at NICC.
5. Provide maintenance service during operation through use of FOREST SERVICE maintenance contractors or FOREST SERVICE approved personnel.
6. Be liable for the cost of repair or depreciated value of either MAFFS unit lost, damaged, or destroyed while loaned to CAL FIRE unless such loss, damage, or destruction is the result of an intentional act by a FOREST SERVICE employee.
7. Furnish qualified MAFFS aerial supervision at each State activation. The aerial supervision will be the CAL FIRE Aerial Supervision Module (ASM), if available. If no ASM is available, a USFS Lead Plane / ASM will be assigned to the MAFFS coordination.

D. SPECIAL PROCEDURES:

1. CAL FIRE will evaluate what suitable and available aircraft are located within two hours of a California MAFFS Hub Base to substantiate the State MAFFS activation.
2. When multiple structures are immediately threatened and all local area (two hour time frame) airtankers are committed and other contract aircraft (outside local areas) cannot be moved into the local area within two hours, the Director of CAL FIRE may request the Adjutant General (TAG) to order the California Military Department (CMD) C-130s at Channel Islands activated for airtanker assignment IAW this agreement. FOREST SERVICE agrees that when this activation takes place, the two MAFFS units assigned and located at Channel Islands, California will also be included in the activation order.
3. CAL FIRE (Sacramento) will be the principle unit to approve the activation request after they ascertain that the contract airtanker fleet (CAL FIRE, BUREAU, NPS and FOREST SERVICE) is committed and/or unavailable.
4. Any additional MAFFS requests will come through normal channels, and requested from National Interagency Coordination Center

5. Media releases for a State activation will be coordinated through the CAL FIRE MAFF and/or the CAL FIRE PIO, if assigned.
6. In the event a MAFFS unit becomes inoperative and a replacement is needed, CAL FIRE will request the Regional Fire Director for Fire and Aviation Management to provide a replacement unit, if available.
7. If the fire situation continues to worsen after State activation, CAL FIRE may request national mobilization of MAFFS, at which time the program will be operated as a federal activity. CAL FIRE will request that any MAFFS on State activation be placed under federal activation when an out-of-state (national mobilization) MAFFS is/are assigned to California.
8. CAL FIRE and CMD may use MAFFS units for training purposes upon notification of Southern GACC the National MAFFS Liaison Officer.
9. CAL FIRE will assign a Qualified MAFFS Airtanker Base Manager and MAFFS Safety Officer upon activation.
10. An operational Command Center will be identified for the MAFFS operation (Region Command Center).
11. FOREST SERVICE will provide an Agency Representative during activations.
12. Only personnel essential to the mission will be transported aboard aircraft during the fire missions.
13. The assigned qualified MAFFS Liaison Officer is the person in charge of the MAFFS operations.
14. CAL FIRE will adhere to all parts of the current National MAFFS Operating Plan.

E. MAFFS ACTIVATION PROCEDURES

- I. CAL FIRE places an order for an ACTIVATION of the two Channel Islands MAFFS through normal dispatch channels to CAL FIRE Sacramento Fire Protection Duty Chief. (See CAL FIRE Procedure 8100-327.)

F. RESOURCE/PERSONNEL REQUIRED AND ASSOCIATED COSTS:

- I. CMD minimum personnel required to maintain Activation are as follows:
 - Aircrew: Three officers and three enlisted per aircraft.
 - Ground Crew: Ten enlisted per aircraft.
 - Command and Control: Three officers and four enlisted.
2. Sacramento Command Center initiates requests for the following CAL FIRE personnel and equipment to respond to Channel Islands:
 - A. One CAL FIRE MAFFS Liaison Officer (MAFF) (request one from FOREST SERVICE if no CAL FIRE MAFF is available). Liaison Officer will respond with MAFFS if they are later dispatched to operate from another base.
 - B. The following should be requested and instructed to respond to the base where it is anticipated that the MAFFS will be operating from:
 - I. One CAL FIRE MAFFS Air Tanker Base Manager and One Safety

Officer (request one from FOREST SERVICE if no CAL FIRE Air Tanker Base Manager or Safety Officer is available).

2. One retardant vendor Technical Representative and portable mixing base.

G. MISCELLANEOUS CONDITIONS

I. To the extent authorized by law, CAL FIRE and CMD agree to defend and hold harmless the United States of America from any claims arising as a result of this Agreement.

The following reimbursement rates apply to the Cooperative Agreement among the State of California, Military Department, the California Department of Forestry and Fire Protection, the United States Department of Interior, Bureau of Land Management, California State Office, the Department of Agriculture, United States Forest Service, Pacific Southwest Region and the United States Department of Interior, National Parks Service, Pacific West Region, and the Governor's Office of Emergency Services.

Military Positions and Daily Fire Pay Rates for support of Forest Agencies are updated annually and listed within the CMD Agreement, Exhibit A - California Interagency Finance Plan and are incorporated by reference.

Approved by:


STATE OF CALIFORNIA
DEPARTMENT OF FORESTRY
AND FIRE PROTECTION
ON BEHALF OF THE FOREST AGENCIES:

MILITARY DEPARTMENT:

STATE OF CALIFORNIA
DEPARTMENT OF FORESTRY
AND FIRE PROTECTION


STATE OF CALIFORNIA
MILITARY DEPARTMENT

By:


KEN FIMLOTT
DIRECTOR

1/2/18
Date

By:


DAVID BALDWIN
ADJUTANT GENERAL

12 Sept 15
Date

USDA FOREST SERVICE:

REGIONAL FORESTER
USDA FOREST SERVICE
PACIFIC SOUTHWEST REGION

By:


RANDY MOORE
REGIONAL FORESTER

5 Decem Sen 2017
Date

A1.4. Nevada Agreement (*agreement pending*)

A1.5. Wyoming Agreement. *(in process of updating)*

COLLECTION AGREEMENT
BETWEEN
WYOMING STATE FORESTRY DIVISION
AND
FOREST SERVICE, UNITED STATES DEPARTMENT OF
AGRICULTURE

97-CC-109

This Collection Agreement is made and entered into by and between the Wyoming State Forestry Division, hereinafter referred to as the State, and the Forest Service, United States Department of Agriculture, hereinafter referred to as the Forest Service, under the provisions of the Department of Agriculture Organic Act of 1944, (16 U.S.C. 580) and ACC operations order 36-95, Coronet Forest.

The Forest Service previously entered into an **Interagency Cooperative Fire Protection Agreement (#1102-0005-96-013, April 9, 1996)** with the State of Wyoming in accordance with Acts of Congress and Wyoming Revised Statutes. That agreement remains in effect.

I. PURPOSE

The purpose of this instrument is to initiate an agreement whereby the Forest Service will make available its Modular Airborne Fire Fighting System (MAFFS) to the State air National Guard unit.

Both the State and the Forest Service have a strong interest in the control of wildfire emergency situations. Both parties wish to minimize response time in the deployment of the MAFFS equipment. The State desires to utilize the MAFFS equipment and the services of Forest Service personnel in support of MAFFS equipment in emergency situations

II. THE STATE SHALL:

1. Notify the Forest Service, Fire and Aviation at the National Interagency Fire Center (NIFC), to request activation of the MAFFS.

2. Use only Forest service approved retardants.

3. Maintain up-to-date communication equipment (radios and harness) to meet joint Forest Service/State Airtanker radio communication requirements.

4. Return the MAFFS units to the Forest Service in the same condition as received. All maintenance and operating costs will be paid by the State, to include salary and expenses of MAFFS maintenance personnel. The point of return will be the base from which the stored MAFFS units were mobilized.

5. Upon presentation of a Bill for Collection, reimburse the Forest Service for salaries and expenses, including overhead, of the Liaison Officer, maintenance personnel and, when

applicable, Airtanker Coordinators, support staff, and Airtanker Base Manager. Reimbursement to the Forest Service shall be made payable to the USDA, Forest Service, for deposit to the appropriation originally obligated. Mail to: Collection Officer, USDA, Forest Service, Rocky Mountain Fiscal Officer, PO Box 25127, Lakewood, CO 80225. Any Forest Service bills for collection will be sent to the State Forester at the address listed under Part IV, number 15, Principal Contacts.

6. Ensure that the MAFFS Operating Plan is followed.
7. Operate the MAFFS under all conditions outlined in the **ACCOPORD 36-95 Coronet Forest**, 12/95 or as updated by the MAFFS Operating Plan.
8. Use only qualified maintenance personnel identified in the USDA, Forest Service MAFFS Operating Plan prepared by NIFC.
9. Designate a State Forestry Division representative to coordinate with Mission Commander and MAFFS Liaison at base of operations.
10. Hold Harmless. The State hereby agrees to defend and hold harmless the USDA, Forest Service, its representatives or employees, from any damage incident to the performance of the work resulting from, related to, or arising from this instrument.

III. THE FOREST SERVICE SHALL:

1. Upon receipt of a request through the National Interagency Fire Center (NIFC), provide two MAFFS for temporary use by the State in Wyoming in wildfire emergency situations. When the Forest Service has need of the MAFFS for other emergency uses, the Forest Service will redirect to Federal Service through established channels.
2. Furnish qualified MAFFS Liaison Officers and Airtanker Base Managers for each activation requested by the State. The State may provide qualified Airtanker base managers.
3. Upon request, furnish qualified Airtanker Coordinators to the State at each activation. A qualified State Airtanker Coordinator may be assigned to the MAFFS units.
4. Retain ownership of the MAFFS.
5. Bill the State for reimbursement of salaries and expenses of the Forest Service Liaison Officer and, when assigned, Airtanker Coordinator (leadplane pilot and aircraft), Airtanker Base Manager, maintenance personnel, and other assigned staff as outlined in the Operating Plan ordering procedures.

IV. IT IS MUTUALLY AGREED AND UNDERSTOOD BY AND BETWEEN THE PARTIES THAT:

1. This agreement can only be activated when multiple structures are involved or immediately threatened and all local area (2 hour time frame) airtankers are committed and other aircraft (outside local areas) cannot be moved in to the local area within 2 hours. In these circumstances, the Governor of Wyoming, through Wyoming's Emergency Management, may order the Wyoming National Guard C-130's at Cheyenne, Wyoming, activated for airtanker assignment under the current Memorandum of Understanding. Forest Service agrees that when

this activation takes place, the two MAFFS units assigned and located at Cheyenne, Wyoming may be included in the activation order.

2. Forest Service at NIFC in coordination with the State will jointly determine what suitable and available aircraft are located within two hours of the Cheyenne, Wyoming area.

3. The State Forestry Division Headquarters will be the principle unit to approve the activation request after they assure themselves that the contract Airtanker fleet (State and Forest Service) is committed and/or unavailable.

4. Any additional MAFFS requests will come through normal channels and be requested from NIFC.

5. All media releases involving MAFFS will be jointly issued by the State and Forest Service during, or prior to, activation.

6. MAFFS liaisons will be established during all activations.

7. The State and The Wyoming Air National Guard may use the MAFFS Units for non-fire training exercises upon request and approval of the Forest Service Director at NIFC.

8. Only aerial Combat Command personnel and Forest Service authorized personnel essential to the mission will be transported aboard the aircraft during training or fire missions.

9. In accordance with the MAFFS Operating Plan, use of a MAFFS qualified Airtanker Coordinator (leadplane) is required for all fire operations.

