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Interagency Airtanker Base Operations Guide

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AMC

INTERAGENCY AVIATION MANAGEMENT COUNCIL

To: User of the *Interagency Airtanker Base Operations Guide*

From: Interagency Aviation Management Council

Date: May 6, 2003

Subject: Publication of 2003 *Interagency Airtanker Base Operations Guide*
(IABOG)

The IABOG has been revised for new publication in 2003. Changes include revisions proposed by the Airtanker Base Community, coordinated by the Aviation Management Council (AMC) and approved by the Forest Service and the Department of the Interior in May 2003.

We are confident that the 2003 version of the IABOG provides the necessary changes identified by field personnel and agency program managers. The IABOG is a dynamic document; and work will begin immediately to prepare for the next revision.

Publication as a cache item and placement on the NIFC website is authorized. Copies of this memo will be included at the front of the 2003 IABOG.


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INTERAGENCY AIRTANKER BASE OPERATIONS GUIDE

The Interagency Airtanker Base Operations Guide is sponsored by the United States Department of Agriculture and the United States Department of the Interior.

The contents was developed by the Interagency Airtanker Base Operations Steering Committee consisting of representatives from:

- USDA-FOREST SERVICE
- DOI – Bureau of Land Management
- MN – Department of Natural Resources
- CA – California Department of Forestry and Fire Protection

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Chapter 1

INTRODUCTION

I. INTRODUCTION

A. Objectives

1. Define and standardize national interagency operating procedures at all Airtanker Bases to ensure safe and efficient operations.
2. Support the Federal Wildland Fire Policy through interagency coordination.
3. Facilitate the exchange of personnel from all wildland fire suppression agencies during periods of high fire activity through standardization.
4. Provide a common, interagency approach in the State, Federal, and Tribal Government's contract related responsibilities.
5. Provide common forms, checklists, orientations outlines, and special instructions for both contractor employees (retardant supplier personnel, pilots, mechanics) and government employees at Airtanker Bases.
6. Provide a framework, which allows each Airtanker Base to provide a local base supplement with site specific guidance.

B. Authority

The Interagency Airtanker Base Operations Guide is sponsored by the United States Department of Agriculture Forest Service (USDA-FS) and the United States Department of Interior Bureau of Land Management (USDI-BLM). Agencies may incorporate the Interagency Airtanker Base Operations Guide into their manual directives system by reference.

C. Revisions

Revisions are the responsibility of the National Aviation Operations Officer (FS/BLM) and the Interagency Airtanker Base Operations Guide Steering Committee by charter. The Steering Committee shall be responsible for maintaining the content of the Airtanker Base Operations Guide in accordance with current and accepted standards of interagency procedures.

The committee shall solicit changes from field managers, review, and revise the guide; facilitate the publications and implementation to the guide; and maintain communication with appropriate Federal and State agency program managers for concurrence with proposed changes.

At the biennial National Airtanker Base Workshop, Airtanker Base Managers will meet and recommend updates for this guide. These recommendations will be circulated for comment among state, area, regional, and geographic representatives and submitted to the Airtanker Base Operations Guide Steering committee for review and approval.

D. Distribution

The Interagency Airtanker Base Operations Guide cache order number is:
NFES # 2271

Revisions are ordered through the Great Basin Cache at the National Interagency Fire Center (NIFC).

National Interagency Fire Center
Attention: Great Basin Cache Supply Office
3833 S. Development Avenue
Boise, ID 83705

E. Base Supplements

1. Local Airtanker Base Operations Guide Supplement

- a) Each Airtanker Base *shall develop and annually update* an Airtanker Base Operations Guide Supplement. The Supplement *should not repeat* policy and procedures contained in this guide, agency manuals or handbooks; but should provide local operational procedures and information.
- b) To achieve the objectives of standardization and interagency support of non-local personnel during periods of high activity, the local Airtanker Base Operations Guide Supplement and this guide shall be incorporated into each airtanker base organization and operation. Appendix H provides an outline of a local area supplement.

2. Pilot Orientation Briefing

The Base Supplement shall be included as part of the Pilot Briefing and Orientation Guide for home and transient aircrews.

F. Interagency Airtanker Base Directory

The Interagency Airtanker Base Directory is updated and published annually by:

USDA Forest Service, National Aviation Office
3833 S. Development Avenue
Boise, ID 83705

Internet Address: <http://www.fs.fed.us/fire/aviation/basedir.html>

G. Interagency Retardant Base Planning Guide

This guide is updated and published by the USDA Forest Service, NFES # 1259.

Chapter 2

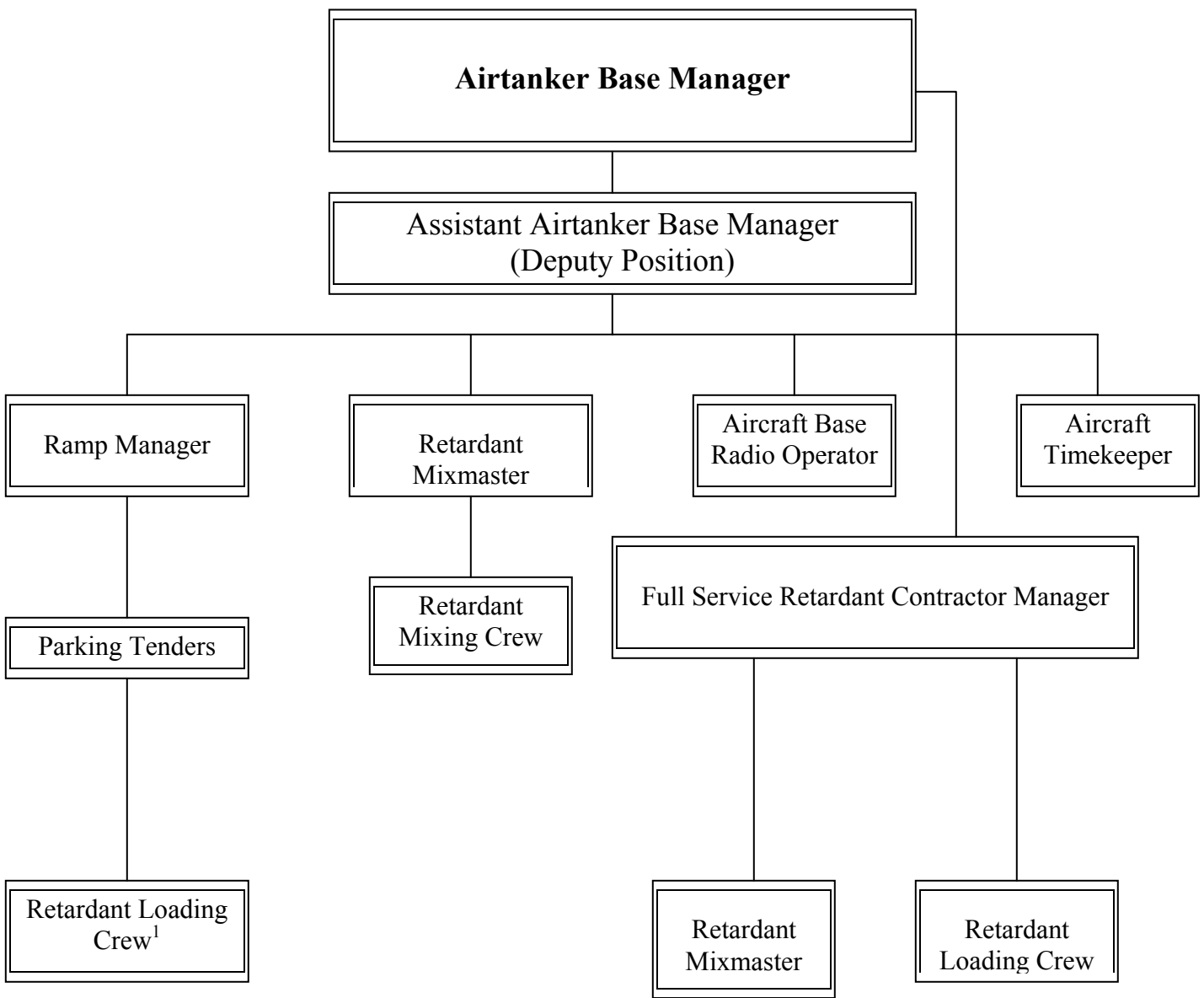
AIRTANKER BASE PERSONNEL

II. AIRTANKER BASE PERSONNEL

A. General

- Personnel working at an Airtanker Base shall receive training in base operations and specific training for the position(s) to which they are assigned. The Table of Organization for Airtanker Base staffing (Exhibit 2-1) is the minimum staffing level for Airtanker Bases during periods of fire activity. This organization should be expanded as required to meet the expected activity level.

EXHIBIT 2-1: Airtanker Base Table of Organization



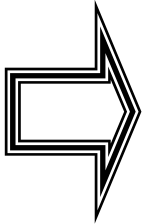
¹ May be one and the same as Mixing Crew, **but** supervision changes. The Mixmaster supervises the Mixing Crew during mixing operations. Once the Crew commences loading operations, supervision is by the Parking Tender.

2. Personnel may be assigned to more than one position in the base organization dependant on the level of activity. This does **not** relieve the managing agency from ensuring that the individual is both trained and qualified to fill the position(s) to which he/she is assigned. Airtanker Base Managers must anticipate the need for and request additional personnel during periods of high activity and/or complexity.
3. The Assistant Airtanker Base Manager position is to assist the Airtanker Base Manager and to serve as their Acting when the Base Manager is on days off, sick leave, or away from the base. Under the deputy concept, the assistant must serve with full authority as the Acting Base Manager and be fully qualified and accepted by the agency in the capacity in which they serve. This also applies to reload and temporary bases when active.

B. Airtanker Base Personnel: Duties and Responsibilities

1. Airtanker Base Manager

The duties and responsibilities are as follows:



The duties and responsibilities listed below are common to the airbase positions when supporting an incident. They may not reflect the extent of duties assigned in the position descriptions used in local hiring. In either case the position of Airtanker Base Manager should not be combined with duties which conflict with the managers ability to focus on these

- a) Ensures that base planning documents such as the Interagency Airtanker Base Operations Guide (IABOG), Base Supplement, Pilot Briefing and Orientation Guide, and the Reference Library are updated as necessary.
- b) Ensures all subordinate positions at the base are filled as required or when needed by trained and qualified individuals. If the base is approved for hot-loading of airtankers, ensures that all personnel have been trained in those procedures; documents all training in the OSHA format (received/given/signed for) for base personnel; identifies training to correct deficiencies.
- c) Conducts daily or more frequent briefings with pilots, other contract personnel, and Government employees assigned to the base.
- d) Ensures that IABOG, Occupational Safety and Health Administrations (OSHA), Environmental Protection Agency (EPA) Reports, and agency forms and reports are completed according to agency requirements.
- e) Maintains accurate information on all aircraft and aircrews assigned to the base.
- f) Coordinates all airtanker flights with local dispatcher, the Air Tactical Group Supervisor, Airtanker Coordinator, and/or the Air Support Group Supervisor. Obtains daily or more frequent briefings from one or all of these positions regarding mission priorities, operational and tactical briefings, quality of retardant, and performance issues.

- g) Ensures the maintenance and readiness of ground facilities, supplies, and services required at the base; ensures pilot and aircraft needs are met.
- h) Ensures that fire, medical, and emergency procedures and equipment are provided.
- i) Maintains time and use records on aircraft, equipment, retardant, and personnel assigned to the base. Provides aircraft use and cost information to the using unit, Incident Command Teams, and dispatch organization.
- j) Thoroughly familiar with and enforces all agency, local, and State safety requirements of the operation. Responsible for the maintenance and update of the Base Safety, Crash-Rescue, and Incident/Accident Actions Plans. Annually requests and receives aerial hazard maps from the area Forest District, Unit, or Land Managers. Submits agency Incident/Accident Reports and SAFECOMs in a timely manner.
- k) Understands and administers aircraft, retardant, and base operation contracts in order to assist the Contracting Officer's Representative, or to serve as the Contracting Officer's Representative (when qualified).
- l) Serves as liaison to the agency with airport management, the Federal Aviation Administration, state and local government aviation councils, the military, aircraft manufacturers, and fixed based operators (FBO).
- m) Coordinates with Incident management team aviation operations staff during large incidents to facilitate duty start-up time, costs, and safety issues.
- n) In conjunction with the agency representative, establishes and maintains base and retardant plant safety plans, and serves as the "Plant Manager" who is responsible for compliance with OSHA regulations and the Federal and EPA regulations, as they pertain to the base. Oversees the Mixmaster responsibility of training and implementation of OSHA plans such as lock out tag out, confined space, hazardous energy, hazard communication, PPE, and the documentation of training in the OSHA format.
- o) Keeps informed on predicted weather, fire behavior, and incident action plans to ensure an adequate supply of mixed and concentrate, or bulk retardant is available.
- p) Ensures all personnel are adequately supported and arranges for transportation and accommodations of transient flight crews.

2. Retardant Mixmaster

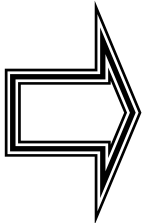
The duties and responsibilities of the Mixmaster are as follows:

- a) Reports to the Airtanker Base Manager, who provides daily or more frequent briefings.
- b) Supervises the mixing Crew during mixing operations. (See important note under Mixing Crew duties and responsibilities).

- c) Ensures chemical fire retardants and suppressants are provided to airtanker(s) at the rate specified and for the expected duration.
- d) Checks all accessory equipment such as valves, hoses, pumps, and tanks for operation and ensures agency and OSHA safety measures are in place (pump shaft guards, fan belt shields, splash guards, wiring integrity, sealed switch boxes, safety signs and placards, etc).
- e) Takes immediate steps to obtain personnel and equipment to perform operations safely and efficiently.
- f) Plans the specific layout of the plant to conduct operations; is responsible for the cleanliness of the plant area.
- g) Maintains quality control program for the retardant.
- h) Logs and reports pounds and gallons of retardant loaded to the Aircraft Timekeeper. Maintains retardant and equipment records.
- i) Ensures the safety and welfare of personnel working around the plant.
- j) Reports all hazards and incidents/accidents immediately to the Airtanker Base Manager who documents the event.
- k) Maintains records of all equipment, replacement parts, catalogs, technical manuals, and Material Safety Data Sheets (MSDS).
- l) Ensures OSHA regulations for plant safety are in place, properly documented, and monitored under the direction of the Airtanker Base Manager.
- m) Ensures compliance with State and Federal EPA regulations for storage and handling of fire retardants, waste, and washwater under the direction of the Airtanker Base Manager.

3. Retardant Mixing Crew

The duties and responsibilities of the Mixing Crew are as follows:



Note: The Mixing Crew may be one and the same as the Retardant Loading Crew. The Mixmaster supervises the Mixing Crew during mixing operations. Once the loading operation commences, it is supervised by the Parking Tender.