10. MODIFICATION. Modifications within the scope of the instrument shall be made by mutual consent of the parties, by the issuance of a written modification, signed and dated by both parties, prior to any changes being performed. The Forest Service is not obligated to fund any changes not properly approved in advance.

11. ACCESS TO RECORDS. Give the Forest Service or Comptroller General, through any authorized representative, access to and the right to examine all books, papers, or documents relate to this instrument.

12. PARTICIPATION IN SIMILAR ACTIVITIES. This instrument in no way restricts the Forest Service or the Cooperator(s) from participating in similar activities with other public or private agencies, organizations, and individuals.

13. RESTRICTION FOR DELEGATES. Pursuant to Section 22, Title 41, United States Code, no member of, or Delegate to, Congress shall be admitted to any share or part of this instrument, or any benefits that may arise therefrom.

14. COMPLETION DATE. This instrument is executed as of the last date shown below and expires on April 1, 2002, at which time it will be subject to review, renewal, or expiration.

15. PRINCIPAL CONTACTS. The principal contacts for this instrument are:

National MAFFS Liaison Officer
USDA Forest Service
National Interagency Fire Center
3833 S. Development Ave.
Boise, Idaho 83705-5354
(208) 387-5604

State Forester
Wyoming State Forestry Division
1100 West 22nd Street
Cheyenne, Wyoming 82002
(307) 777-7586

16. REFUNDS. Contributions authorized for use by the Forest Service, which are not spent or obligated for project(s) approved under this instrument, will be refunded to the cooperator or authorized for use for new projects by the cooperator.

17. TERMINATION. Either party(s), in writing, may terminate the instrument in whole, or in part, at any time before the date of expiration. The Forest Service shall not incur any new obligations for the terminated portion of the instrument after the effective date and shall cancel as many obligations as is possible. Full credit shall be allowed for Forest expenses and all non-cancelable obligations properly incurred up to the effective date of termination. Excess funds shall be refunded within 60 days after the effective date of termination.

IN WITNESS WHEREOF, the parties hereto have executed this agreement as of the last date written below.

04/21/97
DENNIS W. PENDLETON, (Date)
National MAFFS Liaison Officer
USDA, Forest Service

1/25/97
Administrator,
Wyoming State Forestry Division

Note: Signatures are on file with the USDA Forest Service - NIFC

ATTACHMENT 2

ORGANIZATIONAL AND OPERATIONAL DETAILS

RELEASABLE MAFFS OPERATIONS INFORMATION

A2.1. MAFFS Standard Base Organization Guidelines

A2.1.1. Recommended Minimum MAFFS Staffing

A2.1.1.1. Organization for 1-4 aircraft.

- a. Personnel are identified by NICC, and ordered by the host GACC.

For Full Activation (location **without** established retardant base or C-130 support), initially order all items (1 thru 9). For Hub Location or Home Unit Stand Up (location **with** established retardant base or C-130 support) initially identify only 1, 2, 4, 6, 7, 8 and 9 (*) and place orders thru the receiving GACC. The MAFF will notify the GACC regarding which of the additional positions need to be filled. For International Deployment order 1, 4, 6, and 8(#).

See Figure A1

	Standard Activation 1- 2 planes	Standard Activation 3-8 planes	Short Duration RFA	International
MAFF	Y	Y	Y	Y
MALO/MALO(t)	Y-both	Y+2 or 3	Y-either	N
*SAFETY	Consider	Recommended	Consider	Y
Purchasing	Y	Y	Y	N
MAFFS Mechanics	Y 2	Y 3-4 total	Y	Y
*MAFFS COMM Spec	Consider	Recommended	N	N
MABM	Y	Y	Y	Y
MABS	Y	Y+2	N	N

*these positions filled as deemed necessary

- (1) MAFF * # &
- (2) MALO *
- (3) MALO-T
- (4) MABM * #
- (5) MABS
- (6) MAFFS Maintenance Personnel (2) * #
- (7) MAFFS Communications Specialist*
- (8) Safety (eg. MAFF, MALO, MABM, MABS, THSP, SOF2)
- (9) MAFFS qualified lead plane or ASM must be on scene upon MAFFS arrival.
- (10) Additional personnel to be ordered by host GACC, after coordinating with MAFF.

- (11) Procurement Unit Leader (minimum \$25,000 authority) or warranted Purchasing Agent
- (12) Timekeeper
- (13) Computer Technical Specialist
- (14) Type 2 Public Information Officer
- (15) Type 2 Security Manager
- (16) Facility Unit Leader/ Base Camp Manager

A2.1.1.2. Organization for 5-8 aircraft at one location.

1. Add the following personnel to organization above.

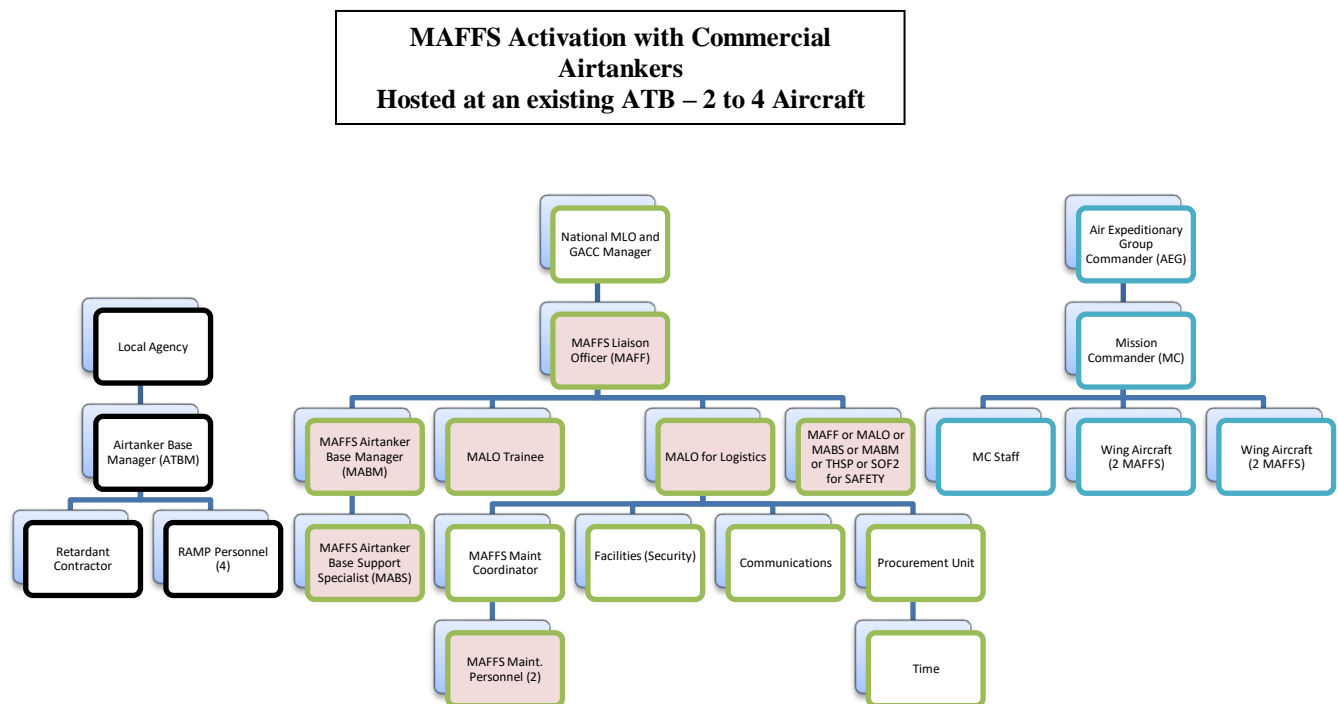
- (1) MALO (2 total recommended) *
- (2) MALO-T (2 total recommended)
- (3) MABS (2 total recommended)
- (4) MAFFS Maintenance Personnel (3 or 4 total)

2. Additional personnel may be ordered by the MAFF as needed.

*** Pre-identified through availability list at NIFC**

International Activation Personnel

Figure A1



NOTE

This is the recommended organizational staffing for a 2-4 aircraft activation at a Tanker base with 2-3 pits. Where more than 4 MAFFS aircraft are present or where there are 4 or more pits, the MAFF may authorize additional ramp personnel after discussion with the local ATBM and MABM. One of the RAMP personnel or the MABS must be Ramp

A2.1.1.3. Additional Personnel. The list above is the core or main staff for the Full Activation. Other positions may be needed, depending on the retardant base or availability of military support. The core or main staff should be ordered at the time the MAFF receives a call for a MAFFS mission. When a situation has already committed a large number of people, the skills needed may not be available for two or three days. For larger activations the MAFF should decide which positions to fill from list b.

Table1: Passenger Vehicles for a 2 Aircraft MAFFS Activation

Vehicle Type	MAFFS Cadre	Procurement/Time	Mission Commander	MAFFS Flight Crews	MAFFS Military Maintenance	(AEG) Group	Facility/Security	Comm Unit
Passenger Vehicle	2	1	1	2		2	Agency Vehicle	
Light Duty Passenger Van								
Medium Duty Passenger Van					2			
Light Duty SUVs								
Medium Duty SUVs								
Heavy Duty SUVs				Or 2	Or 2			1
Light Duty 4x4 Truck								
Medium Truck								

Table 2: Passenger Vehicles for a 4 Aircraft MAFFS Activation

Vehicle Type	MAFFS Cadre	Procurement/Time	Mission Commander	MAFFS Flight Crews	MAFFS Military Maintenance	(AEG) Group	Facility/Security	Comm Unit
Passenger Vehicle	6	2	1	4		3	Agency Vehicle	
Light Duty Passenger Van								
Medium Duty Passenger Van					4			
Light Duty SUVs								
Medium Duty SUVs								
Heavy Duty SUVs				Or 4	Or 4			2
Light Duty 4x4 Truck								
Medium Truck								

When a Forest Service PA is not readily available or in the case of an activation with more than four (4) aircraft; the Military may use their own procurement to obtain rental cars and provide the information on the number of vehicles procured to the PA and MAFF as soon as possible. The Military shall provide their own travel arrangements to and from the activation/exercise.

State activations shall use their own processes and federal employees supporting a state activation will normally follow the guidelines above unless otherwise directed by the MAFF.

Payment methods for the rental cars may vary. For example: a) A MAFFS MC will contact MAFF or Purchasing Agent (PA) for transportation needs for the activation; b) Federal Agency personnel will pay for their own vehicle using their agency's travel card procedures; c) AD personnel should pay for their own vehicle per their local contract but may request assistance from the PA; d) State personnel should arrange for rental car payment with their local unit.

*** Please note: Government Agency personnel assigned to a MAFFS activation should check with their fleet manager to see if an agency vehicle is available to drive within a reasonable distance from home unit. This may benefit cost containment measures vs. rental vehicle expenses.

A2.1.2. Transportation Requirements. The Purchasing Agent (PA) will assist in coordinating for rental cars after receiving direction from the MAFF. For any size activation the following transportation will likely be required:

A2.1.2.1. Rental cars as required for the civilian MAFFS Maintenance Personnel. Due to tools and other heavy equipment, a Sport Utility Vehicle is recommended.

A2.1.2.2. Rental cars as required for the MAFFS Flight Crews, Maintenance, Ops, and support personnel. Normally one vehicle for each flight crew and Ops personnel. Vans are suitable for maintenance and support personnel.

A2.1.2.3. Rental cars as required for FS and cooperator personnel. Individual vehicle for MAFF, MALO, and procurement personnel is desirable. Other support personnel may need to share a vehicle.