- a) Reports to the Mixmaster during mixing operations, who provides daily or more frequent briefings.
- b) Mixes retardant.
- c) Maintains all retardant equipment.
- d) Obtain samples of retardant for quality control.

- e) Trained and knowledgeable in emergency crash-rescue and base safety procedures; reports all hazards and incidents/accidents immediately to supervisor.
- f) Complies with OSHA plans and good housekeeping methodology.

4. Ramp Manager

The duties and responsibilities of the Ramp Manager are as follows:

- a) Reports to the Airtanker Base Manager, who provides daily or more frequent briefings.
- b) Supervises the Parking Tender(s).
- c) Briefs pilots and fuel contractors on parking areas, movement on the ramp, etc.
- d) Coordinates all movement on the ramp of airtankers, Air Attack, lead planes, other aircraft, vehicles, and personnel. Maintains the safety of ramp operations. If the base is approved for hot-loading of airtankers, ensures that all personnel have been trained in those procedures.
- e) Coordinates eye/skin protection and PPE use. Participates in hearing conservation program.
- f) Establishes emergency ramp procedures, trains personnel in these procedures and ensures that all personnel working on or around the ramp are trained and knowledgeable in these procedures. Ensures that safety hazards are reported and corrective action taken. Reports all hazards and incidents/accidents immediately to supervisor.
- g) Establishes fueling areas, loading pits, repair areas, overnight parking areas, day(s) off parking areas, and general parking areas. Ensures map detailing these areas is posted prominently.
- h) Responsible for the cleanliness of the ramp. Reports all fuel and retardant spills and ensures that they are promptly cleaned according to established environmental and/or hazardous materials procedures. Monitors and ensures the safety of all fueling operations by requiring fuelers to adhere to established regulations and procedures (see Chapter 4; *Base Facilities, Operations, and Dispatch*).

5. Parking Tender

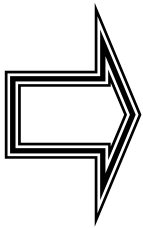
The duties and responsibilities of the Parking Tender are as follows:

- a) Reports to the Ramp Manager, who provides daily or more frequent briefings.
- b) Directs all movement within assigned area of all aircraft, vehicles, and personnel.
- c) Verifies airtanker-loading restrictions for each aircraft in consultation with the captain.
- d) Supervises the retardant loading crew in loading retardant into airtankers. If the base is approved for retardant hot-loading, is trained in hot-loading and ensures mixing crew follows appropriate procedures.

- e) Knows and is proficient in the use of both hand signals (see Appendix A) and radio communications procedures in order to direct airtankers to their loading and parking areas safely. Maintains constant visual or audio communication with pilot(s). Has final responsibility for clearing the aircraft for taxi.
- f) Observes and ensures the safety of both retardant loading and fueling operations. Keeps pit(s) clear of all non-essential personnel and vehicles. Directs retardant loading crew in maintaining the cleanliness of the ramp. Ensures that personnel stay clear of propellers and that propellers are not damaged by foreign objects (FOD) on the ramp. Ensures proper PPE use by ramp personnel and flight crews.
- g) Knows and ensures compliance with base emergency safety procedures and the use of required PPE, chock blocks, fire extinguishers, etc. Reports all hazards and incidents/accidents to the Ramp Manager; ensures that corrective action is taken.
- h) Relays pilot needs (retardant, fuel, meals, rest, etc.) to appropriate personnel.

6. Retardant Loading Crew

The duties and responsibilities of the Retardant Loading Crew are as follows:



Note: The Mixing Crew may be one and the same as the Retardant Loading Crew. The Mixmaster supervises the Mixing Crew during mixing operations. Once the loading operation commences, supervision is by the Parking Tender

- a) Reports to the Mixmaster, who provides daily or more frequent briefings.
- b) Loads retardant into airtanker(s); reports pounds of retardant loaded from mass flow meter hose read-out to the Mixmaster after each load. If the base is approved for retardant hot-loading, must be trained in hot-loading procedures.
- c) Verifies that the pounds of retardant loaded into the airtanker does not exceed the placarded maximum load weight on side of aircraft, current agency policy or downloaded weight as designated by the pilot in command.

WARNING: ALWAYS NOTIFY THE PILOT IF THE AIRCRAFT IS OVERLOADED WITH RETARDANT!

It is critical to flight safety that airtankers are not overloaded with out-of-specification retardant that exceeds the per gallon weight limitations. ***Overloaded aircraft crash, it is that simple.*** Always determine ***the total weight in pounds*** (not gallons) loaded onto an airtanker. Always notify the pilot if you have verified, or even think the aircraft may be overloaded!

- d) Keeps ramp clean from all spilled retardant.
- e) Knows the load limitation of the airtanker and ensures it is not exceeded.

- f) Trained in emergency crash-rescue airport notification plans and base safety procedures. Reports all hazards and incidents/accidents immediately to supervisor.

7. Aircraft Base Radio Operator

The duties and responsibilities of the Aircraft Base Radio Operator are as follows:

- a) Reports to the Airtanker Base Manager, who provides daily or more frequent briefings.
- b) Establishes communications needs at the base and ensures communications equipment is maintained and in working order. Verifies radio frequencies on a daily basis.
- c) Answers the telephone and radio; receives and relays orders for dispatch of tactical aircraft. Relays messages, and logs calls.
- d) Maintains communications with aircraft assigned to the base until takeoff and after landing. Notifies the Airtanker Base Manager immediately of any overdue or missing aircraft.
- e) Notifies the Ramp Manager of incoming aircraft and relays pertinent information.
- f) Maintains a log of all aircraft takeoffs and landings, estimated times of arrival (ETAs) and estimated times of departure (ETDs).
- g) Establishes and enforces proper radio use procedures.
- h) Trained in emergency procedures and incident/accident action plan; reports all hazards and incidents/accidents immediately to supervisor.

8. Aircraft Timekeeper

The duties and responsibilities of the Aircraft Timekeeper are as follows.

- a) Reports to the Airtanker Base Manager, who provides daily or more frequent briefings.
- b) Obtains information for aircraft assigned to the base. Distributes information (flight/load limits, etc.) to Airtanker Base personnel.
- c) Records on/off times for tactical aircraft.
- d) Ensures landing fees are properly documented.
- e) Ensures retardant use is properly documented.
- f) Records all timekeeping information for each Airtanker.
- g) Enter Airtanker Base Log information to agency flight use reports for home-base airtanker; relays information from Base Log to transient airtanker home bases. Responsible for documenting aircraft and retardant use to the proper incident(s) using appropriate agency coding.

- h) Maintains and summarizes tactical aircraft use and cost information and relates this information daily to the incidents air operations staff.
- i) Completes required agency reports and Aircraft Contract Daily Diary information after each operational period for home-base airtanker and submits to the COR.

C. Training

Airtanker Base positions are considered technical specialist positions under both the National Wildfire Coordination Group standards maintained in the Wildland and Prescribed Fire Qualification Guide PMS-310-1 and the Forest Service supplement direction in the Fire and Aviation Management Qualifications Handbook FSH 5109.17.

The qualifications system guide PMS-310-1 maintains no minimum qualifications for technical specialists, but recommends a minimum of introduction to ICS (I-100) and Wildfire Suppression Orientation for Non-operations personnel (S-110).

The Forest Service Fire and Aviation Management Qualifications Handbook FSH 5109.17 outlines required training for technical specialist positions.

The Exhibit 2-1 on the following page summarizes required and recommended training for airbase positions under this guide.

1. Required and Recommended Training

Training courses marked with an X are required, O is recommended training.

Course	Airtanker Base Manger	Mixmaster	Mixing Crew	Retardant Load	Ramp Manager	Parking Tender	Radio Operator	Aircraft Timekeeper
S-110 Fire Orientations Non-Ops	O	O	O	O	O	O	O	O
I-100 Introductions to ICS	X	X	O	O	X	X	O	X
S-130 Basic Firefighter	O	O			O			
I-200 Basic ICS	X	X			X	O	O	O
S-260 Incident Business Mgt	X	X						O
S-270 Basic Air Operations	X	X	O	O	X	X	O	O
Aviation Conference and Education	O	O			O			O
S-201 Supervisory Concepts and Techniques	X							
S-301 Leadership and Organizational Development	O							
Intermediate Air Operations	O				O			
Aviation Radio A109 Use	X						X	O
S-190 introduction to Wildland Fire Behavior		O						

2. Courses Under Development

Course	Airtanker Base Manger	Mixmaster	Mixing Crew	Retardant Load	Ramp Manager	Parking Tender	Radio Operator	Aircraft Timekeeper
Fixed-Wing/Airtanker Base Manager ¹	O				O	O		
Mixmaster ¹	O	O						
Fixed-Wing Base Manager ¹	O				O			

¹ These courses are under development. They are often offered locally or regionally.

3. Safety and Administrative Courses

Course	Airtanker Base Manger	Mixmaster	Mixing Crew	Retardant Load	Ramp Manager	Parking Tender	Radio Operator	Aircraft Timekeeper
COR/PI Contract Administration	X							
A104 Overview of Aircraft Capabilities and Limitations A204 Aircraft Capabilities and Limitations	X	X	X	X	X	X	X	X
Basic First Aid	X	X	X	X	X	X	X	X
Fire Extinguisher Training	X	X	X	X	X	X	X	X
OSHA Compliance Training	X	X						

**4. Recommended Courses Available Through the Office of Aircraft Services (OAS)
Interagency Aviation Training**

Course	Airtanker Base Manger	Mixmaster	Mixing Crew	Retardant Load	Ramp Manager	Parking Tender	Radio Operator	Aircraft Timekeeper
Aviation Transport of Hazardous Materials	X	O	O	O	O			
Basic Fixed-Wing Safety (OAS)	O	O	O	O	O	O		

Note: The Assistant Airtanker Base Manager serves as a deputy and must meet the same training requirements as Airtanker Base Manager.

D. Interagency Aviation Training list of Available Courses.

A-101	Aviation Safety
A-102	Fixed-Wing Safety
A-104	Overview of Aircraft Capabilities & Limitations
A-106	Aviation Mishap Reporting
A-107	Aviation Policy & Regulations I
A-108	Preflight Checklist Briefing & Debriefing
A-109	Aviation Radio Use
A-110	Aviation Transportation of Hazardous Materials
A-111A	Flight Payment Document 1
A-111B	Flight Payment Document 2
A-112	Mission Planning & Flight Request Process
A-201	Overview of Safety & Accident Prevention Programs
A-203	Airspace Management & Coordination
A-204	Aircraft Capabilities & Limitations
A-205	Risk Awareness
A-206	Aviation Acquisition/Procurement I
A-207	Aviation Dispatching
A-208	Aircraft Pre-Use Inspections
A-211	Aviation Planning
A-302A	Personal Responsibility & Liability for Basic Aviation Ops & Contract Administration
A-302B	Personal Responsibility & Liability for Supervisors, LE & Management
A-303	Human Factors in Aviation
A-304	Aircraft Maintenance
A-305	Risk Management
A-306	Aviation Acquisition/Procurement II

Chapter 3

ADMINISTRATION

III. ADMINISTRATION

A. Introduction

Certain administrative procedures are common to all airtanker bases. They include general documentation for directory information, cost reporting, tracking and safety as well as aircraft and retardant contract administration. Standardization helps to encourage common procedures to meet safety, efficiency, fiscal management and contract administration objectives.

B. General Procedures

(Appendix B, Exhibit B-1)

Refer to appendix () for an outline of the common documentation requirements for airtankers bases including the specific information on the purpose, applicability, completion responsibility and instructions and routing.

A standardized set of forms applicable to each reporting or documentation procedure is also provided in Appendix (B)

*The general administrative procedures for airtanker base documentation and reporting are outlined in the table in Appendix B,; Summary or Airtanker Base Forms and Reports Chart.

C. Contract Administration

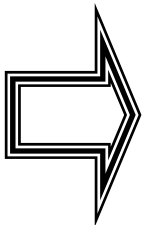
1. Administration of the contract is a joint responsibility of the requesting unit and the office with contracting authority with the ultimate responsibility vested in the Contracting Officer. Administrative functions are generally delegated to a local level.

One party to any Government aircraft contract will be the United States of America, the sovereign political entity on behalf of which the contract is entered into. Contracts for aircraft and services for State agencies most likely list the State as political entity.

All airtanker base personnel must understand that only the Administrative Contracting Officer or Contracting Officer may alter the terms and conditions of the contract. In addition, Government employees must understand that the contractor and company employees are bound only by the conditions as outlined in the contract.

Base personnel must be familiar with the National Airtanker Contract, as well as the National Retardant Contract as applicable to Airtanker Base Operations. Copies of these contracts should be maintained in the base Reference Library (see Chapter 5, Base Facilities, Operations and Dispatch). Airtanker bases which utilize California Department of Forestry and Fire Protection (CDF) aircraft, or any other State entity contracting aircraft services, should maintain a current copy of the contract.

The Airtanker Base Manager is responsible for reviewing the contract with the pilot of each Federal and State transient airtanker assigned to the base. The Manager must be familiar with the contract as there may be conditions or modification items unique to a particular contractor or aircraft, which differs from standard contract provisions.



Note: The Contractor is only bound by the contract and operates on behalf of the contracting agency regardless of incident jurisdiction or land ownership.

Refer to the current Interagency Airtanker Base Directory; NFES# 2537 for COR contact information.

Personnel administering contracts within their delegated authority should document all actions taken with respect to the contract. The Aircraft Contract Daily Diary (see Exhibit 3-16) can be used to provide this information. In addition, the other forms whose use is outlined in Chapter 3, Forms and Reports will provide an Airtanker Base Manager with the means to maintain an accurate record of airtanker base operations.

Each federal agency (USDI-OAS and USDA-FS) has a Contract administration Guide that explains the use of various forms employed in contract administration by each agency. These guides should be part of each Airtanker Base reference library and kept current. In addition, appropriate State contract Guides should be included in the reference library.

2. Types of Contracts

Exclusive-use contracts are those awarded for a specific time period (e.g., 30-day, 90 days etc.), and during which the government has exclusive use of the airtanker. States may have similar exclusive-use type contracts or agreements, which are unique to that entity. Consult with the appropriate state contract specialist for assistance. In addition, during periods of high incident activity airtankers from provinces in Canada may be used within the United States. Contacts for these contracts may be found in the “National Interagency Mobilization Guide,” NFES# 2092.

3. Authority of Government Personnel

Before any person takes an action on behalf of the United States, they need to ascertain whether authority to act has been delegated to them in writing. Consult with state agency representatives for their policy on contract administration.

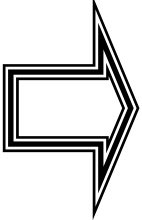
4. Disputes with Vendors

Disputes that cannot be readily resolved at the local level by the Project Inspector and/or COR will be referred to the Administrative Contracting Officer or Contracting Officer. Documentation of the resolution of actions taken in any disputed is important to assure that the interests of the government are maintained.