NOTE

Cars should be available when MAFFS aircraft arrive. Remember to utilize cost containment measures as much as possible.

A2.1.3. MAFFS Airtanker Base Manager. Attachment 4 has a listing of current MAFFS Airtanker Base Manager (MABM) personnel and casual personnel to support MAFFS activation.

A2.1.3.1. MABM Duties

The MABM works for the MAFF. A Base Manager is required at each airport being used for a MAFFS operation. Base Operations shall conform to standard operating procedures established in the Interagency Airtanker Base Operating Guide and this Operations Plan. In the event of conflict with DoD procedures, the more restrictive procedure shall prevail.

1. Work with the MAFF and airport manager to pick the location on the airport to set up and operate a portable retardant base, if required.
2. Work with the MAFF, MC, local ATBM, and local fuel vendor on how and when the aircraft will be fueled.
3. Be thoroughly familiar with and enforce the MAFFS Operation Ramp/Pit Safety Plan.

4. Work closely with the local ATBM when operating from an established airtanker base.
5. Determine MAFFS Reload Base capability with respect to location of Hub and reports information to the Mission Commander, MAFF and hosting GACC.
6. Coordinate with the MAFF and local ATBM to assess the size of the ground operation, and order personnel to staff it; i.e., retardant mixmaster, compressor operators, forklift operator, etc. ¹
7. Coordinate with the MAFF and supplier of fire retardant on setting up the MRB. Coordinate with MAFF and initiate re-supply orders.
8. Coordinate with the MAFF and local ATBM on orders of support equipment for the base; i.e., port-a-potties, forklift, tent flies for shade, etc.
9. Regulate all movement of aircraft, motor vehicles, and personnel being used around the retardant base operation.
10. Attend daily briefings.
11. Hold a daily morning meeting with all people (agency, contract, and DoD personnel) assigned to work on the ramp. Make assignments for the day and discuss any safety alerts.
12. For each portable base kit opened, inventory and replace items as necessary prior to deactivation.
13. Maintain a daily unit log and provide a copy to the MAFF.
14. Complete ICS Form 225, Incident Personnel Rating, for each base manager trainee and MABS prior to their release from the training exercise or fire activation. Provide one copy to the trainee, one to the Steering Group Committee, and one to the trainee's home unit.
15. MABM, local ATBM, and MAFF will verify information on dispatch/resource order together prior to loading MAFFS aircraft (all aircraft shall receive a resource order before being dispatched).
16. Be responsible for assigning a VHF-AM tanker base radio operator when MAFFS is not operating from an existing tanker base.

A2.1.3.2. MAFFS Airtanker Base Specialist Duties

The MAFFS Airtanker Base Specialist (MABS) works for the MABM. The MABS primarily assists the MABM by conducting retardant base operations that conform to the standard operating procedures established in the Interagency Airtanker Base Operations Guide and this Operating Plan.

1. Assist the MABM with the planning and layout of the retardant base facilities.
2. Assist in assembling the retardant base equipment and facilities.
3. Maintain the readiness of retardant base equipment and facilities, i.e., checks oil/fuel levels, water source, electrical, meter connections, etc.
4. Assist MABM with ramp activities including ordering fuel for compressor, golf carts, power carts etc.

¹ Forklift operator on or around military C-130 shall be military carded forklift operator

5. Oversees operation of retardant plant equipment to load MAFFS airtankers.
6. Monitor and document retardant quality assurance.
7. Assure that MAFFS airtankers are loaded using a mass flow meter (see 2.6.6) to ensure that loads do not exceed aircraft limitations.
8. Assist the MABM with compiling documentation, log sheets, etc.
9. Assist MABM with ramp activities including ordering fuel for compressor, golf carts, power carts etc.
10. Attend briefings.
11. Report all hazards and incidents/accidents immediately to the MABM.
12. Inventory MAFFS base kits and document replacement needs.
13. Demobilize, disassemble, and repack MAFFS retardant base kits.

A2.2. MAFFS Liaison Officers.

A2.2.1. A listing of current MAFF personnel and casual personnel to support MAFFS activation can be found in Attachment 4.1.

A2.2.1.1. MAFFS Liaison Officer Duties

The MAFF shall:

1. Have a working knowledge of the MOU between the DoD and USDA-USDI.
2. Keep current with operational procedures, equipment, and technical changes.
3. Make initial contact, establishing communication channels with NICC, Region, MC, MAFFS Airtanker Base Manager, GACC, RAO, RASM, Forest Air Officer, Forest FMO, Airport Manager, FAA, PIO, PAO, Forest Dispatch, DoD Base Commander and Aerospace Expeditionary Group Commander (AEG).
 - a. Contact on-duty NICC Coordinator and receiving GACC or local hosting unit to determine who will process all subsequent resource and supply orders.
 - b. Order support personnel (See A2.1.1.).
 - c. Order computer support with operator, if host unit cannot provide.
 - d. Coordinate with the NIICD Avionics Branch Chief to order radio kits, printers, and equipment for internet connectivity.
4. Review currency and proficiency records of the MAFFS flight crews with MC.
5. Coordinate lodging, transportation and other logistical support for personnel assigned to the MAFFS operation. (Lodging and M&IE rates shall be in compliance with Federal Travel Regulations for all government employees.)
6. Check facilities and arrangements for the DoD crews with the MC.
7. Arrange for a minimum 10,000 pound low mast forklift with long forks .
8. Ensure MAFFS radios are installed in MAFFS aircraft and operational.
9. Arrange for automotive and/or diesel fuel for support equipment.
10. Ensure prudent and legal procurement is occurring and that policy and guidelines found in the Interagency Incident Business Management Handbook (NFES 2160) and agency manuals and handbooks are being followed.
11. Ensure that MAFFS maintenance personnel have been ordered.

12. Obtain necessary information for daily briefing and brief the MAFFS flight crews on fire status. Include incident air operations personnel if possible.
13. Ensure a MAFFS Airtanker Coordinator (leadplane pilot) is available for daily briefing of the MAFFS crews. If unable, relay any air safety concerns from the MC to the MAFFS Airtanker Coordinator.
14. Brief support personnel on fire situation including A/C dispatch procedures and overall fire situation.
15. Obtain area flight hazard map from local Forest, dispatch or agency.
16. Coordinate activities of the media in MAFFS operating area and supply necessary information for news releases after coordination with the MC directly through the PIO.
17. Assure necessary records are kept and sent to host unit upon deactivation.
 - a. Estimated MAFFS cost per flight hour are used in cost computations during ongoing operations, as updated annually in MAFFS Spreadsheet.
 - b. Final costs will be determined after the billing is received from DoD for the activation.
 - c. Send copy of DOD personnel manifests to appropriate State or Federal Financial Manager.
18. Keep NICC and the Regional GACC advised of current operations. The MAFFS Daily Operational Summary will be forwarded to NICC intelligence desk.
19. Report incidents/accidents to NICC in accordance with provisions outlined in 2.7.5.
20. Prepare a draft final report before departing the activation. A final report should be sent to the NMLO or their delegated representative for review and distribution within 5 business days.
21. Brief non-MAFFS personnel on MAFFS Operation.
 - a. Incident Management Team
 - b. Local Administrative Unit/Forest personnel
22. Ensure/complete ICS Form 225, Incident Personnel Rating, for all personnel assigned to the incident prior to their release from an activation. Provide one copy to the individual, one to the MAFFS Steering Committee Chairman and one to the individual's home unit.
23. Ensure that appropriate "Thank You" letters are prepared. These should be done for local/regional representatives who provide outstanding support to the mission, or to vendors who went out of their way to provide exemplary service. These letters show our appreciation to our hosts in anticipation of a return visit at some later date.
24. Have MAFFS Maintenance Personnel track and report duty times. Duty limits are found in 3.1
25. Verify MAFFS flight time from AFTO IMT form 781

A2.2.1.2. 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, digital format or internet links.

1. Documents

- a. Current MAFFS Operating Plan (FSI 12-001)
 - b. USDA/USDI-DoD Memorandum of Understanding/Collection Agreement DoD MAFFS OPORD (included in FSI 12-001).
 - c. Incident Command System-Field Operations Guide (ICS-420-1)
 - d. National Interagency Mobilization Guide (NFES 2092)
 - e. Interagency Incident Business Management Handbook (NFES 2160)
2. Forms
- a. Medical Plan ICS-206
 - b. Check-in List ICS-211
 - c. General Message ICS-213
 - d. Unit Log ICS-214
 - e. Incident Personnel Rating ICS-225
 - f. Crew Time Report (NWCG) SF-261
 - g. Emergency Firefighter Time Report OF-288
 - h. MAFFS Daily Summary
 - i. On line Aviation Safety Communiqué SAFECOM
 - j. FC 119 Incident or accident reporting
 - k. OSHA 300
 - l. Interagency Aviation Mishaps Guide
 - m. ICS 204 – Division assignment list
 - n. ICS 205 – Communications Plan
 - o. CA-1, Report of Traumatic Injury
 - p. CA-2, Report of Traumatic Illness
 - q. CA-16, Authorization for Treatment
 - r. CA-17, Return to Work Authorization
3. Optional
- a. Regional Mobilization Plans
 - b. Technisonic TDFM-136 Aircraft Radio Operator's Guide
 - c. National Interagency Aviation Frequency Guide
 - d. Cache Order Guides – NFES 0362 (equipment), PMS 449-2 (forms/publications)
 - e. Agency Administrators Guide to Incident Management – NFES 1356
 - f. National, Regional, and NICC Telephone/Addresses

A2.2.1.3. MAFF Mission Report Format

An overview report shall be prepared to summarize the mission. The report will normally be succinct, 6-8 pages.

- 1. Title Page
 - a. Mission (Incident) Name
 - b. Geographic Location
 - c. Inclusive dates of the deployment
 - d. MAFF(s) Assigned
- 2. EAS (P)-WFF/MC Assigned
- 3. Table of Contents (Optional)
- 4. 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 – Forest Service, DoD and civilian
 - e. Distribution of Final Report and Records – Send records to Administrative Officer, FS-NIFC
 - f. Copy of last DoD Report
 - Distribution by MAFF: Director, FS-NIFC
National MAFFS Program Manager
 - Distribution by NIFC: Regional Fire Directors
Regional Fire Operations Directors
Regional Aviation Officers
MAFF and MABM personnel
DoD Units

A2.2.1.4. MAFF **Mission Record Requirements**

The following information will need to be collected/prepared and delivered to host forest and kept on file:

1. Daily Narrative of Activities
 - a. Incident weather conditions – summary if supporting more than one incident
 - b. Incident situation reports – summary if supporting more than one incident
 - c. Significant events/problems
2. MAFFS Daily Situation report – joint agency and DoD report
 - a. Number of sorties by aircraft
 - b. Flight hours (incident) including estimated flight hours returning home
 - c. Gallons of retardant delivered and retardant costs
 - d. Incident name and “P” Number
3. MAFFS Workbook
 - a. Daily Report
 - b. Operational Summary
 - c. MAFFS DoD costs
 - d. Total Cost Summary
 - e. Federal personnel costs
 - f. Miscellaneous support costs
4. FS and cooperating agency support organization
5. Newspaper/magazine or other media coverage items
6. Procurement/purchasing documents
7. Incident/accident reports
8. Maps, if applicable.

9. Unit Log – ICS 214

A2.3. MAFFS Aviation Safety Plan.

A2.3.1. MAFFS operations have a number of inherently hazardous conditions. It is the responsibility of all personnel involved with a MAFFS operation to be aware and practice safety. This section establishes those actions, roles and responsibilities, and compliance standards for all MAFFS operations. The intent of this section is to provide for individual and public safety by identifying and managing known safety hazards related to MAFFS.

A2.3.2. Personnel safety and preservation of equipment and facilities are the primary safety concerns during MAFFS operations. Safety is a responsibility shared by all personnel participating in MAFFS related activities. Safety hazards and /or concerns, when identified, shall be addressed and mitigated in a timely manner.

A2.3.3. The Forest Service and Air Force may observe different operational standards and guidance. In the interest of safety, MAFFS operations shall comply with the more stringent policy.

A2.3.3.1. Roles and Responsibility

Ultimately, personal safety is the responsibility of each individual. Situational awareness and safety conscious decision-making will be a component in all activities.

Both agency and DoD personnel are expected to actively participate in the support of safe operations to include compliance to identified safety standards, identify safety hazards or concerns, and assist in mitigation efforts. Resolve safety concerns promptly.

1. MAFFS Liaison Officer and Mission Commander

Establish and support safety policy.

2. MAFFS Safety Officer

- a. Function as the primary point of contact for any safety related issues.
- b. Prepare Job Hazard Analysis (JHA) for MAFF signature.
- c. Implement safety policy/JHA.
- d. Recognize safety hazards/concerns, raise issue to appropriate authority for resolution (when necessary), initiate and assist in resolution, and document.
- e. Post and update safety documents for access by all personnel associated with MAFFS.
- f. Provide safety briefings to media and visitors
- g. Participate in daily briefings
- h. Maintain vigilance during operational periods

3. Supervisory Personnel

- a. Ensure that safety information has been communicated to all assigned personnel.
- b. Assure safety policy compliance.

4. Operational Personnel

- a. Know safety policy as it applies to MAFFS and their operational area of expertise.

A2.3.3.2. MAFFS Safety Operations

Each MAFFS training exercise and activation share a common mission and goal but present unique demands in staffing, logistics, weather/environmental conditions, and facilities. Vigilance, communications, and teamwork are required to maintain safety.

1. MAFFS operations create a dynamic environment influenced by
 - a. An abundance of task focused personnel with various levels of experience and training
 - b. Aircraft and equipment
 - c. Extremes in conditions (noise, heat, wind, propeller blast, etc.)
2. Safety Officers will refine information and implement a safety system sufficient to address issues specific to each MAFFS operational function and idiosyncratic to each training and activation location. Elements of this safety system information transfer are:
 - a. Written information that conveys safety standards, and identifies and mitigates safety concerns. The various documents of this system include the MAFFS Operating Plan, Safety Plan, Lightning Plan, Medical Plan, Emergency Procedures Plan, Security Plan, Spill Plan and job hazard analysis. The MAFFS Job Hazard Analysis consists of general analysis and an analysis of 9 operational functions. All of these documents should be posted in common areas for access by all personnel associated with MAFFS.
 - b. Daily briefings will be used to communicate immediate and specific safety issues to personnel. Supervisors are expected to channel safety information to personnel not present at the daily briefing.
3. Safety Equipment
 - a. Ear protection with a minimum noise reduction level of 33 is required in the ramp/pit area.
 - b. Personnel involved in ramp/pit operation will wear fully enclosed shoes with non-skid soles, long trousers, and shirt at all times (gloves and eye protection recommended).
 - c. Fire extinguishers will be immediately accessible to aircraft and air compressor units.
4. Hazard Analysis

Personnel should attempt to avoid areas to which they are not assigned to reduce congestion.

WARNING

Only authorized personnel are allowed on the ramp while operations are on-going (hot-ramp).

A2.3.3.3. Ramp Operations

1. Roles and Responsibilities
 - a. A MAFFS Air Base Manager (MABM) or MAFFS Air Base Specialist (MABS) shall be present on the aircraft ramp during all operations that require the involvement of agency or agency contracted personnel and/or equipment.
 - b. The MABM will brief agency, DoD, and contract personnel and confirm all operational protocols that are to be implemented on the aircraft ramp.
 - c. A MAFFS Reload ramp operation shall only be conducted with a MAFFS Air Base Specialist (MABS) that is current in one or more ramp qualifications. This

does not allow for an MALO or MAFF to supplement this position unless they meet the minimum qualification.

2. Operational Restrictions

- a. NO simultaneous retardant loading and fueling operations.
- b. NO retardant hot loading operations unless a Risk Assessment is completed that shows this operation may be accomplished safely.
- c. Base Operations shall conform to standard operating procedures established in the Interagency Airtanker Base Operating Guide and this Operations Plan. In the event of conflict with DoD procedures, the more restrictive procedure shall prevail.

3. Special Safety Requirements (MAFFS)

- a. The potential for an accidental ground jettison of the MAFFS system presents an extreme hazard to personnel and equipment. The system should be considered “armed” at all times when the strobe light on the discharge nozzle is flashing. Persons should not stand directly behind the nozzle or in the path of the jettison stream.
- b. With MAFFS, retardant loading operations are accomplished exclusively on the right side of the aircraft. Ideally, parking patterns and pit configuration allow 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 nozzle), confirmation that the system is disarmed by observing the strobe light is not flashing. The pit supervisor will accomplish confirmation of MAFFS system status with the aircrew/loadmaster via radio communications/aircraft intercom.
- c. In order to facilitate loading operations on the right side of the aircraft, loading hoses may 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, forces and momentum could carry the hose(s) to the right.
- d. 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 fire fighters. This capability represents the amount of agent needed to execute rapid intervention at one location of the aircraft that is involved in a small fire. At this level, rescue is not expected from inside the aircraft. This level of service represents increased risk/loss potential due to the lack of sufficient agent to maintain control of exterior or interior fire long enough to conduct interior rescue operations. The main MAFFS bed down base(s) shall comply with AMCI 11-208, *Tanker/Aircraft Operations* requirements. All MAFFS training missions shall comply with AMCI 11-208 requirements.

4. Aircraft Ground Operations

- a. Parking configurations:
 - C-130H model only = **200 feet**
 - Combination of C-130 J and H = **240 feet**
 - In a nose to tail parking configuration, separation distance will be measured from the nose wheel to nose wheel of aircraft.

- b. C-130J model aircrews may elect to use APU to power aircraft systems while in the pit area (creating noise and exhaust hazard).
- c. C-130J model propellers can pinwheel from inertia or wind/air flow over propeller blades.

5. Operational Considerations

- a. Prior to any retardant loading operations at a MAFFS site, confirm with the agency or contractor the protocols and responsibilities during retardant/air loading operations. Be sure to address whose responsibility it is to open and close the valve at the end of the retardant hose. Reinforce actions, responsibilities, and communications during briefings that include DoD, agency, and contract personnel.
- b. All water or retardant loaded on any MAFFS unit must be measured for weight (see 2.6.6). Readings for gallons and pounds shall be documented after each aircraft retardant load.
- c. Loading air and/or retardant can be executed exclusively or simultaneously.
- d. Typically, the retardant loading hose and air hose are co-joined (i.e. tie wraps, duct tape, straps) to facilitate expeditious loading operations and protect the air hose from excessive wear on concrete aircraft ramps.
- e. Approximately 4 to 5 feet of the air loading hose should extend past the end of the retardant loading hose. This allows additional play in the air hose and creates ease in attaching an air hose to the MAFFS unit exclusive of the retardant loading hose.
- f. Loading operations that utilize gas engine pumps and/or air compressors require line of sight communications with equipment operators. During loading of MAFFS units, pit configuration may place the aircraft between equipment operators and the loadmaster. In this case, an additional person shall be positioned to relay start and cease information from the aircraft to accessory equipment operators. Ground personnel communicating with loadmaster and relaying hand signal to equipment operators are identified with a high visibility fluorescent green vest.
- g. Regularly inspect the integrity of equipment used on the aircraft ramp. Missing hardware may be FOD (foreign object damage).

6. Communications

A VHF-AM frequency for tanker base operations should be requested via a Resource Order during the initial stages of base setup. This frequency should be used for communicating to aircraft from the tanker base and ground personnel. It is unlikely the commonly used tanker base frequency of 123.975 MHz will be available for assignment to any temporary tanker base. Communications hardware (radios, headsets, etc.) should also be ordered from NIRSC.

7. Parking

- a. Qualified personnel shall marshal DoD aircraft into position for retardant loading operations.
- b. Aircraft will come to a full stop.
- c. The person marshaling the aircraft may approach the aircraft and plug into the intercom system to communicate directly with personnel on board the C-130.
- d. If aircraft APU will not serve as the primary power source, ground support personnel will move an external auxiliary power unit into position and plug the power source into the aircraft.

- e. All aircraft engines will be shut down and propellers completely stopped turning on the retardant loading side of the aircraft.
 - f. MAFFS: Pit Supervisor will confirm that the system is “disarmed”.
8. Retardant Loading
- a. Marshaller will signal to personnel that they are clear to enter the ramp and approach the aircraft.
 - b. Retardant loading operations will not begin until the loadmaster confirms that the vent valve is in the open position. The vent valve can only be manipulated from the interior of the aircraft. A flashing strobe light on the nozzle indicates that the system is still armed, the vent valve is closed, and personnel should not cross the path of the discharge stream.
 - c. Personnel will approach the aircraft with the loading hose(s) behind the wing and at the right side paratroop door.
 - d. MAFFS loading manifold will be released (unlatched) from the vertical position and moved into the horizontal (down) position.

NOTE

The paratroop door cannot be closed if the manifold is in the down position.

- e. Camlock cap will be removed from the MAFFS loading manifold.
- f. The retardant loading hose will be sleeved onto the MAFFS loading manifold and locked securely into position.
 - 1) Personnel responsible for retardant loading operations (contract or agency) will confirm the start of retardant loading with the loadmaster.
 - 2) Initiate retardant pump operations, accomplished with the remote switch at the aircraft or line of site communication/hand signal to the person at the pump.
 - 3) Ground compressor operations can be accomplished simultaneously with retardant or water loading operations. Line of sight with equipment operator must be maintained.
- g. MAFFS will be loaded up to 3,000 gallons, although the load capacity of these systems is up to 3,300 gallons. Retardant loading operations will cease when the first sign of the following events occur:
 - 1) Loadmaster calls for stop of retardant loading operations,
 - 2) Load capacity indicator, positioned on the loading manifold, indicates 3,000 gallons (27,000 lbs) or,
 - 3) Payload of 3,000 gallons (27,000 lbs) is reached per the mass flow meter.
- h. Reverse order of loading procedures to disengage from the MAFFS unit and clear the aircraft.
- i. Ground Compressed Air
 - 1) Paratroop door at the rear of the aircraft will open and the Loadmaster will signal for personnel to approach the aircraft with the retardant loading hose / air hose.
 - 2) The air hose will be attached to the MAFFS air pressure fitting.
 - 3) A DoD crewmember at the aircraft will confirm they are ready for the start of ground compressor air to be on-loaded.
- j. Initiate compressor operations via hand signal to person at the compressor. Line of sight with compressor operator must be maintained.

Compressor operations will cease when the first of the following events occurs:

- 1) Compressor relief valve activates (loud, cyclic venting)
 - 2) Loadmaster calls for stop of compressor operations.
- k. Reverse order of loading procedures to disengage from the MAFFS unit and clear the aircraft.