D. Generic Duties and Responsibilities

1. Contracting Officer (CO) or Administrative Contracting Officer (ACO)

Contracting Officer is responsible for all contracting actions including contracting procedures, contract legality with existing laws, regulations, contract administration, and termination. The CO may delegate certain contract administration functions. In the contract administration function, decisions on claims and disputes are final, appealable only to the Board of Contract Appeals or Court of Claims. Consult with state agency representatives for assistance with state contracts.



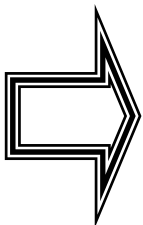
Note: The CO or ACO is the only individual who may modify or change a contract provision.

a) Assignment and/or Location

The Contracting Officer, (USDI/USDA) for all federal airtanker contracts is located in Boise, Idaho. USDI-OAS Alaska Airtanker contracts are administered by the Administrative Contracting Officer in Anchorage, Alaska. USDA-FS Administrative Contracting Officers are usually located at the Regional Office, Refer to the current “Interagency Aviation Technical Assistance Directory”, NFES# 2512, for additional information.

2. Contracting Officer’s Technical Representative (COTR)

The Contracting Officer’s Technical Representative (COTR) is directly responsible to the Contracting Officer for assuring compliance with the *technical* provisions of the contract. The COTR conducts initial inspections and approves the Vendor’s equipment, facilities, and personnel prior to, and periodically during the performance period.



Note: The COTR may discuss changes or modification in equipment or other requirements of the contract, but may not commit the Government to such changes, modifications, or adjustments without going through the Administrative Contracting Officer or Contracting Officer.

a) Interagency Technical Assistance

Generally speaking, COTRs from both USDI-OAS and USDA-FS can assist with technical support for both agencies, particularly when dealing with maintenance issues and inspections.

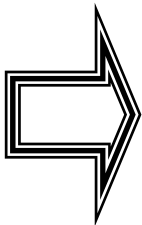
3. Contracting Officers Representative (COR USDI-OAS/USDA-FS)

The Contracting Officers Representative (COR) is directly responsible to the Administrative Contracting Officer (ACO) or Contracting Officer (CO) for monitoring contract performance. The COR is primarily responsible for assuring compliance with the provisions of the contract. The COR maintains communications with the vendor concerning day-to-day operation, though this may be further delegated to the project Inspector (see below). ***The COR may represent the ACO or CO in making minor allowances which do not modify the price or other provisions of the contract.*** The COR is responsible for verifying the work performed upon which payment is based. Refer to the “Interagency Airtanker Base Directory,” NFES#2537 for specific personnel and telephone numbers. Consult with state agency representatives for personnel that may be assigned this responsibility.

a) Contract File

The Contracting Officers Representative should maintain a contract file. This file should consist at a minimum of the following:

- i. A copy of the contract with all contract modifications
- ii. Delegations of authority
- iii. A bid price summary that specifies contract costs for all pay items
- iv. Copies of flight payment documents
- v. Copies of all contract daily diaries
- vi. Correspondence to or from the CO/ACO/PI and vendor



Note: The COR may recommend to the ACO or CO proposed changes and adjustments to the contract in order to meet the demands of the work project. The COR may discuss changes or modifications in equipment or other requirements of the contract, but may not commit the Government to such changes, modifications, or adjustments without going through the Administrative Contracting Officer or Contracting Officer.

b) Assignment and/or Location

- i. U.S. Department of Agriculture-Forest Service

For Airtanker contracts, the Contracting Officers Representative is usually either the Forest Aviation Officer or the Airtanker Base Manager.

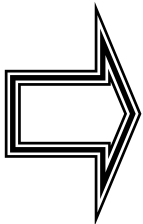
- ii. **U.S. Department of Interior**

For all Airtanker contracts and, unless otherwise stated by agreement, the Contracting Officers Representative (COR) is assigned at the Bureau’s or Office’s option. For example, the State Aviation Manager in the Bureau of Land Management is usually the COR.

4. Project Inspector (PI)

The PI is designated by the COR to assist in implementing the COR's instructions as required. Responsibilities of the PI generally include:

- a) Verifies services performed by the vendor
- b) Ensures vendor's compliance with the contractor specifications and provisions
- c) Discusses daily work assignments and ordering service within the contract provisions.
- d) Discusses problems that occur with the vendor and recommending proposed solutions to the COR.
- e) Maintains Daily Diary (see Exhibit 3-16) with documentation of his/her administration of the contract. Any problems of a serious nature are brought immediately to the attention of the COR.



Note: The Contractor is bound only to the contract.

f) Assignment and/or Location

i. U.S. Department of Agriculture-Forest Service

For all Airtanker contracts, the Project Inspector is usually assigned at the local (Forest or District) level to the Forest Aviation Officer, Airtanker Base Manager, or Assistant Airtanker Base Manager.

ii. U.S. Department of Interior

For all Airtanker contracts and , unless otherwise stated by agreement, the project Inspector is assigned at the Bureau's or Office's option. For example, the District Aviation Manager in the Bureau of Land Management is usually assigned Project Inspectors duties. These may also be delegated to the Airtanker Base Manager for day-to-day administration.

iii. The Contract Project Inspector (PI)

As a rule, the PI is the Airtanker Base Manager. The Airtanker Base Manager also acts as the on site PI for all Airtankers assigned to their base regardless of whether they are home base tankers or transient.

E. Administrative Payment forms and Instructions

The proper completion of flight payment documents (e.g., OAS-23, USDA 6500-122) is critical to the correct and timely payment of vendors. In addition, close attention should be paid to the processes and procedures outlined in the Chapter and the Appendices listed below. This information provides the means for agencies to meet the statutory requirements and federal policy of OMB Circular A-123 “Internal Control Review” and OMB Circular A-126, “Improving the management and Use of Aircraft.” Consult with state agency representatives for the appropriate payment forms and instructions for their contract aircraft.

1. **USDA-FS/FS 6500-122**, Flight Use Record Instructions for Completion

(See References – Available Websites)

2. **USDI OAS-23**, Aircraft Use Report and **OAS-AR-59**, Fuel and Oil Issue Record Instructions for Completion

(See References – Available Websites)

3. **Other U.S. Department of the Interior Agencies**

Other USDI agencies may utilize the generic OAS-23

Exhibit 3-1: U.S. Department of Agriculture-Forest Service Contract

Administration Table of Organization

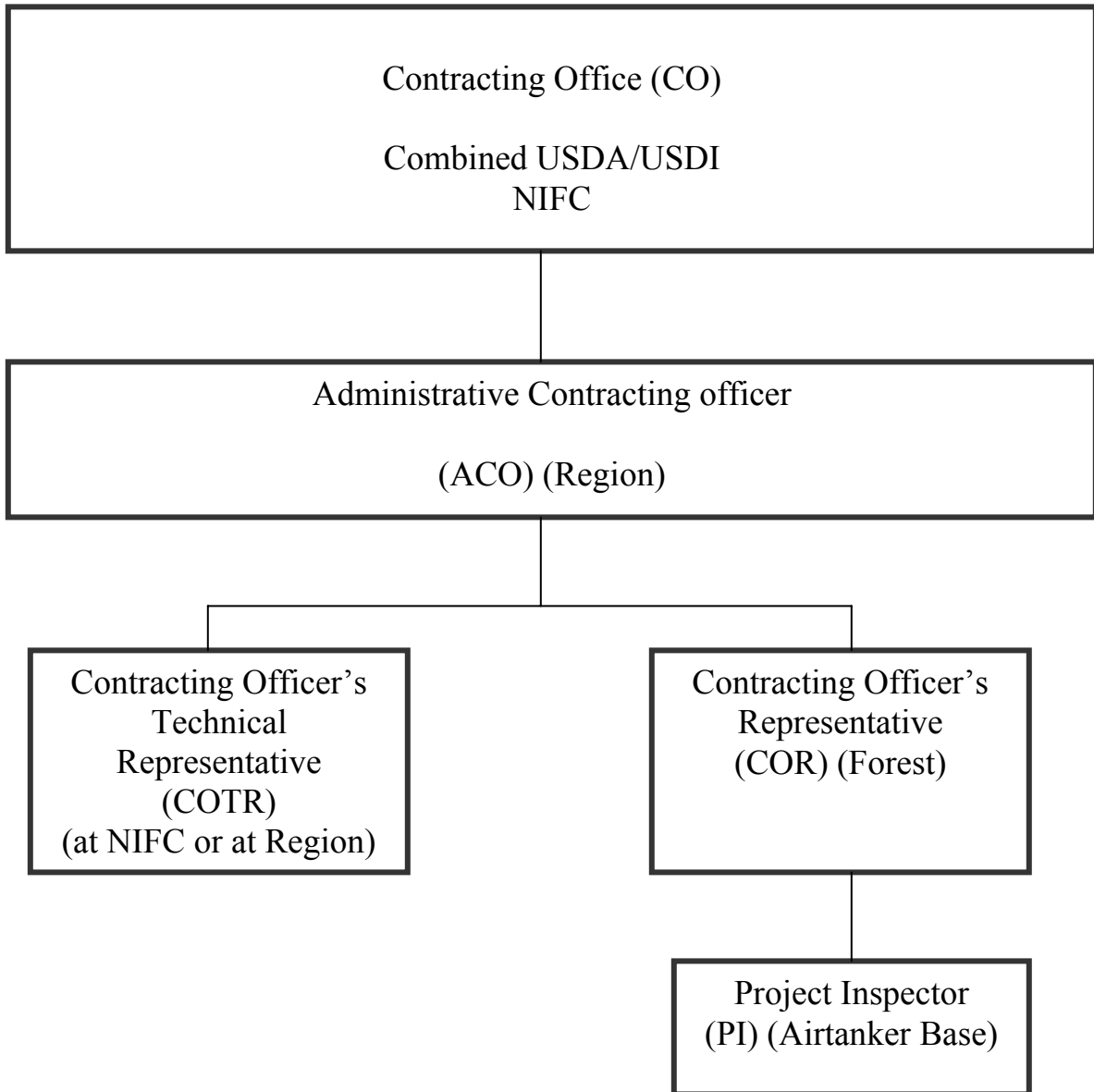
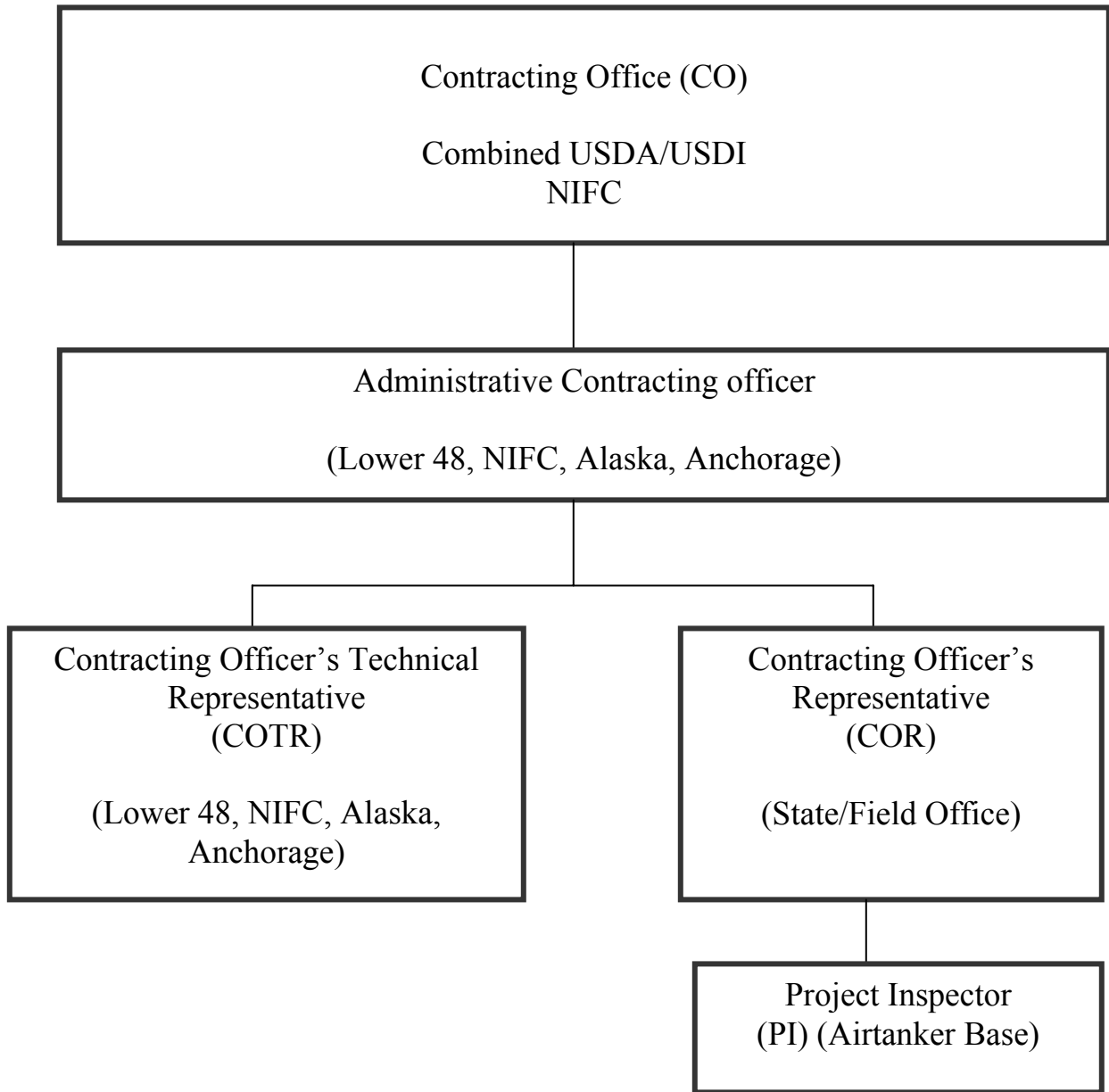


Exhibit 3-2: U.S. Department of the Interior Contract Administration

Table of Organization



Chapter 4

BASE FACILITIES, OPERATIONS, AND DISPATCH

IV. BASE FACILITIES, OPERATIONS, AND DISPATCH

A. Facilities

Airtanker Base managers and other subject matter experts should be consulted concerning any construction of new facilities or improvements to existing ones.

See *Interagency Retardant Base Planning guide*, NFES # 2359 for additional information.



Note: National design standards exist for Forest Service Bases. Contact Washington Office Engineering Staff at San Dimas, California prior to any base remodeling, design work, or construction.

National standards exist at Forest Service Airtanker Bases for new building , ramp, lighting, pumps and tanks, waste treatment, and storage building construction based on annual retardant output.

(See <http://fsweb.wo.fs.fed.us/eng/fac/airtanker/>)

Operations Buildings		Storage Buildings
Reload	1200-1500 sq. ft.	400-800 sq. ft.
<1,000,000	3000-3500 sq. ft.	1000-1200 sq. ft.
>1,000,000	3500-4500 sq. ft.	1500-2000 sq. ft.

1. **Minimum Equipment Needs**

Appendix D contains a list of minimum *required* and *recommended* equipment for airtanker bases and a list of recommended spare parts.