9. Fueling

- a. During a fuel cycle, the aircrew and ground supervisors will determine which process will be accomplished first. If the priority is for fuel, the loading hoses will not be deployed to the aircraft. Loading hoses will be moved to the aircraft after fueling operations have been completed.
- b. MAFFS Aircraft fuel operations require uninhibited access to the right hand side of the aircraft. Fuel trucks must always have an escape route. If fuel servicing cannot be accomplished due to pit configuration, an alternate fueling site must be identified.

10. Retardant Wash-down

MAFFS aircraft are rinsed as necessary after each retardant delivery mission. MAFFS should require less wash-down. 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.

A2.3.3.4. **Job Hazard Analysis.** The following table provides a general job hazard analysis. Personnel shall review applicable sections of the table for tasks and procedures, identify potential hazards, and implement hazard abatement actions. (starts next page)

MAFFS GENERAL JOB HAZARD ANALYSIS

FS-6700-7 (2/98)			
U.S. Department of Agriculture Forest Service	1. WORK PROJECT/ACTIVITY MAFFS General Operations	2. LOCATION	3. UNIT
JOB HAZARD ANALYSIS (JHA)	4. NAME OF ANALYST	5. JOB TITLE	6. DATE PREPARED
References-FSH 6709.11 and -12 (Instructions on Reverse)	David Shore	MAFFS Safety Officer	May 8 2019
7. TASKS/PROCEDURES	8. HAZARDS	9. ABATEMENT ACTIONS Engineering Controls * Substitution * Administrative Controls * PPE	
GENERAL			
(a.) Direction and Standards	Unsafe practices and operational environment due to noncompliance with accepted national and agency standards	1. All related MAFFS activities shall be in compliance with current: <ul style="list-style-type: none"> • Modular Airborne Firefighting Systems Operating Plan • Interagency Base Operating Guide • National and Regional Mobilization Guides • National Fire Protection Association (NFPA) Publications • Federal Aviation Regulations 	
(b.) Plans	Lack of planning and communication	1. Develop and document plans and communications points of contact. The following issues should be subject to planning activity: <ul style="list-style-type: none"> • Emergency procedures (Lightning Plan, Medical Plan, etc.) • Fuel and Retardant spill • Communications • Safety • Security 2. Brief agency, DoD and contract personnel on plans and courses of action. 3. Plans will be posted or located on site so that the information is available for immediate access.	
(c.) Communications	Compromised ability to communicate	1. Establish a reliable method of communication with dispatch and Fire Department / Aircraft Crash Rescue (if available), <ul style="list-style-type: none"> • Land line telephones or cell phones are operational • Radios are operational, appropriate frequencies are programmed and personnel are briefed on appropriate radio operations and protocols. 2. Ramp radios convenient for use and capable of being heard while wearing hearing protection. 3. Agency, DoD and contract personnel will be proficient in the use of ramp hand signals. Clear and deliberate hand signals will be used in conjunction with radios or in the absence of radio communication.	

		<p>4. For line of sight communication, keep area clear of visual obstructions between retardant pump operator / compressor operator and aircraft.</p> <p>5. Aircraft radio communications are required for safe mission completion. An aircraft radio malfunction must be corrected as soon as practical</p>
	Personnel un-informed on protocols and local hazards	<p>1. A thorough initial briefing will be provided to agency, DoD, and contract personnel. This briefing should include operational and/or contractual requirements (i.e. flight and duty limitations, flight following procedures, retardant delivery guidelines, local flight hazard maps, etc.).</p> <p>2. Familiarize personnel with operational protocols, mechanism of communication, roles, and responsibilities. This is of particular importance with retardant contractor and DoD interface during retardant loading operations.</p> <p>3. Brief and de-brief on a daily basis.</p> <p>4. Flight hazard maps, plans (i.e. Operations, Safety, Security, Emergency, etc.) policy documents and job hazard analysis shall be briefed to all personnel supporting MAFFS operations.</p>
	Excessive and distracting radio traffic Noncompliance with sterile cockpit procedures	<p>1. Keep all radio communications brief and concise.</p> <p>2. Sterile cockpit procedures shall be maintained within a 5 mile radius of the airport. No radio or cockpit communications will be performed during that time that is not directly related to safe flight of the aircraft.</p>
(d.) Safety	Personal injury, damaging and disruptive noise	<p>1. Persons working on or near the aircraft ramp will wear appropriate personal protective equipment. This includes:</p> <ul style="list-style-type: none"> • Hearing protection (min. 33 NR) • Shirt • Long pants • Eye protection • Gloves recommended <p>2. A supply of disposable ear plugs should be readily accessible to all personnel.</p> <p>3. First aid kits will be stocked and readily available</p> <p>4. A method for emergency shower & eye wash should be available at the work site.</p>
	Unsafe practices or situations	<p>1. A Safety Plan should be developed and implemented.</p> <p>2. Communicate with aviation safety officers assigned to the local geographic area and/or fire incident.</p>

		<p>3. Persons supporting MAFFS operations will promote and execute safe work practices. Exercise situational and safety awareness.</p> <p>4. Persons supporting MAFFS operations will correct unsafe situations.</p> <p>5. If an unsafe work situation cannot be corrected at the lowest level, it will be reported to an appropriate authority for correction.</p> <p>6. Unauthorized personnel will not be allowed in the MAFFS operations area. This includes:</p> <ul style="list-style-type: none"> • Aircraft ramp • Retardant mixing and storage areas • Fuel truck parking <p>Persons authorized to be present in MAFFS operational areas are agency, DoD and contract personnel whose participation is necessary for the mission.</p>
		<p>7. Personnel conducting retardant loading or fueling operations will normally remain behind the wing.</p> <p>8. If ground guidance is required, the person marshalling aircraft will be in front of the aircraft and in full view of the pilot.</p> <p>9. Contract personnel or vehicles will not be allowed to approach aircraft until it has come to a full stop and propellers have stopped turning.</p> <p>10. Do not walk behind the MAFFS aircraft when the pintle strobe is flashing.</p> <p>11. All incidents will be reported as soon as possible.</p>
	Increasing number of aircraft incidents	<p>1. When possible, request a service visit from the Forest Aviation Officer, Regional Fixed Wing Specialist, or Regional Aviation Safety Officer.</p> <p>2. Provide Aviation Safety Alerts and SAFECOMs to pilots and contract personnel.</p> <p>3. Address issues identified in Aviation Safety Alerts and SAFECOMs in daily briefings.</p>
	Fire hazards and Ignition sources	<p>1. Designate smoking areas. NO SMOKING rules posted and enforced where applicable. Note: Smoking is prohibited within 50 feet of fueling operations and 15 feet from building entrances.</p> <p>2. Communications equipment (i.e. cell phones, radios) shall not be used within 10 feet of any fueling operation.</p> <p>3. Do not over use electrical wall outlets through the use of extension cords and power strips.</p> <p>4. Fire extinguishers will be in operational condition and readily</p>

		<p>available. Note: At a minimum, extinguishers should be placed adjacent to each aircraft loading pit, and in the light aircraft parking area.</p> <p>5. Contract, DoD, and agency personnel should be briefed / trained on deployment and use of fire extinguishers.</p>
	Ground crew and pilot fatigue.	<p>1. Enforce the duty limitations identified in the Modular Airborne Firefighting Systems Operating Plan.</p> <p>2. Monitor personnel for indicators of fatigue and notify persons with appropriate authority.</p> <p>3. Decrease stress-induced fatigue by reducing exposure to excessive heat, noise, wind, and dust through crew rotations and/or shelter. If possible, consider establishing shelter away from but, convenient to, the operations area.</p> <p>4. Encourage crews to bring lunches and other light foods for times when they cannot be released for meals.</p> <p>5. Release personnel in shifts for meals and breaks when staffing and activity allows.</p> <p>6. Provide hydration to include water, juices, recovery drinks and ice.</p>
	Regional or geographic environmental concerns	<p>1. Stinging insects, spiders, reptiles, or other native species may conflict with personnel and aircraft. Local exterminators or specialists should be consulted to mitigate any local wildlife issues.</p>
	Tours, media and/or dignitary visits	<p>1. All authorized guests will receive a Safety Briefing prior to accessing the MAFFS operations area. MAFFS Safety Officer and MAFF will provide the briefing.</p> <p>2. Guests will be escorted at all times. Span of control should be considered when large groups visit a MAFFS site and additional escorts may be needed.</p>
(e.) Security	Unauthorized persons accessing base facilities or aircraft	<p>1. A Security Plan will be developed and complied with.</p> <p>2. Order additional security personnel to maintain security measures as the aviation operation grows.</p> <p>3. Interface with any existing local security personnel and procedures.</p>
	Harm to personnel. Damage or theft of property	<p>1. Persons who do not have immediate business with base or contract personnel should not be in the operations area.</p> <p>2. Persons who have not made prior arrangements to enter the base will not be admitted until authorized.</p> <p>4. All visiting personnel will be escorted.</p>

(f.) Staffing	Inappropriate ratio of agency staff to aircraft Non-compliance with interagency policy	1. Staffing and supervision of MAFFS operations will comply in accordance with the Modular Airborne Firefighting Systems Operating Plan.
	Unqualified personnel	1. Personnel performing duties specific to MAFFS operations will meet the training and qualifications standards identified in the Modular Airborne Firefighting Systems Operating Plan and/or the Forest Service Handbook 5109.17 Fire and Aviation Qualifications and/or PMS 310-1 Wildland and Prescribed Fire Qualification Guide. 2. All agency MAFFS personnel and trainees must have a their qualifications displayed on their agency's fire and aviation qualification documentation card. A current qualification / "Red card" specific to that individual should be immediately available while supporting MAFFS operations. 3. MAFFS Trainees will be under the supervision of a qualified MAFFS personnel at all times.
(g.) Miscellaneous project work	Hand tool and power tool use	1. Observe safe operations procedures and/or manufacturer's instruction
	Lifting	1. Proper form should be utilized when lifting objects . 2. Mechanical assistance or additional personnel should be recruited for lifting or manipulating large, heavy items.

A2.4. Serial Numbers & Locations

Figure 3.1. Location, Type, and Weight of MAFFS

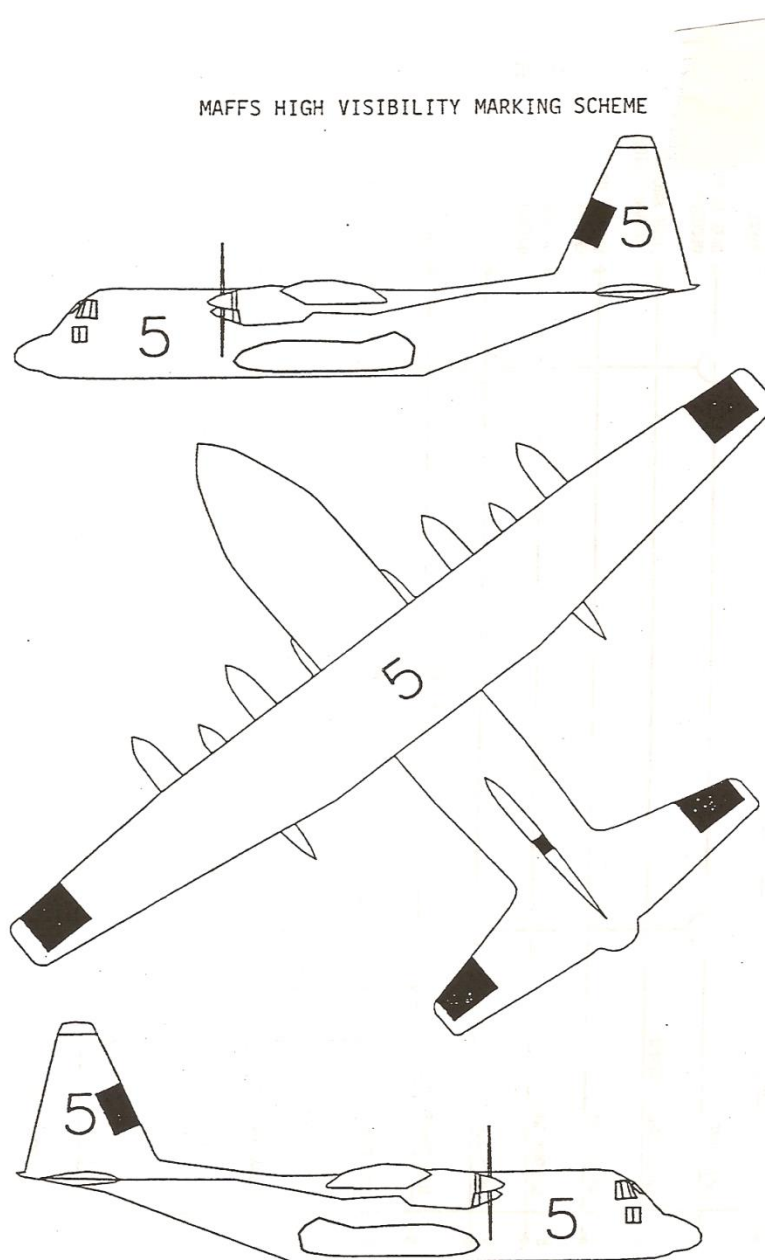
1	Cheyenne, WY C-130H	2	Peterson AFB, CO C-130H
3	Cheyenne, WY C-130H	5	Peterson AFB, CO C-130H
8	Reno NV C-130H	4	Channel Is, CA C-130J
9	Reno NV C-130H	6	Channel Is, CA C-130J

Unit weight is nominally 14,600 pounds empty

Identification of MAFFS Units (by color-code)	
001	Black
002	Rust
003	Red
004	Yellow
005	Blue
006	Orange
008	Green
009	Black/White

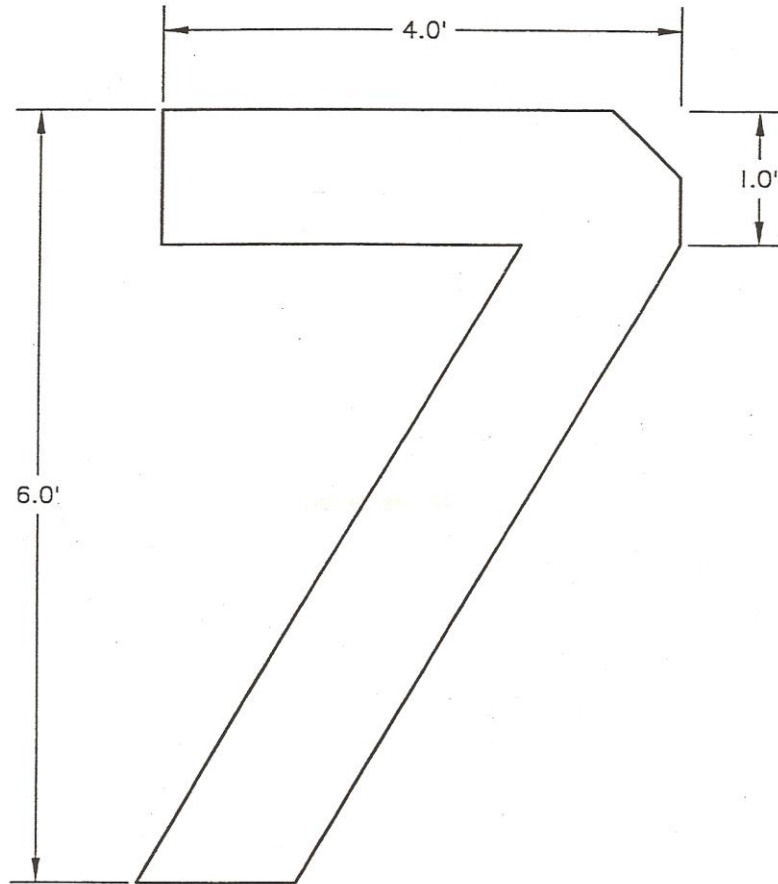
A2.5. Aircraft Details

A2.5.1. Marking Scheme



- NOTE:
1. Do not mark any flight control surfaces.
 2. Only mark solid panels.
 3. Each block area on the upper wing is approximately 25 square feet.
 4. Extend the leading edge mark from top to bottom.

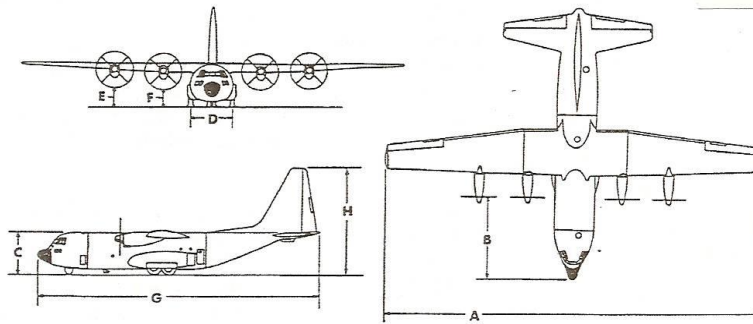
DIMENSIONS OF NUMBERS



A2.5.2. Aircraft Dimensions

C130H AIRCRAFT DIMENSIONS

TO 1C-130A-9



DIM.	C-130A		C-130B	C-130E AND C-130H	MC-130H	LC-130H
	WITHOUT RADOME	WITH RADOME				
A	132'8"	132'8"	132'8"	132'7"	132'7"	132'7"
B	27'4"	29'11"	29'1"	29'1"	31'1"	29'1"
C	15'	15'	15'	15'3"	15'3"	15'8"
D	14'3"	14'3"	14'3"	14'3"	14'3"	19'9" (SK15)
E	5'8"	5'8"	6'7"	6'8"	6'8"	7'1"
F	5'	5'	5'10"	6'	6'	6'5"
G	95'2"	97'9"	△ 97'9"	△ 97'9"	99'6"	97'9"
H	38'8"	38'8"	38'5"	38'3"	38'6"	38'1"

NOTE

1. DIMENSIONS SHOWN ARE NOMINAL.

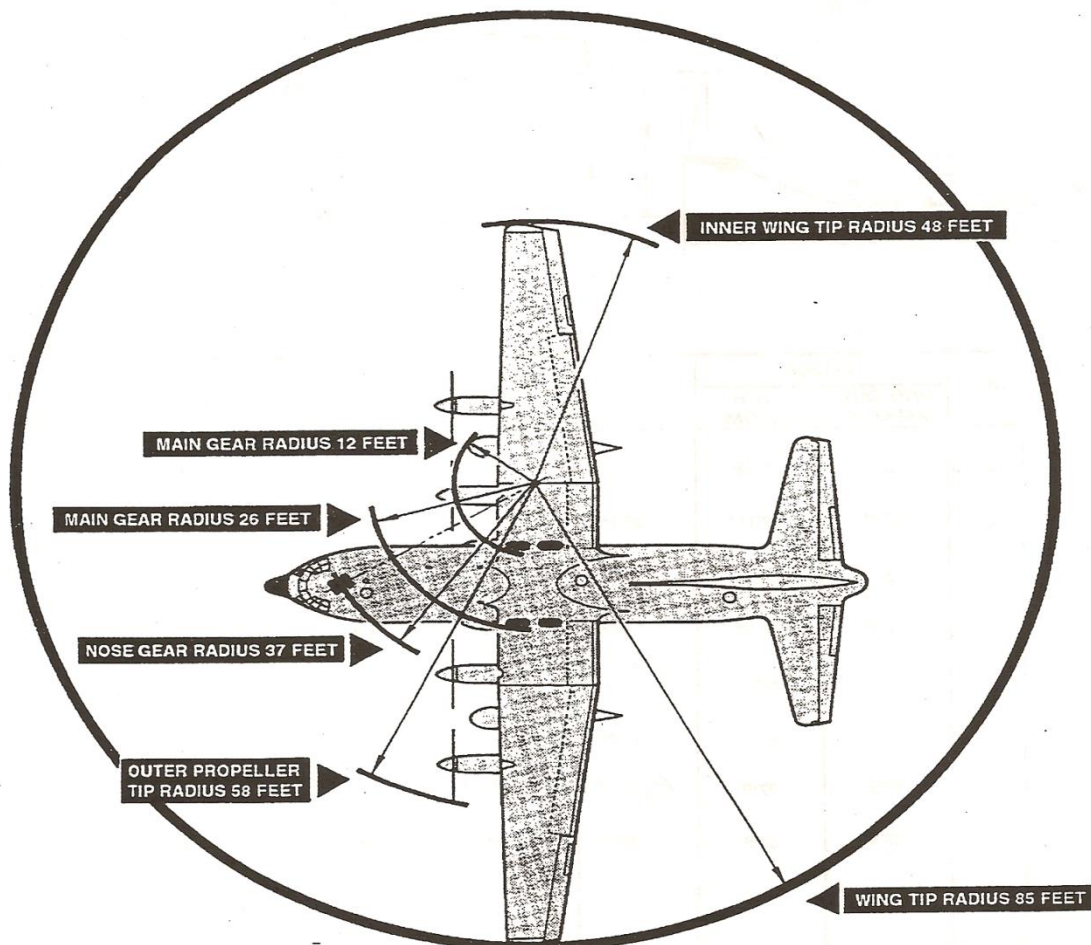
△ DIMENSION G IS 99' 6" FOR AIRPLANES MODIFIED BY TO 1C-130-728.