2. **Communications**

a) **Plan**

A Communication Plan shall be displayed prominently at each base. All home base and transient aircrews shall be briefed on communications procedures as contained in each base's supplement to this guide. Airtanker Base Managers are responsible for assuring that the information is current.

b) **Frequencies**

A separate channel on an appropriate and *authorized* frequency shall be established for communications with tactical aircraft both on the ramp and inbound/outbound. Agency radio networks and air network radios shall be in service at each airtanker base. Frequency 123.975 MHz has been established as the standard National Airtanker Base operating frequency west of the Mississippi River, but is subject to change. Annually verify the correct national frequency; local FCC or FAA restrictions may dictate a different frequency from the national standard. The correct frequencies for each airtanker base and administering agency can be found in the *Interagency Airtanker Base Directory*, NFES # 2537, which is updated annually. Airtanker Base Managers are responsible for assuring that frequency information is correct in the Directory.

c) **Telephones**

Commercial telephones shall be in service at each airtanker base. Primary airtanker bases (i.e., non-reload) must have a minimum of two telephone lines. Reload bases, used on an occasional basis, must have a minimum of one telephone however; local management should have a contingency plan for the timely expansion of phone capability during periods of heavy use.

d) **Audio System**

An outside audio system (public address type) shall be provided at each base.

e) **Ramp Communications**

The Ramp Manager and Parking Tender(s) must be furnished with communication head sets (push to talk or voice activated) with which they can communicate both directly with pilots and with the Airtanker Base Radio Operator on the local VHF-AM or VHF-FM frequency. These headsets shall meet the requirements of the `Base Agency/Occupational Safety and Health Administration (OSHA) Hearing Conservation Compliance Plan. (See Chapter 6, *Safety*)

3. **Lighting**

Lighting shall be provided as necessary for normal base operations such as off loading, mixing, and site maintenance. Ramp lighting should be incorporated into base designs. In cases where ramp lights are not installed by the agency, the contractors will provide their own lighting kits and generator for night time aircraft maintenance.

4. **Electrical System**

The electrical system at the base must provide adequate electrical power and outlets to meet both routine and emergency needs. This includes battery-powered radios, gas driven retardant pumps, or availability of electrical generators (rental source or owned). **Outlets should be provided on the ramp/pit area. If fueling is done in this area the electrical service must be CLASS A EXPLOSION PROOF.**

5. **OSHA and Hazardous Material Requirements**

Agencies are responsible for assuring that facilities meet local, State, and Federal laws pertaining to workplace safety for employees and do not impact the welfare of the surrounding community.

Airtanker Base Managers (or “Plant Manager” as referred to by Environmental Protection Agency and OSHA) are responsible for implementing safe work practices, procuring equipment, training, and *right to know* procedures for employees and contractors. Adherence to OSHA and hazardous material regulations are complex. Base Managers can utilize various sources to assist them in meeting regulations such as internal agency personnel trained in OSHA hazardous material compliance, private consultants, and regulating agencies that ``can provide assistance on request. In addition, there are commercial sources that provide compliance information, training materials, and equipment that meet regulations. Refer to Appendix K for information that pertains to OSHA hazardous material compliance.

6. Safety Equipment

Refer to Chapter 5, *Safety and Security* for safety equipment requirements.

7. Flight Crew Accommodations

a) Transportation and Lodging

When transient aircrew(s) remains overnight, the Airtanker Base Manager shall arrange for transportation and lodging. The flight crew will pay Lodging and meals; the Base Manager will coordinate arrangements for the flight crew.

Contract transit flight crews shall be transported via government owned vehicles to and from lodging and eating facilities (hotel shuttles may substitute if they do not extend the crew duty day). Privately owned vehicles ***shall not be used*** to transport crew and vendor personnel. Under GSA and agency regulations, contractor personnel ***may not*** drive US Government owned, leased, or rented vehicles. A contractor may rent and pay for a rental care and then submit the invoice to the paying office when so ordered and authorized under the contract.

b) Standby

Adequate standby facilities for retardant and aircrews must be provided to ensure a safe operation. ***Use of FBO facilities/lounges for this purpose is not considered adequate.*** (See Appendix F, *Airtanker Base Evaluation*). Base managers should also have a contingency plan that allows for expansion of the standby area during periods of high fire activity.

c) Food and Drink

The following is Federal interagency policy per contractual agreement. Consult with State agency manuals or directives for their respective policy.

- i. Home based airtanker crews are expected to provide their own lunches during regular daily base activity, except as provided below.
- ii. During days of high fire activity, when the agency deems it necessary to sustain operations, adequate meals, ice, and drink refreshments will be provided to (ALL) airtanker crews, mechanics, and contract mixing/loading crews at the agency's expense. Base managers must ensure that the flight crew(s) have an opportunity to eat, which includes an authorized paid break away from the aircraft.

8. Reference Library

In addition to the latest update of this guide, each airtanker base should have a Reference Library that includes the following publications. NFES numbers are provided for ease of ordering through the National Fire Cache System. Airtanker Base Managers are responsible for maintaining the most current versions of any of the documents listed. The most current Federal manuals and handbooks are the electronic versions maintained by the National Offices of the respective agency. They can be accessed through internal mail systems or the Internet.

- a) Aviation Management Manuals and Handbooks (all cooperators)
- b) Contract Administration Manual or Guide for appropriate agency
- c) Interagency Incident Fire Business Management Handbook, NFES # 2160
- d) Health and Safety Codes for appropriate agency
- e) Federal National Airtanker Contract
- f) Call-When-Needed Fixed Wing Contracts
- g) National Long Term Retardant Contract
- h) Interagency Airtanker, Helicopter, Large Transport, and Smokejumper Information, NFES #2277 (http://www.fs.fed.us/agm/fire_aviation_information/misc/yellowb-pdf)
- i) Interagency Airtanker Base Directory, NFES #2537 (<http://www.fs.fed.us/fire/aviation/basedir.html>)
- j) Interagency Single engine Airtanker Operations Guide, NFES # 1844
- k) Interagency Single Engine Airtanker Forms Package, NFES # 1413
- l) Interagency Aviation Technical Assistance Directory, NFES #2512 (<http://www.aviation.fs.fed.us>) (Library)
- m) Interagency Retardant Base Planning Guide, NFES # 1259
- n) National Interagency Mobilization Guide, NFES # 2092
- o) Interagency Communications Frequency Guide, NFES # 0969
- p) Fireline Handbook, NFES # 0065
- q) Interagency Transport of Hazardous Materials Guide, NFES # 1068
- r) Interagency ASM/Lead Plane Operations Guide
- s) Lot Acceptance and Quality Assurance, and Field Quality Control for Retardant Chemicals, NFES # 1245
- t) Interagency Call-When Needed Helicopter Contract, NFES #2168
- u) Interagency Airspace Coordination Guide (draft)
- v) Interagency Aviation Pocket User Guides, NFES # 1373 (Maintain multiple copies for use for Chief of Party CWN Administrative Flights originating from Airtanker Bases)
- w) Five Steps to Safe Flight Card, NFES # 1399 (Maintain multiple copies for CWN Administrative Flights originating from Airtanker Bases)
- x) National Road Atlas
- y) National/Regional/State/Unit Aviation Plans
- z) USDA Forest Service MAFFS Guide (if MAFFS Base)
- aa) Military Use Handbook, NFES # 2175
- bb) Geographic Area Mobilization and local Plans from appropriate agencies
- cc) Local Pre-attack/Dispatch/Flight Hazard Maps
- dd) Incident/Accident (Aircraft Emergency Response) Action Plan
- ee) Aviation Fuel Handling Handbook USDI 351 DM 1
- ff) Standard for Aircraft Fuel Servicing NFPA 407
- gg) Airport/Facility Directory, U.S. Department of Commerce, F.A.A.

- hh) Federal Aviation Regulations Part 91, 135 and Aeronautical Information Manual
- ii) Training Course Material (including applicable videos)
- jj) OSHA Field Guide, Manual, and Handbooks
- kk) Interagency Helicopter Operations Guide, NFES # 1885, Forms, NFES #1887
- ll) Lessons Learned in Forest Service, Aviation, NFES #1216, Part I, NFES # 2576, Part II (Video)
- mm) Personal Protective Equipment, NFES # 2574 (Video)
- nn) 10 Principles of Retardant Application Cards, NFES # 2048
- oo) Twelve Standard Aviation Questions that Shot Watch Out Cards, NFES #1129
- pp) Winds, Wires, and Weight, NFES #1211 (Video)
- qq) Aircraft Identification Guide, NFES #2393
- rr) First Aid Treatment Guide
- ss) Drivers Operator Manual
- tt) Hot Loading Video
- uu) Janes world Aircraft
- vv) Interagency Airtanker Base Directory
- ww) Airtanker Washdown Systems
- xx) Fire Retardant Storage Tank Recirculation Systems Volume 1 and 2
- yy) AMIS Users Guide
- zz) Retardant Metering Manual

B. Operations

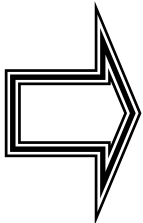
1. General

Good communications, daily briefings, on-the-job training, and a demonstrated concern for safety are key factors in ensuring the safety and efficiency of airtanker base operations. The following operational procedures should be followed at all airtanker bases.

2. Environmental Concerns

a) Base Operations

Special precaution must be taken to contain potential spills while the airtankers operate on the ground. Retardant loading pits must have containment and treatment systems to handle leaks, spills, and/or wash down water used to wash aircraft that may contain metals from the aircraft, fuel, hydraulic fluid, and oils. Additionally, mixing and pump areas and storage tanks must have containment systems in place if spills or leaks will impact the surrounding airport environment, storm drains, or mineral soil.



Note: Assure that all aircraft are in compliance with environmental precautions and requirements as stated in aircraft contracts.

In areas where retardant deliveries are received, aircraft maintenance is performed, or on the tarmac where loaded airtankers are staged for dispatch, a containment system or barriers should be in place. At a minimum, storm drains should be sealed with commercial containment rubber mats or straw bales. Mineral soil surfaces should be protected from potential retardant releases, leaks or wash down water by concrete collection structures, curbing or temporary barriers. Spills in these areas must be collected and disposed of by an environmental hazardous waste disposal company.



Warning: Pre-season briefings with city or airport crash/rescue/fire units must be conducted and documented to inform them that fuel or retardant spills will not be washed into storm drains, wetlands, or threatened and endangered Species habitat. Spills must be contained.

In all areas, retardant; petro-hydrocarbons (fuels, oil, cleaning liquids, etc.) spills or waste must be cleaned up as soon as they occur. A pre-season contract should be established with a certified hazardous material disposal service to mitigate any spills on the airport. Many State and federal agencies already have national and local contracts in place that can be accessed through your agency engineering, environmental, or health and safety office.



Warning: City and airport employees may say that the spills, run-off, and wash down liquid is acceptable to their facility and can be dispersed into storm drains, on the ground, or sprinkled. However, federal acts, regulations, and agency policies dictate that airtanker bases comply with proper spill prevention, collection, treatment, and disposal. For local procedures refer to the base supplement.

3. Retardant Operations

a) References

Retardant operations shall be governed by those standard operating requirements and procedures found in:

- i. Lot Acceptance, Quality Assurance, and Field Quality Control for Fire Retardant Chemicals, NWCG Publication, PMS-444-1, May 2000, National Interagency Fire Center, NFES # 1245
- ii. NWCG Airtanker Base Planning Guide, NWCG Publication PMS-440-1 March 1995, National interagency fire Center, NFES # 1259

- iii. Local Airtanker Base Supplements
- iv. Wildland Fire Chemical System, Retardant Contract CD

b) **Retardant Testing**

Follow direction given in Lot Acceptance, Quality Assurance, and Field Quality Control for Fire Retardant Chemicals.

4. **Parking**

- a) Parking areas for home-base aircraft shall be discussed and determined at the pre-work conference. The Airtanker Base Manager should assign the designated parking areas.
- b) Provisions should be made with local authorities to obtain adequate parking space to accommodate additional aircraft during periods of heavy fire activity. Parking for out-of-service or days-off airtankers should also be identified.
- c) Nose wheel and/or main gear markings should be painted in loading positions for longest aircraft commonly in use. FAA standards for markings on the ramp shall be adopted. Regardless of whether markings are painted, the Parking Tender shall use standard hand signals (see Appendix A) to park aircraft.
- d) The Parking Tender shall wear a high-visibility vest at all times when working on the ramp.

5. **Pre-flight Checks**

The flight crew is expected to conduct checks as appropriate for their aircraft at the beginning of each duty day. In California, the California Department of Forestry (CDF) pilots may be required to start engines at the beginning of each day. In addition, the following shall be checked:

- a) Radios and frequencies
- b) Loran and/or GPS equipment (calibration)

6. **Loading**

- a) The Loading Crew, Ramp Manager, Parking Tender(s), Base Manager, and Flight Crews are the **only personnel permitted** on the ramp during aircraft operations.
- b) During loading and fueling operations and prior to taxi, a visual safety check is to be conducted by mixing, loading, and parking personnel.
- c) Fueling crews shall be permitted on the ramp only prior to or after loading operations. Loading and fueling **shall not** be performed simultaneously.

The Retardant Loading Crew shall wear appropriate personal protective equipment as outlined in OSHA regulation, local base supplements and job hazard analysis.

- d) Retardant loading with engines running shall **NOT** be permitted except when all personnel involved have been trained in the hot-loading procedures.

7. Fueling

The Airtanker Base Manager will ensure that all aircraft fueling operations comply with NFPA 407, Standard for Aircraft Fuel Servicing.

a) Visual Safety Check

During loading and fueling operations and prior to taxi, a visual safety check of the airtanker is to be conducted by loading and parking personnel.

b) Simultaneous Loading and Fueling

The simultaneous fueling and loading of aircraft is prohibited. One operation must be fully completed before the other operation commences because of the possibility of static electricity build-up. Fixed-base operators and other fuelers should be made aware of this restriction prior to the season start. This policy shall **not** be altered in any manner by any geographic area or airtanker base.

c) Obtaining Fuel Services

The Airtanker Base Manager shall work with the vendor, airport officials, fixed-base operators, and local distributors to ensure the best possible fueling services. Managers should perform contingency planning for extreme, high-activity situations.

d) High-Density Operations

When working large numbers of aircraft, use alternate bases for reloading/refueling some aircraft. This will avoid congestion and resultant delays.



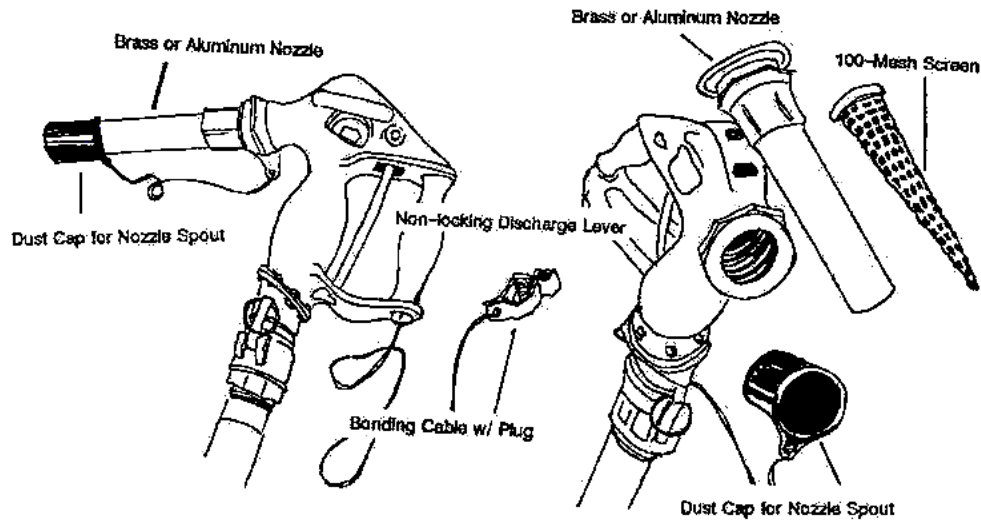
Warning: Static electricity builds up on an aircraft as the aircraft moves through the air. Static electricity also builds up on the refueling equipment when the fuel is pumped through the hoses. The aircraft, fuel nozzle, and pump assembly must be bonded to prevent sparks and explosions. Static electricity buildup is greater in cold, dry air than in warm, moist air.

e) Bonding Procedure.

Bonding procedures shall be enforced by all personnel. Bonding involved connecting two or more metallic objects together by means of a conductor that equalized the electrostatic potential between the objects. Bonding aircraft to the fuel nozzle prior to removing the fuel cap is a required safe practice.

Exhibit 4-1: Fuel Nozzle Requirements

Exhibit 4-1: Fuel Nozzle Requirements



f) **Wash-Down of Ramp**

The Ramp Manager should ensure that all oil, fuel, and other material is washed from ramp areas according to environmental requirements and constraints on a daily, or as needed basis. Use of biodegradable or environmentally acceptable cleaners or solvents is recommended.

8. **Starting the Aircraft Engines**

Except in an emergency, or when so directed by the Airtanker Base Manager, pilots shall not start aircraft engines without the supervision of a Parking Tender.

The Parking Tender or Loader, when functioning as the Parking Tender, shall then go to designated location in view of pilot in command, signal “Start Engines”, and then marshall the aircraft from the ramp.

9. **Releasing the Aircraft**

- a) The Parking Tender is responsible for releasing the aircraft.
- b) Before releasing aircraft, Parking Tender shall ensure retardant load crewmembers have installed retardant tank cap and overflow plug and has pulled loading hose completely clear of ramp.

10. Miscellaneous

a) Vehicles

- i. Vehicles in the ramp/pit area must be kept to the minimum necessary for the operations. The Airtanker Base Manager shall determine which vehicles are authorized on the ramp.

b) Visitors

- i. Before being allowed onto the ramp, visitors must obtain permission from the Airtanker Base Manager or his/her representative and be given a safety briefing. Visitors shall be escorted by agency or contractor personnel. Where airport security requires it, visitors will be provided a visitor ramp pass.
- ii. Visitors will be provided appropriate safety equipment, including hearing protection.
- iii. If possible, members of the press shall be escorted by a Public Information Officer.
- iv. Visitors will remain clear of parking ramps, aircraft, pits, and retardant plant during aircraft operations.
- v. Visitors and the public shall be directed to and confined to a secure designated public viewing area while visiting the base to observe operations.

C. Dispatch Procedures

1. Pre-Dispatch Briefings and Orientation

Each Regional or State Airtanker Base Supplement should address the areas outlined in Appendix L. The Airtanker Base Manager is responsible for covering these areas of safety during the pre-work conference for home-base airtanker crews.

2. Dispatch/Reaction Times

The standard 15-minute reaction times as specified in most airtanker contract begins *after* the loading process has been completed (average time to begin loading from dispatch order is 3 minutes, time to load 3,000 gallons at 500 gpm is 6 minutes, disconnecting hose and clearing aircraft is an additional 2 minutes. Total average load time for 3,000 gallon aircraft is 11 minutes after which time the 15-minute airtanker contract time begins for a total of 26 minutes for both operations). The aircraft contract time of 15-minutes is not applicable for delays caused by local air traffic, planning for extended dispatches, flights to be made under Instrument Flight Rules (IFR), and other causes beyond the pilot's control.

3. Standard Flight Resource Order Information

Upon initial dispatch, tactical aircraft crews (airtanker, ASM/Lead Plane, and air attack pilots) should be provided with the required information. Information from the dispatch form can be transmitted by radio in case of divert.

The dispatch office will provide this information to the Airtanker Base Manager or Radio Operator. Procedures should be reviewed with dispatch *prior to the start of each fire season*. Numbers on the form correspond to the numbers on the Resource Order form, NFES # 2200.

4. Communications

- a) Appropriate frequencies will be monitored and used for initial dispatch, and for contact with airtankers, Airtanker bases, ASM/lead planes, air attack, Incident Commanders, and dispatchers.
- c) When dispatched to an incident, Airtankers shall maintain radio contact at all times with the Airtanker Coordinator, the Air Tactical Group Supervisor, airtanker base or dispatcher.
- d) Information on the Base Aircraft Communications Plan should be fully discussed at pre-dispatch briefings. Frequencies in use shall be clearly posted for both dispatcher and pilot reference. Frequency changes shall be relayed immediately to Flight Crews.
- e) Except in the event of an emergency, retardant shall not be dropped unless communications can be established with personnel on the incident. This does not apply to un-staffed portions of an incident.

5. Dispatch Rotation and Priority of Large Federally Contracted Airtankers.

To ensure a fair and equitable rotation of airtankers, the following policy will be followed by airtanker bases when operating Federally (USDI or FS) contracted large (Type I/II) airtankers. This policy is to ensure that contractors are treated uniformly regardless of the work site (Federal, State or jointly operated airtanker bases). *When assigned to incidents managed by other agencies or state cooperators, Federally contracted aviation resources remain under the direction of the Federal Contracting Officer*, and are bound only by their contract with the USDI and the Forest Service. Hence, Federally contracted aviation resources will be treated fairly and equitably during their assignment with other Federal or State agencies.

a) Large Airtanker Rotation Policy

Airtankers contractually assigned to the bid item (Designated Base) shall be first out each day, including those returning from day(s) off. Thereafter, all airtankers shall be dispatched in rotation, regardless of the location of the incident, except when:

- i. The next airtanker in rotation has an operating restriction at the new base it is being reassigned to.

- ii. A **demonstrated** benefit to the agency and the contractor would be realized by changing the rotation. Acceptable reasons for changing the rotation are:
 - Returning the contractor to their bid item (Designated Base) for a new incident.
 - Returning the contractor to their bid item (Designated base).
 - Repositioning the contractor to a base where their maintenance crews or supplies are available.
- iii. Transient airtankers coming on after day(s) off shall begin at the end of the rotation.
- iv. Additional contracted airtankers, brought on for the purpose of supplementing the primary contract airtankers, shall begin rotation after the primary contracted airtanker(s) at the beginning of each day.
- v. MAFFS, Canadian, and State Airtankers
 - MAFFS and Canadian airtankers brought on for the purpose of supplementing the commercial airtanker fleet shall begin rotation after the contracted airtanker(s) at the beginning of each day.



Note: Type I and II airtankers are treated as the same under this policy. Under the National Large Airtanker Services Contract there is no differentiation between Type I and Type II airtankers. Large airtankers under the contract are rotated fairly under this policy at the airtanker base regardless if they are Type I or II. Type III (such as the CDF S-2) and IV (SEATS) **are not** part of the OAS/Forest Service's National Large Airtanker Services Contract.

- Rotation of State Airtankers: Rotation of State resources on stated incidents at a state airtanker base is established by their controlling dispatch center.
- In cases where State resources are operated in conjunction with Federal contract items (Large airtankers) on an incident primarily on Federal lands, airtankers shall be rotated per the national policy with the State resources being added to the rotation after the Federal resources **at the beginning of the flying day**.
- On incidents on State land, resources such as the Type III airtanker shall be rotated to the incident first at the **beginning of the flying day** followed by the federally contracted resources per the National Large Airtanker Rotation Policy.

6. Airtanker Dispatch Limitations

To reduce the hazards of airtanker retardant drops in the early morning and late afternoon hours, comply with the limitations on times when airtankers may drop retardants on fires. The following limitations apply to the time the aircraft arrives over the fire to conduct the drop, not to the time the aircraft is dispatched from a base. Dispatchers and Airtanker Base Managers, in consultation with Airtanker Coordinators or Air Tactical Group Supervisors, are *mutually responsible* for ensuring these limitations are not exceeded. The following shall apply (refer to Chart IV-1):

a) Limitations

Normally, airtankers shall be dispatched to arrive over a fire not earlier than 30 minutes after official sunrise and not later than 30 minutes before official sunset.

b) Exceptions

Airtankers may arrive over a fire as early as 30 minutes prior to official sunrise and may drop as late as 30 minutes after official sunset provided that a qualified Air Tactical Group Supervisor (ATGS), Airtanker coordinator (ATC) or ASM/Lead Plane Pilot is on the scene and has done the following.

- i. Determined with concurrence with the pilot in command that visibility and other safety factors are suitable for dropping retardant.
- ii. Notifies the appropriate dispatcher of this determination

c) Determination of Official Sunrise, Start-up, Cut-off, and Sunset Times

Each Airtanker Base and dispatch office shall have tables showing the official sunrise, start-up, cut-off, and sunset times at those locations.

d) Determinations for Airtanker Dispatch

Official sunrise should be used for each airtanker dispatch, start-up, cut-off, and sunset times of the airtanker base nearest the fire, and should comply with the limitations in the preceding paragraphs.

e) Internet Address:

<http://aa.usno.navy.mil/aa/data>

f) Exhibit 4-2: Aerial Supervision Limitations

30 Minutes Prior to Sunrise	Until	30 Minutes After Sunrise	30 Minutes After Sunrise to 30 Minutes Prior to Sunset	30 Minutes Prior to Sunset	Until	30 Minutes After Sunset
Air Tactical Supervisor Or Airtanker Coordinator REQUIRED		Normal Agency Policy on Supervision Applies			Air Tactical Supervisor Or Airtanker Coordinator REQUIRED	

D. Single Engine Airtanker (SEAT) Procedures

Refer to the *Interagency Single engine Airtanker Operations Guide, NFES # 1844*, for all SEAT operations.

US Forest Service Bases will incorporate SEAT operations and limitations into the Base Operating Plan.

Chapter 5

SAFETY and SECURITY

V. SAFETY

Safety at airtanker bases and around aircraft is a cooperative effort between pilots, mechanics, fixed-base operators, other contract personnel, and government employees assigned to the base. Safety is also an individual responsibility for which each person is accountable. In *no* circumstance will safety be compromised.

A. Pre-Work Conferences

Pre-work conferences are an excellent forum in which to discuss safety and initiate safe teamwork with vendor and agency pilots.

1. All airtanker crewmembers should attend contract pre-work conferences and briefings. (Contract only requires pilot-in-command)
2. All pertinent base personnel who would benefit should attend the airtanker contact pre-work meeting.
3. The Interagency Airtanker Base Operations guide and the local Base Supplement should be addressed in depth.

B. Airtanker Base Evaluations

All Airtanker bases should be evaluated on at least a biennial basis using the Airtanker Base Readiness Evaluation. (See Appendix F)

1. Use of the Evaluation

The Airtanker Base Readiness Evaluation is used for both pre-season and as needed spot evaluations of Airtanker Bases. The results of the inspection should be reviewed with the fire staff of the agency (ies) operating the airtanker base. Deficiencies in training should be corrected within a reasonable time frame. Deficiencies in critical areas of safety must be corrected immediately. Evaluations will be provided to Forest, State, and Regional Offices for review and line officer accountability.

2. Evaluation Team

Where possible, the evaluation team should be interagency in nature. Technical specialists with expertise in the areas of retardant operations and airtankers should be part of the team.

C. Aerial Hazard Maps

Each airtanker base shall have an aeronautical chart noting “Known Aerial Hazards” within its zone of influence posted prominently for use by aircrews.

1. The map shall be updated annually and as needed with the last revision date indicated on the map.

2. The Hazard Map shall include the following:

- a) Power lines and towers. If aeronautical charts are being used (e.g., Sectionals), then these hazards should be highlighted on these charts.
- b) Wires and power lines not marked on standard aeronautical charts.
- c) Military Training Routes (MTRs) and Special-use airspace.
- d) Identifiable areas of extreme turbulence.
- e) Other known hazards including location of Threatened and Endangered Species habitat.
- f) A key to identify the type of hazard; date of the map's last revision.

3. The Airtanker Base manager is responsible to ensure that briefings concerning local known hazards are posted daily for all assigned crews, home-base and transient.

D. Airspace Coordination

Airtanker Base managers and pilots shall ensure that operations are conducted in accordance with the *Interagency Airspace Coordination Guide*, a current copy of which must be maintained at each base. Refer to this guide for procedures, duties, and responsibilities. Many bases are now using a Computer-aided Aviation Hazard information System to generate dispatch, hazard, and airspace information. This is permissible provided the data has been updated from the Internet.

E. Crash-Rescue Planning and Equipment

1. Aircraft Incident/Accident (Emergency Response) Action Plans

- a) Each base shall develop and annually update an Incident/Accident Action Plan. Local airfields and community capability to respond to aircraft accidents and/or fuel fires should be built into the plan.
- b) The plan shall be prominently posted in the airtanker base office.
- c) Airtanker base personnel shall be familiar with and trained in how to contract emergency services in the event of an emergency on or off the airfield.

2. Crash-Rescue Equipment

a) Fire Extinguishers

The purpose of portable fire extinguishers located on an aircraft ramp is to:

- i. Provide "First Aid" firefighting only. The capability and knowledge to activate trained emergency response personnel quickly should be a top training priority.
- ii. Assist the crew at their exit point from the aircraft.

- iii. Extinguish any small fire on the exterior of the aircraft. This would typically be brake or engine fires. An external fire extinguisher should never be used on an engine fire while the engine is running. The pilot in command may elect to either blow out an exhaust stack fire, or extinguish an intake fire through the use of on-board aircraft system fire extinguishers. The Ramp Manager will signal the pilot when an engine fire occurs and standby with a fire extinguisher to be used only at the discretion of the pilot in command.

b) National Fire Protection Association

The National Fire Protection Association (NFPA) has developed standards to establish reasonable minimum fire safety requirements for procedures, equipment, and installations for the protection of persons, aircraft, and other property during ground fuel servicing and basic operations that involve liquid petroleum fuels.