387C-40-2-400

Airplane External Dimensions

TO 1C-130B-1

Turning Radii



VERTICAL CLEARANCES

WING TIP	12 FEET
VERTICAL STABILIZER TIP	38 FEET 6 INCHES
INBOARD PROPELLER	5 FEET 9 INCHES
OUTBOARD PROPELLER	6 FEET 5 INCHES

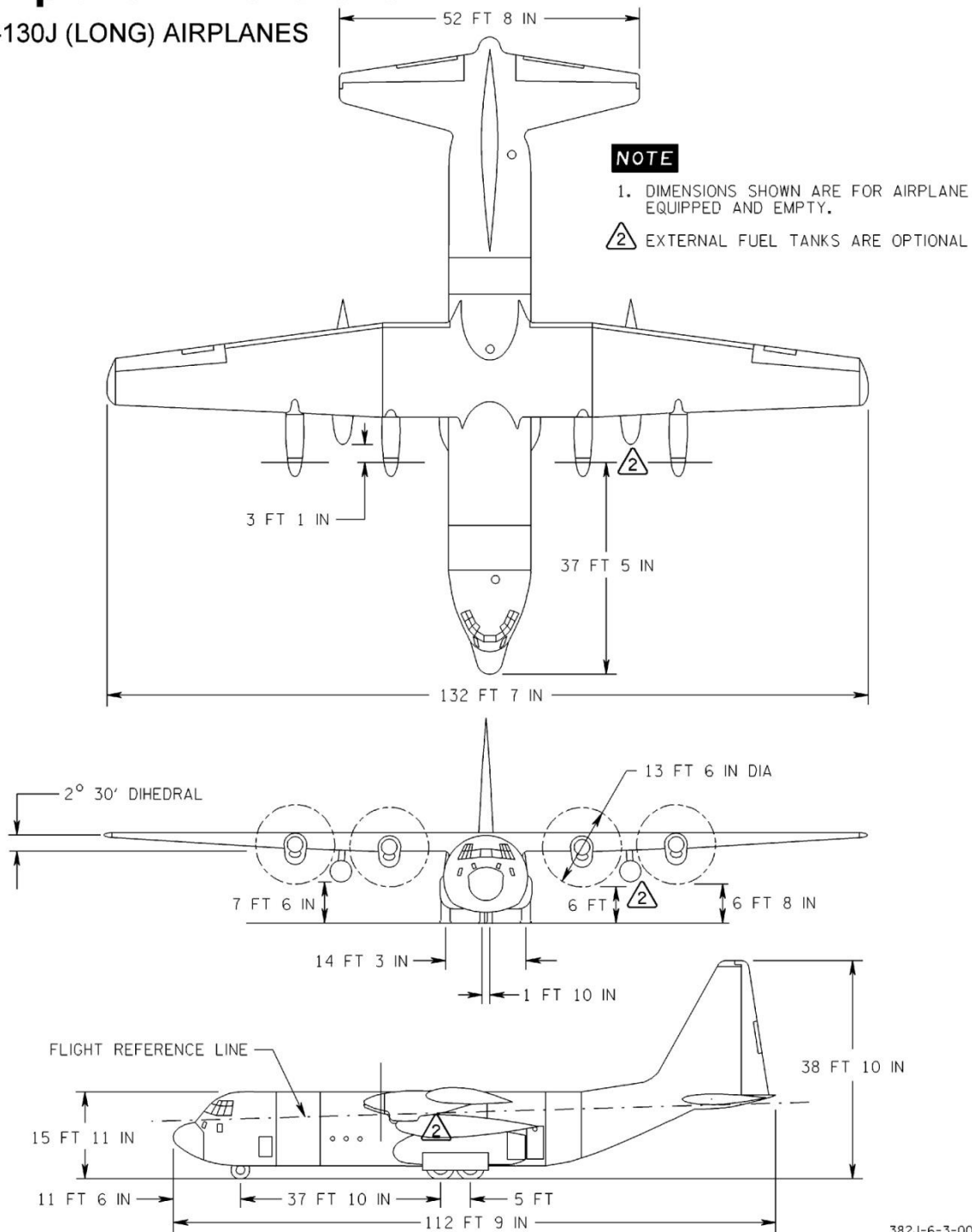
CAUTION

MINIMUM SPACE REQUIRED
FOR TURNING IS 170 FEET
WITH THE NOSE GEAR TURNED
TO THE MAXIMUM OF 60 DEGREES

TO 1C-130J-1

Airplane Dimensions

C-130J (LONG) AIRPLANES



382J-6-3-004AF

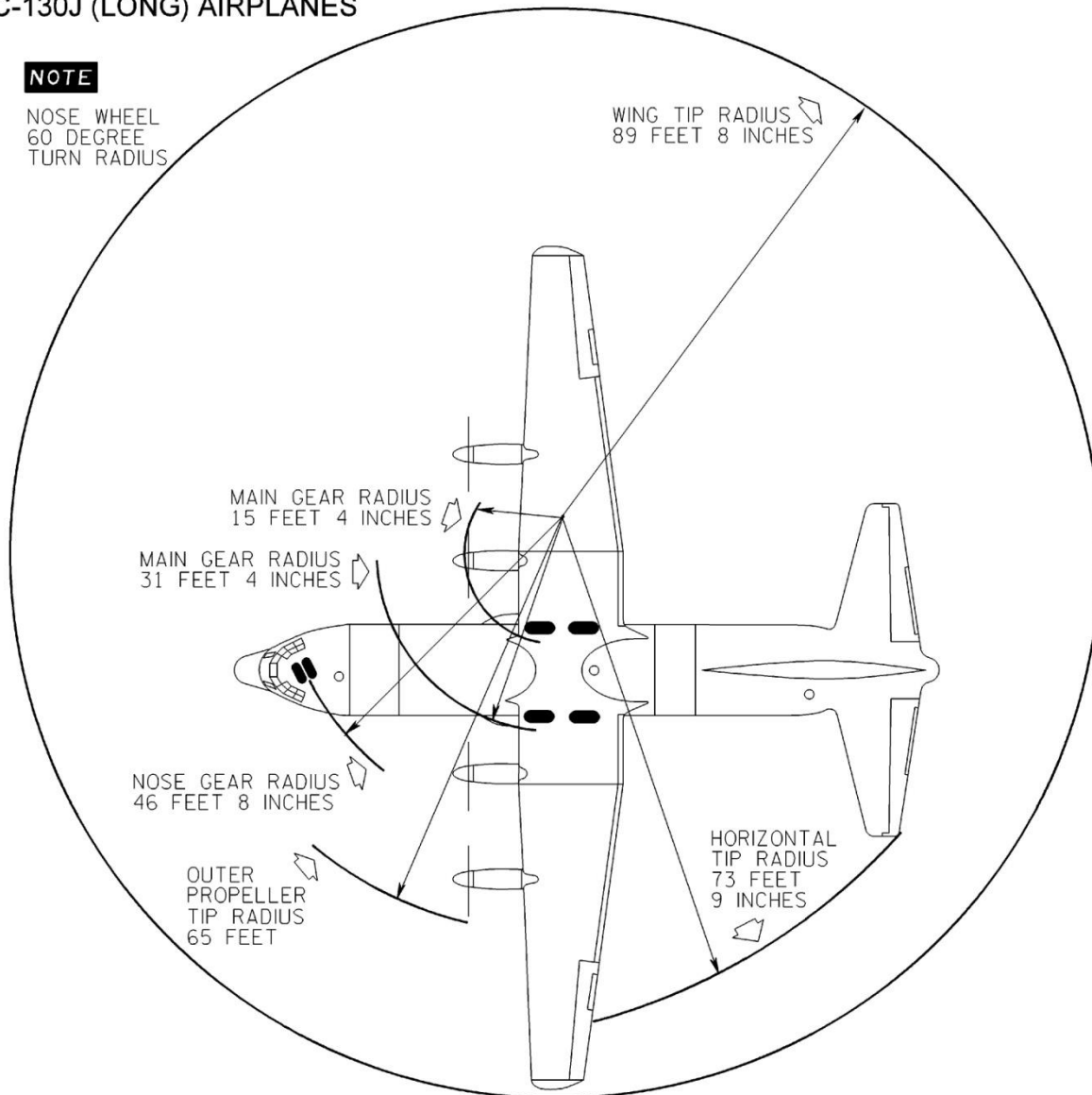
TO-1C-130J-1

Turning Radii

C-130J (LONG) AIRPLANES

NOTE

NOSE WHEEL
60 DEGREE
TURN RADIUS



VERTICAL CLEARANCES

WING TIP	12 FEET	
VERTICAL STABILIZER TIP	38 FEET	6 INCHES
INBOARD PROPELLER	5 FEET	9 INCHES
OUTBOARD PROPELLER	6 FEET	5 INCHES

CAUTION

MINIMUM SPACE REQUIRED FOR
TURNING IS 179 FEET 4 INCHES
WITH THE NOSE GEAR TURNED
TO THE MAXIMUM OF 60 DEGREES
AT TAXI SPEEDS UNDER 5 KNOTS.

ATTACHMENT 3 COMMUNICATIONS

RELEASABLE MAFFS OPERATIONS INFORMATION

A3.1. MAFFS Communication Information.

A3.1.1. MAFFS C-130H and C-130J aircraft shall have a VHF-FM radio installed and tested prior to deployment. The MAFFS FM Radio and associated technical services will be supplied by NIICD at the NIFC. The NIICD Avionics Branch Chief will be point of contact for all MAFFS communication issues.

A3.1.2. MAFFS Communications Specialist Duties

A MAFFS Communications Specialist may be required when NIRSC equipment is utilized. The MAFFS Communications Specialist reports to the MAFF. The MAFFS Communications Specialist's duties include:

1. Spare MAFFS Radios. Signing out or ordering an appropriate number of spare MAFFS VHF-FM (TDFM-136) aviation radios from the NIRSC cache prior to arriving at the MAFFS base. Spare MAFFS VHF-FM TDFM-136 aviation radios will remain under the control of the MAFFS Communications Specialist.
2. Spare C-130J Adapters. If Channel Islands ANG is to be deployed, signing out an appropriate number of spare C-130J MAFFS FM Adapters and MAFFS FM Jumpers from the NIICD prior to arriving at the MAFFS base. Spare MAFFS FM Adapters and MAFFS FM Jumpers will remain under the control of the MAFFS Communications Specialist.
3. Radio Training. Provide training of NIICD provided radio equipment to MAFFS aircrews, ground support personnel, and MAFF staff. The MAFFS Communications Specialist will provide "hands-on" training and training materials when requested.
4. Troubleshooting. Participate in the troubleshooting and replacement of defective MAFFS VHF-FM radio equipment in MAFFS aircraft, ground radio systems, telephones, MAFFS personnel laptops, and MAFFS networks, in cooperation with DoD maintenance and support personnel.
5. Frequency and Radio Equipment Maintenance. The MAFFS Communications Specialist shall assume the duties of a COML on MAFFS assignments. The MAFFS Communications Specialist should have the knowledge and skills of a COML. Prior to arriving at the MAFFS base:
 - a. Frequency Management. Order necessary frequencies through the local dispatch office. As soon as practical publish a Communications Plan (ICS-205).
 - b. Radio Equipment Management. Coordinate with the MAFF on MAFFS communications equipment needs. Order this equipment through the appropriate dispatch center for delivery at least 24 hours prior to the MAFFS base becoming active. Program MAFFS incident radios as needed to meet the MAFFS Communications Plan. Issue and account for MAFFS assigned communication equipment. Set-up MAFFS base station (TAF-550) and instruct personnel in its use.

6. IT Support. Provide assistance to assigned IT personnel in setting up internet connectivity, printer, and laptop issues. Assume these duties if no IT personnel are assigned to the incident.
7. The NIICD Avionics Branch Chief, or an appointee, should accompany all international MAFFS deployments regardless of the number of units sent. The NIICD Avionics Branch Chiefs accompaniment of international deployments is dependent upon the deployed use of MAFFS VHF-FM radios.

A3.1.3. Communications Equipment

Communication equipment shall be supplied from the NIRSC cache. An Airbase kit is required at all MAFFS bases unless other acceptable communications systems are utilized. NIRSC has several optional communication kits available in addition to those listed below.