- i. NFPA 10 is the ‘Standard for Portable Fire Extinguishers’ as it applies to the selection, installation, inspection maintenance and testing of portable extinguishers.
- ii. NFPA 407 is the “Standard for Aircraft Fuel Servicing” and includes fire extinguisher requirements during aircraft refueling operations.
- iii. NFPA 410 is the “Standard on Aircraft Maintenance”. Chapter 8 of NFPA 410 includes aircraft ramp operations and protection general requirements.

c) Extinguisher Sizing

NFPA 407, 2-13.4 and NFPA 410, 8, 8-2 standards require each aircraft ramp have a wheeled fire extinguisher with a rating of not less than 80BC and a capacity of not less than 125 pounds (55kg) at intervals of 200 feet (61m).

d) Training

The Occupational Safety and Health Administration (OSHA) under 29CFR 1910.157, Portable Fire Extinguishers, sets requirements for use, testing, and maintenance for fire extinguishers provided from employers to employees. The regulations include travel distances and the need for annual training for type to be operated which includes live-firing of aircraft size fire extinguisher. The NFPA, State, and local government have established additional training requirements. Base managers should arrange and budget for live-fire training exercises from their local fire extinguisher service company or airport fire department on annual basis or whenever a new employee is hired that may be required to operate a fire extinguisher.

e) Maintenance

NFPA sets inspection and maintenance standards. Extinguishers must receive visual inspections and annual maintenance based on the type and class. Typically, stored pressure type extinguishers are to be emptied, inspected, and recharged every 6 years, and hydrostatically tested every 12 years.

3. Local Crash-Rescue Organization

Local crash-rescue equipment and procedures for activation shall be included in the Incident/Accident Action plan and in the local Base Supplement. The plan should also address the responsibility and chain of command in the event of an on-field accident or fueling mishap.

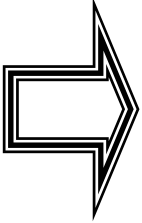
- a) Supplemental crash-rescue equipment, if not available on the airfield or if it is needed to supplement local fire departments, should be ordered through the dispatch system during periods of high activity. Local military base Aircraft Rescue and Fire fighting (ARFF) Units can be ordered under the National Memorandum of Understanding with the military through the National Interagency Coordination Center (NICC). Place an order with your local dispatcher for a military ARFF Unit whenever multiple airtankers operate from the base for extended periods of time.

4. Ramp Procedures

- a) Fire lanes shall remain clear for fire and rescue vehicles.
- b) Ramp spills shall be cleaned up immediately. The aircraft should be shut down, the situation evaluated, and appropriate action taken.

F. Hazard, Incident, and Accident Reporting

1. All occurrences shall be reported promptly per notification requirements.
2. The process for reporting aircraft accidents, incidents, or hazards is defined and outlined in the Forest Service Manual, FSM 5720, and in the Department of Interior Decision Memo, USDI DM 350-354.
3. Airtanker base personnel must remember that the hazard, incident, or accident is ***officially reported*** by the agency ***with operational control*** of the aircraft at the time of the occurrence.
4. There are situations when the agency with operational control of the incident and incident aircraft may not be aware that an incident or malfunction has occurred.



EXAMPLE: A Nevada BLM Airtanker flies on a USDA-FS incident in California, makes a successful drop, but develops an engine malfunction when retuning for another load. Since the USDA-FS had operation control at the time of the aircraft incident, the report should be filed by the USDA-FS utilizing the SAFECOM reporting form.

However, the Forest service may not be aware that a malfunction occurred, since it was reported upon arrival back to a BLM Airtanker Base. In this case, the BLM Nevada Airtanker Base Manager gathers the information using the SAFECOM and routes it to the appropriate Forest Service office.

5. If doubt exists as to whether or not an occurrence should be classified as an aircraft incident or accident, treat it as an accident. The final determination shall be made by the appropriate agency Aviation Safety Officer.

G. **Proficiency Flights**

In order to maintain aircraft readiness for flight and crew proficiency during operation under the contract, the government may order flights in accordance with Forest Service Handbook 5709.16. The handbook will be made available to the contractor for reference at the airtanker base. These flights will be paid as ordered flights when authorized by the government. These flights will include:

1. Water drops in an area designated by the managing agency.
2. Instrument proficiency (IFR approaches should be considered during proficiency flights when the airport has a published approach).

H. **Dropping On or Near Congested Areas**

Refer to agency policy and grants of exemption under Federal Aviation Regulations part 91 for requirements for low level and congested area operations

I. **Landing with Full or Partial Load**

Reference the contracting agency's airtanker contract. *The final decision on landing with a full or partial load will be made by the pilot-in-command.*

J. Base Safety Requirements

Base requirements should be covered extensively during the inspection process. OSHA's "General Duty Clause" standards will be followed in all cases. These include, but are not limited to:

1. A permanent ladder and safety railings shall be on all walkways on tanks.
2. Skid-proof paint shall be applied to all walkways on tanks.
3. Pump shafts shall have guards.
4. All electrical equipment shall be properly grounded.
5. Cautionary signs (no smoking, hazardous area, no entry, etc.) shall be posted in appropriate places on the base and ramp.
6. Wash retardant off the ramp area as soon as possible after the aircraft has been loaded.
7. Eyewash and emergency shower facilities must be provided. The OSHA standard is within 50 feet of the hazard.

K. Personal Protective Equipment

It is the Airtanker Base Manager's responsibility to train personnel in use of protective equipment. If respirators are used at a base during mixing operations, then an OSHA Respirator Plan must be in place.

1. Ramp Personnel

Personnel working on the ramp shall wear ear and eye protection, as well as high-visibility clothing differing in color from that of the Parking Tender. PPE for skin protection against sun burn and prop blasé blowing rocks/sand should be worn. This is usually long sleeve, lightweight shirt or jump suit. Footwear with non-skid soles shall be worn when working on the ramp or in wet areas.

2. Parking Tender

The Parking Tender shall wear a high-visibility vest in addition to the above-mentioned PPE.

3. Audio Levels

Audio levels in the base dispatch office and other office areas should be evaluated. If OSHA standards are exceeded, additional protective measures must be taken. See Hearing Safety at Airtanker Bases, USDA Forest Service, Technology and Development Center, San Dimas, California, 5700 Aviation September 1999-9957-1205 SDTDC.

See Chart 5-1: Audio Levels (next page)

Exhibit 5-1: Audio Levels

Source of Sound and Noise	Level (dB)
Whispered Voice	20-30
Urban Home, Average Office	40-60
Average Male Conversation	60-65
Noisy Office, Low Traffic Street	60-80
Jet Transports (Cabins)	60-88
Small Propeller Plane (Cockpit)	70-90
Public Address (PA) Systems	90-100
Busy City Street	80-100
Single Rotor Helicopter (Cockpit)	80-102
Power Lawn Mower, Chainsaw	100-110
Snowmobile, Thunder	110-120
Rock Concert	115-120
Jet Engine (Proximity)	130-160

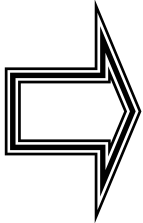
Noise Level (dBA)	Exposure Limit (hours per day)
90	8
92	6
95	4
97	3
100	2
102	1.5
105	1
110	.5
115	.25

L.

M. **Fuel Spills**

The information in this section is consistent with NFPA Publication 407-90, *Aircraft fuel Servicing*.

Fuel spills are often the result of improper or careless operation of fueling equipment, or due to a lack of preventive maintenance of the fueling equipment. Self-discipline on the part of every person responsible for fueling is required to prevent fuel spills. Personnel shall follow the guidelines listed below.



Note: Report all spills immediately; *do not* attempt to hide the fact that a spill occurred.

Procedures for handling fuel spills are subject to the regulations and procedures established by the authority having jurisdiction over airport operations.

Every fuel spill involves several variables: the size of the spill, terrain, equipment, weather conditions, flammable liquid, aircraft occupancy, and emergency equipment and personnel available. Therefore, each incident may be somewhat unique but certain general principles apply in all cases.

1. **Prevention**

- a) Devote full attention to the fueling operation.
- b) Never leave any fuel nozzle unattended.
- c) Never tie or wedge the nozzle trigger in an open position.
- d) Frequently check the amount of fuel in the tank to prevent overfilling.
- e) Pumps, hand or power operated, shall be used when aircraft are fueled from drums.
- f) Kinks and short loops in fueling hose should be avoided.
- g) At remote refueling locations using portable fueling equipment, sandbags should be used to elevate the fitting to facilitate pre-operational checks and detection of fuel leaks.
- h) At remote refueling locations using portable fueling equipment, construct a berm around the fuel bladder to contain fuel in the event of a rupture for both temporary and semi-permanent systems.

2. Mitigation and Procedures in the Event of a Spill

If a fuel leak develops or a fuel spill occurs during aircraft servicing, initiate the following emergency procedures *without delay*.



Warning: During any spill or leak, extreme caution must be exercised to avoid actions that could provide ignition of the fuel vapors.

- a) Maintain, keep current, and post a spill contingency plan. The procedures outlined below, with the addition of local specific material, will be adequate.
- b) If the leak continues or the spill is a large one, all nonessential personnel should leave the area immediately until the hazard is neutralized, repairs are made, and the area is safe.
- c) Alert the airport fire crews or follow established emergency procedures applicable to a remote fueling operation.
- d) Stop the flow of fuel and the fueling operation immediately upon discovering leakage or spillage.
 - i. If fuel is leaking or spilling from a fuel servicing hose or equipment, the emergency fuel shut-off valve must be activated immediately.
 - ii. If the fuel is leaking or spilling from an aircraft at the filler opening, vent line, or tank seam, fuel delivery must be stopped immediately.
- e) All electrical power the aircraft should be shut down and the aircraft should be evacuated.
- f) Before the aircraft is put back into service it must be thoroughly checked for damage and flammable vapors that may have entered concealed wing or fuselage areas.
- g) Small spills involving an area less than 18 inches in any plane dimension normally involve minor danger. However, personnel staffing fire extinguishers during start-up procedures should stand by until the aircraft departs the area of the spills because engine exhaust could ignite the spill. These spills contain such a small amount of fuel that they may be absorbed, picked up, and placed in an approved container.



Warning: Never operate an electric truck or cart near a fueling operation or fuel spill. The speed controller can be an ignition source.

- h) During small or medium static spills (not over 10 feet in any dimension nor over 50 square feet in area) a fire watch should be posted. The fire watch should have one or more fire extinguishers with at least a 20:BC rating. Local regulations and procedures must be followed. However, in most cases absorbent materials or emulsion compounds should be used to absorb the spilled fuel, especially if aviation gasoline (AvGas) or low flash point fuels are involved. The contaminated absorbent should be picked up and placed in an approved container to await disposal.



Note: Aircraft fuels will damage some types of ramp surfaces, as spilled fuel should be contained and picked up as quickly as possible.

- i) Large spills (over 10 feet in any dimension or over 50 square feet in area) or smaller spills continuing to enlarge should be handled by the fire department, or if in a remote location, by a ground engine. Anyone in the area of a large spill should move upwind of the spill immediately.
- j) All fuel spills occurring as a result of a collision should be blanketed with foam to prevent ignition and to prevent damage to the aircraft or additional exposure.

3. Fuel Spillage on Personnel

If the fuel handler's clothing becomes wet with fuel, the individual should follow the instructions listed below.

- a) The individual affected should leave the refueling area immediately.
- b) The act of removing clothing creates static electricity; wet the clothes with water before removing. Use emergency eyewash/shower if available. If water is not available, they should hold onto a grounded grounding rod to prevent sparks when they remove their clothes.
- c) Wash fuel off skin with soap and water as soon as possible.
- d) Seek medical attention immediately.



Warning: Entering a warm room wearing fuel-soaked clothing can be dangerous. Chances of a fire starting because of static electricity are increased.

APPENDIX A

Discussion of Hand Signals for Airtanker Base Ramp Operations

Appendix A: Discussion of Hand Signals for Airtanker Base Ramp Operations

Discussion of Hand Signals for Airtanker Base Ramp Operations

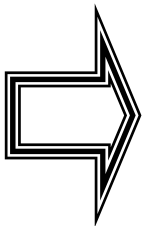
The Parking tender is *an essential position on the ramp*. The proper taxiing of aircraft by hand signals at an airtanker base is a critical element of safety and efficiency. If done properly hand signals provide personnel and aircraft safety on the ramp, ease of ground operations of all types of equipment on the ramp, and keep radio frequencies clear for emergency traffic.

All airtanker base personnel whose job description requires, or who *may* be required to taxi aircraft due to fluctuating personnel demands during operations, must be proficient at taxi direction signals. It is equally important that taxi signals be standard at all airtanker bases since pilots understand the same signals. Hand signals universally understood by pilots are those used by the military. There is a tendency to “personalize” signals. However, this must be avoided since it leads to confusion, especially with pilots from other bases. See Exhibit A-1 for a depiction of all standard hand signals.

Parking tenders should be equipped appropriately for easy identification and safety. Chapter 5 specifies required personal protective equipment. Additional insert-in-ear plugs are also recommended for all those working around the ramp, since a radio headset/microphone may not be sufficient hearing protection from the noise levels generated by some turbine aircraft.

Due to the loss of depth perception at night, these signals should be the same for day and night taxiing, with the addition of lighted wands for night operations.

Make sure your signals are clear at all times. When one wishes to expedite the movement of an aircraft, one should speed up the motions described above. However, the movement of aircraft in close quarters usually dictates that an aircraft be moved slowly since they are hard to stop. Remember, until a pilot knows the difference between your “slow” and “fast” motions, keep motions slow and apply this to all pilots.



Note: If in doubt as to a pilot’s intentions or understanding of your signals, or if the pilot does not follow your directions, *stop* the aircraft in position. If the pilot is unsure about your directions, he/she will stop the aircraft in position.

Communicate Through Accurate, Visible Hand Signals.

EXHIBIT A-1: AIRTANKER BASE RAMP OPERATIONS HAND SIGNALS

AIRTANKER OPERATIONS HAND SIGNALS

The chart displays 20 hand signals for airtanker operations, arranged in a grid. Each signal is represented by a silhouette of a person in uniform performing a specific gesture. The signals are as follows:

- SIGNALMAN DIRECTS TOWING:** A circular inset showing a signalman pointing towards an airtanker being towed.
- FUEL FLOWS FROM THE DRAIN:** Signalman with one arm extended horizontally.
- SIGNALMAN'S IDENTIFICATION:** Signalman with both arms raised vertically.
- CONNECT APU:** Signalman with one hand pointing to the right and the other hand pointing up.
- DISCONNECT APU:** Signalman with one hand pointing to the left and the other hand pointing up.
- ALL CLEAR (O.K.):** Signalman with one thumb pointing up.
- START ENGINE:** Signalman pointing one hand towards the engine.
- ENGINE FIRE:** Signalman with one hand in a large figure-eight shape and the other pointing to the fire.
- EMERGENCY STOP:** Signalman with arms crossed overhead.
- HOT BRAKES:** Signalman with one hand to the forehead.
- INSERT CHOCKS:** Signalman with hands on hips.
- PULL CHOCKS:** Signalman with hands on hips and a curved arrow pointing outwards.
- SLOW DOWN:** Signalman with hands pointing outwards and downwards.
- LEFT TURN:** Signalman with one hand pointing left and the other up.
- RIGHT TURN:** Signalman with one hand pointing right and the other up.
- COME AHEAD:** Signalman with both hands pointing up.
- NIGHT OPERATION:** Signalman with both hands pointing up and fingers spread.
- CUT ENGINES:** Signalman with one hand to the forehead.

Park Facing Me



When aircraft needs to be directed to a particular parking spot, such as a loading pit or overnight parking spot, the Parking Tender will be stationed so that he/she faces the aircraft's final intended parking position indicating such as by pointing straight up to straight down with both arms at full extension slowly in the vertical plane towards the front of one's body.

If necessary, look over one's shoulder to ensure the pilot is continually proceeding to the parking spot and to maintain eye contact.

When taxiing aircraft, it is important that the Parking Tender establishes and maintains eye contact with the pilot. One must remember that as a "tall" aircraft approaches the Parking Tender, that person passes below the cockpit horizon. **Move back** as the aircraft gets closer so that eye contact is maintained.

Two Parking Tenders During Towing, Congested Operations, Etc.



Use of an additional Parking Tender to guide an aircraft to the parking spot is highly recommended when there is considerable moving traffic, a crowded ramp, extensive taxiing is required, visibility is restricted, this is the first visit for the aircraft at the particular base, or a towing operation is being conducted.

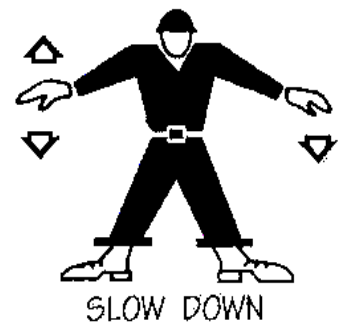
Moving An Aircraft Straight Ahead



The hand signal for moving an aircraft straight ahead is the raising and lowering of both hands in the vertical plane at the same time, arms bending at the elbows, upper arms held parallel to the ground and pointed from the sides of one's body.

Slowing an aircraft's speed is done by moving one's hands up and down slowly, from shoulder height to hip height, palms held downwards, until the aircraft is moving slowly enough for one to safely direct. At night, palms held downwards are difficult to see so one must point the wands towards the ground while performing this signal.

Slowing An Aircraft Down



Hot Brakes

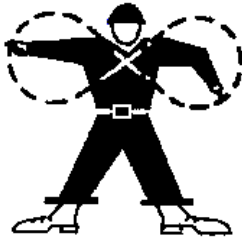


HOT BRAKES
Fans face - Points to brake

Occasionally quick stops on the runway and/or fast taxiing to the ramp result in hot brakes which are indicated by brake squeal, smoke form the main landing gear wheel assembly, or flames in the same area. The last two indications **dictate that this aircraft not be moved into the pit** if there is a possibility of the aircraft being disabled in the pit.

Instead, direct the aircraft to a clear parking area. If the aircraft is to be taxied into the pit, be alert to fire and tire explosion danger. Indicate to the pilot the hot brake condition by pointing a hand/wand at the hot brake and fanning one's nose with the other hand/wand.

Brake (or Engine) Fire



ENGINE / BRAKE FIRE
Describes a large figure eight with one hand and points to the fire with the other hand

If the condition worsens and a fire results, point a hand or wand at the now burning brake assembly and wave large, quick figure "8" motions in front of one's chest. Be alert to any emergency. Stop the aircraft in position if necessary. Note that this indication is the same for any fire.

Taxi or parking guidelines delineating the normal path to a spot should be painted on the ramp. This is not always possible, requiring that the Parking Tender be able to turn the aircraft with hand signals. The signal for a turn is pointing with one hand/wand to one main landing gear wheel and moving the other hand/wand, arm bending at the elbow, upper arm held horizontally and to one's side, slowly in the vertical plane.

Turn Left



LEFT TURN

To turn the aircraft left, point to the left main landing gear wheel with the right arm and move the left hand as described above.

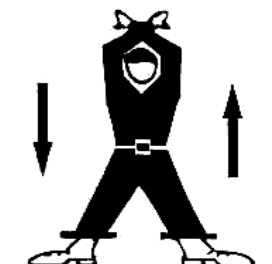
To turn the aircraft right, point to the right main landing gear wheel with the left arm and move the right arm as described above.

Turn Right



RIGHT TURN

Emergency Stop



EMERGENCY STOP
Arms crossed overhead

Normal Stop is indicated by crossed hands/wands overhead.

Emergency Stop should this be necessary, is indicated by the stop signal moved rapidly up and down in front of one's face and shoulders. At night, crossed wands mean stop. If the aircraft does not respond to the emergency stop signal, **evacuate** the immediate area expeditiously.

Cut Engines



Upon stopping the aircraft in the desired spot, indicate to the pilot that he may shut down the engines by “cutting one’s throat” with one hand/wand, the other hand/wand held behind one/s back.

Insert Chocks



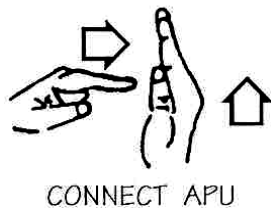
Also indicate at this time that chocks are now or soon to be inserted under the wheels by moving the closed fist with thumb extended (hitchhiking signal)/wand pointing towards one’s hips at hip height.

All Clear



The “All Clear” signal will indicate to the pilot that the area is clear. Raise the right hand and hold steady above and out from the head.

Connect APU

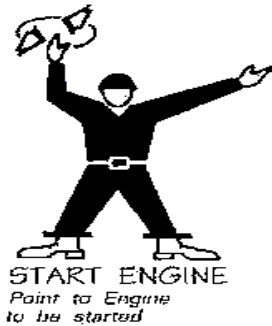


When starting aircraft, an auxiliary power unit (APU) is sometimes required. To indicate APU connection, one points repeatedly with an index finger to a raised, flat palm of the other hand until the pilot acknowledges.



To indicate an APU disconnect at the end of the start sequence, one uses a fist with extended thumb (the hitchhiking signal) moving away from the raised, flat palm of the other hand. At night, pointing one wand and held vertically will be used for each respective signal.

Start Engines



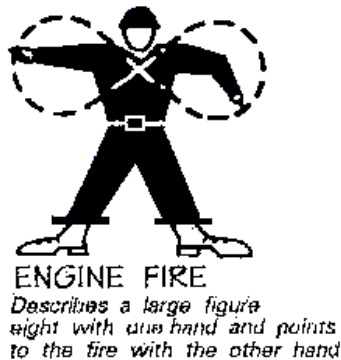
The indicator to start engines is made by raising one hand above one's head at full extension and moving it in small circles slowly. The other arm is positioned behind one's back. At night a lighted wand will be raised and moved in small circles, the second wand held behind one's back. Pilots will acknowledge with a blinking taxi light or flashlight from the cockpit and starting will commence. To indicate clearance to start a particular engine, one points to an engine (it does not matter which one since the pilot will choose) and waves the other hand in small circles. The waving arm will be bent at the elbow with the upper arm held horizontally and to the side of one's body. Add a wand at night.

Fuel Flowing From Drain



During the start procedure for an engine, there is always a possibility of the pilot over-priming an engine. This is indicated by raw fuel dripping/flowing from the blower case drain. It is difficult to see this fuel drain in some aircraft. The Parking Tender should report this condition to the pilot by pointing a hand/wand at the dripping engine and holding one's nose or pointing a wand at one's nose with the other hand. Once the fuel drip stops or the engine starts, proceed to the next engine start.

Engine Fire



In the event of an engine fire in the exhaust stacks or on the ground during start, indicate such by pointing with one hand/wand to the fire and wave the other hand/wand in large figure "8" motions in front of one's chest. Keep this motion going until the fire is out or ground emergency equipment is present and has extinguished the fire.

Pull Chocks



Once all engines are started and taxiing is to commence, the parking /Tender indicates to the pilot that the chocks are pulled by slowly moving fists with thumbs extended (hitchhiking signal) or wands pointed away from the body at hip height. Arms should be held straight and the motions emphasized away from the body. The pilot should acknowledge this signal with a nod or blinking light. Continue the movement using appropriate directions and taxi signal(s).

Once the aircraft is out of the pit and Parking Tender's area of responsibility, point with both hands/wands to a clear area ahead of the aircraft using wide arm motions indicating such.

APPENDIX B

AIRTANKER BASE ADMINISTRATION FORMS AND REPORTS

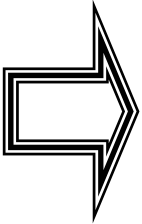
Appendix B: Administration Forms and Reports

A. Introduction

This Appendix provides standardized Airtanker Base Operations Forms. Standardization helps to implement common procedures to meet safety, efficiency, fiscal management, and contract administration objectives. Standardized forms also provide a common basis for training development and presentation.

B. Applicability

Forms described in this chapter are used to ensure uniformity of information for internal and external transmission. Select forms are for optional use (see Chart 3-1). For standardization between agencies, the optional forms should be used whenever they would benefit the agency or state in the compilation of information or when data or information will be transmitted to another office or agency.



Note: When transmitting information to incidents; other bases; or offices, always use the standard forms whether they are mandatory or optional. This provides for continuity of information and ease of compilation of data received from all bases.

These forms cover a broad range of contract administration and operational requirements relating to the management of an airtanker base and airtankers. The use and applicability of other contracting forms such as Contract Instruction, Notice to Proceed, etc., are discussed in agency contract administration guides.

Chart 3-1 summarized the ATB-series forms; the NFES number, whether a form is optional or mandatory, and responsibility for completion and routing. The Airtanker Base Manager can use the chart as a quick-reference guide to form requirements.

The pages following Chart 3-1 provide specific information on the purpose, applicability, completion responsibility, instructions for completion, sources for inputs, and routing requirements.

It is recommended that airtanker base managers obtain sets of all forms so that they may respond to different management requirements encountered.

Summary of Airtanker Base Forms and Reports

Requirements for Completion & Submission of Airtanker Base Management Forms

Form Name	Purpose	NFES # IATBOG #	Individual Responsible for Completion	Frequency	Remarks
Airtanker Base Information Sheet	To provide information on each Airtanker base for inclusion in the Interagency Airtanker Base Directory	ATB-1	Airtanker Base Manager	Updated at end of each season	Forwarded to Regional, State, or Area Aviation Management for review and routing to project leader USFS Washington Office 11/1 annually. Required at NIFC to go to print on 12/1
Tactical Fixed-Wing Information Sheet	To provide Airtanker Base Managers with information concerning both home-base, but primarily transient pilots and aircraft	ATB-2	Airtanker Base Manager	Immediately after contract start. Multiple copies to Pilots for distribution to ATB Manager when away from home base.	To be completed for all contract and agency-owned tactical aircraft (Airtankers, Air tactical, ASM/Lead Planes, Jumpships) at the start of the season. It should also be completed for transient aircraft and crews remaining overnight who have not previously supplied a copy to the Airtanker Base Manager.
Incident Information: Tactical Fixed-Wing	To allow the Airtanker Base manager to document information relayed by Dispatch off ICS 259-1, Resource Order-Aircraft, and to allow copies to be distributed to tactical aircraft pilots.	ATB-3	Airtanker Base Manager (usually by Radio Operator or Aircraft Timekeeper)	Upon dispatch of tactical Fixed-Wing aircraft	Information enclosed in thick boxes must be relayed to the pilot or aircraft manager prior to entry into the area of operations.

Summary of Airtanker Base Forms and Reports Continued

Requirements for Completion & Submission of Airtanker Base Management Forms Continued

Form Name	Purpose	NFES # IATBOG #	Individual Responsible for Completion	Frequency	Remarks
Airtanker Crew Flight Record	To allow the Airtanker pilot to document on/off times for later reconciliation with the Airtanker Base Manager's record for the eventual entry onto the agency flight payment document.	ATB-3a	Airtanker Pilot	Each time aircraft is on/off; Diverts to other incidents.	This form is the last part of the multiple-part set of Form ATB-3 Flight Resource Order: Tactical Fixed-Wing
Individual Airtanker Flight Record	To document departure and arrival times (on/off). The form is hard card-stock for entry of on/off times in automatic-punch clocks . The form is completed (manually from a UTC Clock or by Punch Clock) in its entirety. This information is key to maintaining accurate flight time and dispatch/reaction time records	ATB-4	Airtanker Base Manager (usually by Aircraft Timekeeper)	Each time aircraft is on/off.	One Flight Record is to be completed for each airtanker operating to and from the base. This form is used at bases utilizing a punch card clock and is supplemental to the Individual Airtanker Log.
Pilot Flight Time/Duty Day Cumulative Log	To provide the Airtanker base Manager with a means of tracking pilot duty day and flight time, thus ensuring that limitations are not exceeded.	ATB-5	Airtanker Base Manager (usually by Aircraft Timekeeper)	Daily at end of operations	
Fixed-Wing Base Landing Fee Record	To summarize landings made by airtankers and is used to support payment made to airports by the Government.	ATB-6	Airtanker Base Manager (usually by Aircraft Timekeeper)	Each landing	Form should be completed form information contained on individual Airtanker Flight Record and/or the Airtanker Base Log, and/or flight payment documents.
Retardant Use Record	To summarize landings made by airtanker sand is used to support payment made to airports by the Government	ATB-7	Airtanker Base Manager (usually by Mixmaster)	Each load of retardant	Information is obtained from the Individual Airtanker Flight Record and/or Airtanker Base Log, and from automatic metering devices.