Recommended Equipment for All MAFFS Trainings/Activations

1. NFES 4660 Airbase kit. There are five Airbase kits. An Airbase kit consists of two radio boxes and two sets of antenna poles. Each Airbase kit will normally provide all of the radio equipment necessary for a 2-4 aircraft activation. An Airbase kit contains:
 - Box 1: TAF-550 Base Station: One multi-frequency radio base station (VHF-FM and VHF-AM) with microphone, single-dome headset (general aviation type), antennas, antenna cable, antenna masts, etc. This radio is typically used by Tanker Base personnel. The TAF-550 requires 115 VAC.
 - Box 2: Handheld Radios and Accessories: Ten ICOM IC-A6 VHF-AM portable radios, four David Clark H10-21 headsets (general aviation type), four David Clark H10-66 dual impedance headsets (helicopter/military type), eight ICOM radio to general aviation headset adapters, eight chest harnesses, two U-92A/U (female) to general aviation (male) headset adapters, and two speaker microphones.
2. NFES 4240 Airbase Accessories kit. This kit contains five sets of ICOM IC-A6 VHF-AM portable radios, David Clark H10-21 headsets, ICOM radio to general aviation adapters. ICOM push-to-talk adapters, chest harness, U-92A/U (female) to general aviation (male) headset adapters plus two speaker microphones.
3. NFES 4260 MAFFS Laptop Kit. MAFFS Laptop Kit contains a Forest Service laptop and cell phone. The Laptop is available to be assigned to any MAFFS member but it is intended for the MAFF/MALO. The cell phone comes pre-loaded with the most commonly used MAFFS phone numbers.
4. NFES 4545 Aviation Radio Kit. Replacement TDFM-136 radios must be resource ordered from NIRSC.
5. MAFFS 4420 MAFFS Printer Kit. There are three MAFFS Printer kits available. These kits consist of a FAX/Copier/Scanner printer, WiFi, and extra copier paper and printer ink.

Suggested Equipment for MAFFS Trainings/Activations

1. NFES 4250 MAFFS Tactical Radio Kit. Where VHF-FM communications are needed and a 16-radio kit is not required, consider ordering a MAFFS Tactical Radio Kit. This kit provides six King VHF-FM DHP handheld radios.

Additional MAFFS Communications Information

1. All handheld radios use AA batteries. Order NFES 0030 AA batteries through the local dispatch office or purchase them locally. Cache AA batteries are issued by the package (24 AA batteries per package).
2. NIICD shall furnish each of the four MAFFS capable Airlift Wings with two VHF-FM TDFM-136 radios. The NIICD shall provide one Comant CI-177-1 Antenna per aircraft. Radios loaned to MAFFS capable Wings and replaced during the winter to receive maintenance and upgrades. Basic operating instructions for these radios are included in Section XXV.
3. MAFFS pilots (C-130J unit) and navigators (C-130H units) must be able to successfully operate the NIICD supplied VHF-FM radios prior to a MAFFS assignment. These MAFFS VHF-FM radio operators must be trained by a MAFFS Communication Specialist annually.
4. Listed below are suggested communications equipment levels for various MAFFS needs.
 - a. Two to Four MAFFS Aircraft.
 - 1 NFES 4660 Airbase kit
 - 1 NFES 4420 MAFFS Network Printer kit
 - 1 NFES 4545 Aviation Radio Kit
 - 1 NFES 4260 MAFFS Laptop Kit
 - b. Five to Six MAFFS Aircraft.
 - 1 NFES 4660 Airbase kit
 - 1 NFES 4240 Airbase Accessories kit (N/A existing airtanker bases)
 - 1 NFES 4420 MAFFS Network Printer Kit
 - 1 NFES 4260 MAFFS Laptop Kit
 - c. Seven to Eight MAFFS Aircraft
 - 1 NFES 4660 Airbase kit
 - 2 NFES 4240 Airbase Accessories kit (N/A existing airtanker bases)
 - 2 NFES 4420 MAFFS Network Printer Kits
 - 4 NFES 4545 Aviation Radio Kits
 - 1 NFES 4260 MAFFS Laptop Kit
 - d. MAFFS Reload Bases (N/A existing airtanker bases).
 - 1 NFES 4660 Airbase kit
 - 1 NFES 4240 Airbase Accessories kit

A3.2. RADIO QUICK GUIDES



NIICD Modified 5/22/2014

TDFM-136/136A








































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

























































For Radio Firmware: 3.x.x



1. LED channel squelch indicators – Lights when signal received (Top: Main, Bottom: Guard).
2. Channel parameter display – (2 line by 24 character LED display) (Top: Main, Bottom: Guard).
3. MAIN (Rotary+Switch) – Power ON/OFF and Main channel volume control.
4. GUARD (Rotary) – Guard channel volume control.
5. Squelch Defeat (Push button) – Press to open squelch (in analog modes of operation)
6. Keyloader/Data Port – Not available on some models. Use with KVL 3000+ keyloader. Data for some TDFM-136A's (SN FDA 1200 & up) only.
7. MN/GD (Toggle Switch) – Selects active channel (main or guard), **for transmit and memory edit.**
8. G1/G2 (Toggle Switch) – Selects guard memory (GD1 or GD2), for transmit and edit.
9. HI/LO (Toggle Switch) – Selects transmit power, high (10W) or low (1W).
10. KEYPAD (12 Keys) – Control radio functions, 3 command levels as follows:

Basic functions on L1 Command Level 1: press the desired "Cmnd" key				
Cmnd	Function	Edit Keys	OK	Exit
[1] CHAN	SELECT CHANNEL MEMORY	[0] PROG TO [9] SQL ENTER THREE DIGIT CHANNEL NUMBER INTO MEMORY (001 to 230)	[#] ENTER	[*] ESC
[2]	DISPLAY BRIGHTER			
[3] MODE	EDIT OPERATING MODE	[3] MODE [2] [8] STEP UP/DOWN THROUGH OPERATING MODES ("n" or "D")	[#] ENTER	[*] ESC
* [4]	SCROLL CHANNEL DOWN	SCROLL DOWN THROUGH PROGRAMMED/ACTIVE MEMORY CHANNELS		
[5] SCAN	SCAN ON/OFF	[5] SCAN OR [*] ESC STOP SCAN		
* [6]	SCROLL CHANNEL UP	SCROLL UP THROUGH PROGRAMMED/ACTIVE MEMORY CHANNELS		
* [7] FREQ	EDIT FREQUENCY	[0] PROG TO [9] SQL SELECT Rx FREQUENCY THEN [#] ENTER REPEAT FOR Tx FREQUENCY	[#] ENTER	[*] ESC
[8]	DISPLAY DIMMER			
* [9] SQL	EDIT TONE or CODE	[9] SQL [2] [8] STEP UP/DOWN THROUGH SQUELCH MODES. Tx FOLLOWS Rx.	[#] ENTER	[*] ESC
	Tone: x - Off t - On c - Code P25 Code: m - Monitor (i.e. x) n - NAC only g - TGID + NAC	[2] [8] STEP UP/ DOWN THROUGH: TONES , CODES, TGID & NAC (\$ = HEX) [0] PROG TO [9] SQL DECIMAL EDIT FOR NOISE SQL VALUE (00 TO 15)	[#] ENTER	[*] ESC
[0] PROG	GO TO NEXT LEVEL	GO TO THE NEXT HIGHER COMMAND LEVEL		
* [#] ENTER	TOGGLE HOME/CURRENT	TOGGLE BETWEEN 'HOME' CHANNEL AND CURRENTLY DISPLAYED CHANNEL.		
[*] ESC	TOGGLE TALK AROUND	FOR DUPLEX CHANNELS: RADIO USES RX INFORMATION FOR TX. "UP" ARROW		

Press  to get to Command Level 2, then press the desired "Cmnd" key				
Cmnd	Function	Edit Keys	OK	Exit
* 	CREATE or EDIT CHANNEL	 TO  SELECT CHANNEL MEMORY TO EDIT THEN EDIT: SCAN LIST (L2-5), TEXT DESCRIPTION (L2-6) OPERATING MODE (L1-3), FREQUENCY (L1-7), & SQUELCH (L1-9)	 ENTER	
	COPY GUARD TO MAIN	COPY CHANNEL INFORMATION FROM GUARD TO MAIN (default disabled)		
* 	LOCK KEYPAD	PRESS & HOLD  TO UNLOCK KEYPAD		
	n/u			
	EDIT SCAN LISTS	   STEP UP/DOWN THROUGH AVAILABLE SCAN LISTS  TOGGLE ENABLE/DISABLE FOR SCAN (BAR OVER DIGIT = DISABLED)	 ENTER	
* 	EDIT CHANNEL TEXT	 STEP THROUGH THE FOUR CHARACTER GROUPS (AZ, az, 09, and BLANK)   SCROLL UP & DOWN THROUGH CHARACTERS IN SELECTED GROUP   MOVE CURSOR LEFT & RIGHT	 ENTER	
	CREATE SHADOW	 TO  SELECT CHANNEL MEMORY TO EDIT THEN EDIT: TEXT (L2-6), MODE (L1-4), SQUELCH (L1-9)	 ENTER	
	COPY MAIN TO GUARD	COPY CHANNEL INFORMATION FROM MAIN TO GUARD (default disabled)		
	TOGGLE ENCRYPTION	TOGGLE ENCRYPTION ON/OFF (ONLY FOR MEMORIES WITH KEY ASSIGNED)	 ENTER	
	GO TO NEXT LEVEL	GO TO THE NEXT HIGHER COMMAND LEVEL		
 ENTER	SET HOME CHANNEL	SET 'HOME' CHANNEL INTO MEMORY (FOR MAIN RADIO ONLY).	 ENTER	
	GO TO PREVIOUS LEVEL	GO TO THE PREVIOUS COMMAND LEVEL		

Press  +  to get to Command Level 3, then the desired "Cmnd" key				
Cmnd	Function	Edit Keys	OK	Exit
	SET BOOT CHANNEL	   STEP UP/DOWN THROUGH BOOT MEMORY OPTIONS	 ENTER	
	ASSIGN KEY BY KEYTAG	  PICK MEMORY,   PICK KEY,   PICK DECRYPT OPTION	 ENTER	
* 	SET P25 MODE	   TOGGLE P25 HEX/DECIMAL EDIT MODE (FOR TGID & NAC CODES)	 ENTER	
	DISPLAY FIRMWARE REV.	   STEP THROUGH MAIN & BOOT FIRMWARE VERSIONS	 ENTER	
	SET SCAN PARAMETERS	   SELECT REVERT MODE THEN  TO  SET TIMERS (REPLY, MONITOR, DELAY)	 ENTER	
	SET PTT TIMER	   STEP UP/DOWN THROUGH TIMER VALUES (30, 60, 90 SEC)	 ENTER	
* 	SET SIDETONE AUDIO	 TO  SET SIDETONE LEVEL (00 TO 85) (TDFM-136=52, TDFM-136A=68)	 ENTER	
	PC COMMUNICATION	MUST BE CONNECTED TO A PC OPERATING TDP-136 SOFTWARE		
* 	SHOW TONES/CODES	   TOGGLE Rx/Tx SQUELCH PARAMETER DISPLAY (CHECK TONES)	 ENTER	
	GO TO NEXT LEVEL	GO TO THE NEXT HIGHER COMMAND LEVEL (L4 PASSWORD PROTECTED)		
 ENTER	n/u			
	GO TO PREVIOUS LEVEL	GO TO THE PREVIOUS COMMAND LEVEL		

NOTES:

- The channel being edited is determined by the position of the front panel switches MN/GD and G1/G2.
- Current command level is shown at 4th character on bottom row (between GD2 and text).
- Levels 2 & 3 time out. The radio will return to Level 1 if a "Cmnd" key is not entered within 5 seconds.**
- Download this Quick Reference Guide @ www.nifc.gov/NIICD/documents.html

Til 3342E - NIICD

See the following URL for the update Til 3342E: <http://www.nifc.gov/NIICD/documents.html>

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