Summary of Airtanker Base Forms and Reports Continued

Requirements for Completion & Submission of Airtanker Base Management Forms Continued

Form Name	Purpose	NFES # IATBOG #	Individual Responsible for Completion	Frequency	Remarks
Airtanker Base Log	To provide a summary of all Airtanker/Pilot Duty Day/Availability/Unavailability, Flight Time, Retardant Use, and applicable cost coding for later entry to flight and retardant payment documents. It also provides information for the Contract Daily Diary. Additionally, it is used to complete the Incident Fixed-Wing Base Daily Use and Cost Summary for individual fires.	ATB-8	Airtanker Base manager (usually by Radio Operator or Aircraft Timekeeper)	As events (dispatches, takeoff/landing, loading of retardant, etc.) occur	This form is the primary source document for information used to create most other forms. One copy is crated for each airtanker working form the base. It is use to report information on airtanker use to its home-base.
Incident Fixed-Wing Base Daily Use and Cost Summary	To fulfill reporting requirements of the Air Operations Branch on incidents to which a Type I or II Incident management Team has been assigned.	ATB-9	Airtanker Base Manager (usually by Aircraft timekeeper)	Nightly when base has been supporting a Type I or II Incident Management Team, or as requested.	Flight time costs are available off the Tactical Fixed-Wing Information Sheet(s) submitted by transient Airtanker Pilots. Actual use is available of Form ATB-4, Individual Airtanker Flight Record.
Airtanker Base Readiness evaluation	To identify and correct any safety or operational deficiencies related to the airtanker base or crew.	N/A.	Regional, Area, or State Aviation Management	Annually	Completed for all contract airtankers and crews stationed at permanent airtanker bases.
Agency Flight Payment Record	To document flight and other charges for payment to the vendor, or to document utilization of agency-owned aircraft.	OAS-23 or FS 6500-122, or State Agency format	Airtanker Base Manager of Agency Pilot	Daily	See Appendices B and C for completion instructions for federal agencies

Exhibit B-1: Example of Form ATB-1

Airtanker base Information Sheet – Base Name & FAA Identifier

<p>Base Name & FAA Identifier</p> <p>Geographic Region and FS Region</p>			
<p>Base Address</p> <p>Fax Number</p> <p>Email Address</p> <p>County for Federal Travel Regulation</p>			
<p>BASE LOCATION ON FIELD – N, S, E, W, QUADRANT</p>			
Base Operations	Phone Number at Airport		
Dispatch Office	Controlling Dispatch		
Manager	Airtanker Base Manager		
COR	Contracting Officers Rep		
Agency Contact Frequency	Agency FM frequency		
Airtanker Base Frequency	Base VHF Frequency		
Large Airtanker Operation Authorized?	Large AT Ops plan in place		
SEAT Operations Authorized/	SEAT Ops plan in place		
Hot Reloading Program Authorixe3d?	Agency Approved plan in place		
<p>Single and Dual Overweight Information. This section lists the agency overweight agreement limits – or – if the agency does not have an agreement, the published Airport Facility directory (NO AH/FAA) runway bearing strength.</p>			
Runway Weight Limits Single	Runway Weight Limits Dual	Pit Total	Parking Total
Known Hazards: Self Explanatory			
Remarks: Self Explanatory			
Rev Date:	UPDATES OR CORRECTIONS		

Exhibit B-2: Example of Form ATB-2

Interagency Airtanker Base Operations Guide
Tactical Fixed Wing Information Sheet

Submit to Airtanker Base
 Manager Upon Arrival

ORDER INFORMATION

Date	
Order No.	
Request No.	

Make/Model	
N	
T	

Aircraft Information				
Type				Arrived
<input type="checkbox"/> Airtanker	<input type="checkbox"/> Lead Plane	<input type="checkbox"/> Air Tactical	<input type="checkbox"/> Other	<input type="checkbox"/> Loaded
				<input type="checkbox"/> Unloaded
Reg Number	Cruise Speed	Fuel Type	Gross Weight	Contract Load

Contract Information			
Contractor		COR	
Phone		COR Phone	
Home Base		COR Fax	
Agency		COR Email	

Cost Information			
Daily Avail.		Flight Hour Rate	
Hour Av.		No. of Crew	
Ext. Av. Pilots		Subsistence	
Ext. Av.		Other Costs	

Tach Readings			
Current Tach Reading		50 Hour Due	100 Hour Due

Flight Crew Information					
	Name	Duty Day	Normal Hours	Days Off	Cumulative Flight Time Last 5 Days
Pilot					
Co-Pilot					
Engineer					
Mechanic					
Other					
Other					

If RON, Pilots/Mechanics Prefer:	<input type="checkbox"/> 1 Room with <input type="checkbox"/> no. of beds			<input type="checkbox"/> Single rooms	
	<input type="checkbox"/> Male	<input type="checkbox"/> Female	<input type="checkbox"/> Smoking	<input type="checkbox"/> Non-Smoking	

Crew Preferences and Remarks					

Exhibit B-3: Example of a Resource Order-Aircraft Form ICS-259-1

INCIDENT/PROJECT ORDER NUMBER	RESOURCE ORDER		INITIAL DATE/TIME	2. INCIDENT/PROJECT NAME			3. INCIDENT/PROJECT ORDER NUMBER			4. OFFICE REFERENCE NUMBER									
	AIRCRAFT																		
	5. DESCRIPTIVE LOCATION/RESPONSE AREA				6. SEC.	TWN	RNG	Base MDM	8. INCIDENT BASE/PHONE NUMBER			9. JURISDICTION/AGENCY							
					7. MAP REFERENCE							10. ORDERING OFFICE							
11. AIRCRAFT INFORMATION				LAT.			LONG.												
BEARING		DISTANCE		BASE OR OMNI	AIR CONTACT	FREQUENCY	Ground Contact	FREQUENCY	RELOAD BASE	OTHER AIRCRAFT HAZARDS									
12. Request Number	Ordered Date/Time	From To	QTY	RESOURCE REQUESTED			Needed Date/Time	Deliver To	To From	Time	Agency ID	RESOURCE ASSIGNED	ETD ETA	RELEASED Date To		Time ETA			
													<input type="checkbox"/>			<input type="checkbox"/>			
													<input type="checkbox"/>			<input type="checkbox"/>			
													<input type="checkbox"/>			<input type="checkbox"/>			
													<input type="checkbox"/>			<input type="checkbox"/>			
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													<input type="checkbox"/>			<input type="checkbox"/>			
													<input type="checkbox"/>			<input type="checkbox"/>			
													<input type="checkbox"/>			<input type="checkbox"/>			
13. ORDER RELAYED				ACTION TAKEN								ORDER RELAYED				ACTION TAKEN			
Req. No.	Date	Time	To/From									Req. No.	Date	Time	To/From				

13. ORDER RELAYED				ACTION TAKEN	ORDER RELAYED				ACTION TAKEN
Req. No.	Date	Time	To/From		Req. No.	Date	Time	To/From	
Request Number	REMARKS								
2. INCIDENT/PROJECT NAME		3. INCIDENT PROJECT ORDER NO.		ESTIMATED COST			ORDER COMPLETED BY		
							INITIALS	DATE	TIME

Exhibit B-4: Example for Form ATB-3

Incident Information Tactical Fixed-Wing			
Dark Lined Boxes MUST Be Completed Before Aircraft Release			
Incident Name	Date	Time	
Order Number	P # or Agency Billing Number		
Descriptive Location			
Response Area	Altimeter Setting	Base Meridian	
Latitude			
Longitude			
Bearing	Distance	From	Reload
Air Contact		Frequency	
Ground Contact		Frequency	
Other A/C			
Hazards			
Request Numbers	A 4	A 8	
A 1	A 5	A 9	
A 2	A 6	A 0	
A 3	A 7		

Exhibit B-5: Example for Form ATB-3a

Crew Flight Time Log

On
Off

On
Off

On
Off

On
Off

On
Off

On
Off

On
Off

On
Off

On
Off

On
Off

On
Off

On
Off

On
Off

On
Off

Exhibit B-6: Example of Form ATB-4: Individual Airtanker Flight Record

Interagency Airtanker Base Operations Guide						Tanker No.
Individual Airtanker Flight Record Card						
						Make/Model
Airtanker Base and Agency Name						
Order No.	Incident Project No.	Gallons	Airport Identity	Time Flown		Date and Time
Hourly Flight Rate	Agency Fire No.	Cost-Gallon	From-To	Elapse Hours (Hundredths)	Cumulative Hours (Hundredths)	On and Off
						On
\$						Off
						On
\$						Off
						On
\$						Off
						On
\$						Off
						On
\$						Off
						On
\$						Off
						On
\$						Off
						On
\$						Off
						On
\$						Off
Remarks:						

Exhibit B-7: Example of Form ATB-4a

Interagency Airtanker Base Operations Guide	Tanker No.
Individual Airtanker Duty Day and Availability Record	Make/Model

Airtanker Base and Agency Name

Date	Location	On Duty	Off Duty	Total Avail	Total EA	Total UA	Remarks

Remarks

**Exhibit B-8: Example of Form ATB-5
Crew Flight Time/Duty Day**

Contract No.	Pilot Name	Aircraft FAA#	Make/Model

Information From Last Log	Last Date(s) Off Duty	Cumulative Flight Hours Last 5 Consecutive Days on Duty

Inset Dates of Next 7 Days in Boxes at Right							
Actually On-Duty (Including Preflight)							
Add 14 Hours for Maximum Duty Day							
*Must Be Off-Duty at (On-Duty = 14 HRS)							
Actual Off-Duty Time (Including Debriefing)							
Add 10 Hours Mandatory Rest							
*Earliest Pilot Can Be On-Duty Tomorrow							
Cumulative Flight Time Previous 5 Days							
*Total Flight Time Today							
*Total Flight Time Last 6 Days (Including Preflight)							
Add 14 Hours for Maximum Duty Day							
Add 10 Hours Mandatory Rest							
*Earliest Pilot Can Be On-Duty Tomorrow							
Cumulative Flight Time Previous 5 Days							
*Total Flight Time Today							
Total Flight time Last 6 Days (Including Today)							

Flight Time	Duty Day	Rest	Days Off	Additional
8 Hours (Federal) 7 Hour (CDF)	14 Hours	10 Hours	2 in 14	A maximum of 42 hours flight time may be flown during any consecutive six-day period. When a pilot acquires 36 more flight hours in a consecutive six-day period, the pilot will be given the following 24 hour period off duty for rest, or in the continuous United States will be given the following full calendar day off for rest. Following any mandatory rest period, a new six-day cycle begins.

Exhibit B-9: Example Form ATB-6

Interagency Airtanker Base Operations Guide						
Fixed-Wing Based Landing Fee Record						
Airtanker Base Name and Agency					Contact No.	
					Payment No.	
					Page No.	
Date	Incident Order No.	Billing Code	A/C No.	No. of Landings	Cost of Landing	Total Cost
Account Summary				Aircraft Rates		
#	Agency Billing Code	Amount	Aircraft Rates @:		1000 LBS	
			S2F	25000 LBS		
			PB4Y	57500 LBS		
			DC-4	65000 LBS		
			SP2H	62000 LBS		
			P2V	73000 LBS		
			DC-6	80000 LBS		
			P3A	98000 LBS		
			DC-7	110000 LBS		
			C130	108600 LBS		
			KC-97	127000 LBS		
Total						
Signature and Title					Date	
Approving Agency Office:						
Vendor or Agent						

Exhibit B-10: Example of Form ATB-7

Interagency Airtanker Base Operations Guide

Retardant Use Record

Airtanker Base Name and Agency							Date	
							Page	
							Name	

Load #	Time	Tanker No.	Incident Order No.	Billing Code	Spec. Grav.	Refr.	LBS.	GAL.	Sheet Total	Comments

Summary					
Agency			Loads	Gallons	Comments
Grand Total					

Exhibit B-11: Example Form ATB-8

Interagency Airtanker Base Operations Guide Individual Aircraft Flight Log
--

<u>Airtanker</u>	
------------------	--

Based At	
Day Off	
COR	
Phone	
Fax	
Email	

Contractor	
Pilot	
Co-Pilot	
Engineer	
Mechanic	
Reg. No.	

Date	
Model	
Available Rate	
Flight Rate	
Contract Gallons	

Leg	Incident	Order No.	Pay Code	From	To	Off	On	Time	Accum.	Cost	Gallons	Rate	Retardant Cost

Available	
Unavailable	
Extended Standby	
RON	

Flight Time			
Retardant Gallons			
Landings		@	
Other			

Flight Cost	
Retardant Cost	
Landing Fees	
Total Cost	

Remarks for Diary	
Maintenance Performed	
Other Aircraft on Base	

Exhibit B-12: Example of Form ATB-9

INCIDENT DAILY COST SUMMARY

Base Name and Agency

Date

--

Page

--

Incident #1		Order No.		Phone	
Incident Contact		Pay Code		Fax	

Aircraft	Type	Trips	Hours	Flight Cost	Retardant Gallons	Retardant Cost	Landing Fees	Extended Standby	R.O.N.	A/C Total
Totals										
INCIDENT TOTAL COST										-

Incident #2		Order No.		Phone	
Incident Contact		Pay Code		Fax	

Aircraft	Type	Trips	Hours	Flight Cost	Retardant Gallons	Retardant Cost	Landing Fees	Extended Standby	R.O.N.	A/C Total
Totals										
INCIDENT TOTAL COST										

Notes:

Exhibit B-13: Example of FS 6300-49

USDA - Forest Service						
CUMULATIVE USE/PAYMENT SUMMARY <i>(Reference FSH 6308.11)</i>						
1. Forest/Unit	2. Base	3. Aircraft No.	4. Contract No., bid item			
5. Contractor			6. Inclusive dates this payment period			
7. Availability Earnings						
a. Mandatory Period	_____ Hours	At \$ _____	Total \$ _____			
b. Pre/Post	_____ Hours	At \$ _____	Total \$ _____			
c. Optional Period	_____ Hours	At \$ _____	Total \$ _____			
d. Extended Standby	_____ Hours	At \$ _____	Total \$ _____			
e. Unavailable	_____ Hours					
8. Flight Hour Earnings						
Number of Hours	_____	At \$ _____	Total \$ _____			
9. Overnight Allowances for this period						
No. Crew-nights	_____	At \$ _____	Total \$ _____			
10. Other Contract Allowances for this period						
Service Truck	_____ Miles	At \$ _____	Total \$ _____			
	_____	At \$ _____	Total \$ _____			
11. Deductions this period						
<i>(excluding time discount)</i>	_____	- \$ _____				
	_____	- \$ _____				
12. TOTAL PAYMENTS THIS INVOICE						\$ _____
13. Summary of Accumulated Totals To Date	Previous Total Hours	Previous Total Dollars	This Period Hours	This Period Dollars	Total To Date	
	Hours	Dollars			Hours	Dollars
a. AVAILABILITY (7)						
b. EXTENDED STANDBY (7)						
c. UNAVAILABILITY (7)						
d. FLIGHT (8)						
e. OVERNIGHT (9)						
f. MISC. ALLOWANCE (10)						
g. MISC. DEDUCTIONS (11)						
14. GROSS TOTAL PAID TO DATE						\$ _____
15. Approved for the United States of America Contracting Officer Representative (Signature/Date)				16. Approved for the Contractor Signature and Date (Optional)		

5. NARRATIVE

Provide a brief explanation of the event.

6. CORRECTIVE ACTION

Exhibit B-16: Aircraft Mishap (OAS-77/FS 5700-28)

Interagency Airtanker Base Operations Guide	
Initial Report of Aircraft Mishap	
Airtanker Base and Agency Name	

If the aircraft mishap involves *damage* or *injury*, notify the appropriate DOE or USDA-FS Aviation Safety Office (ASO) ***Immediately*** by the most expeditious means available.

DOI-USDA-FS Hour Aircraft Accident Reporting Hot Line: 1-800-4Mishap or 1-888-464-7427

1	Name of Person Making This Report		Title			
	Phone	Location				
2	Mishap Date	Time				
	Location					
	Nearest Airport	Hospital	Phone			
3	Brief Description of Mishap					
4	Occupants		Employed By		Injuries	
	Pilot			Yes	No	
	Co-Pilot					
	Passenger					
	Passenger					
	Passenger					
	Passenger					
	Passenger					
	Passenger					
5	Type Aircraft			No:		
	Owner/Operator			Phone:		
	Damage	Yes <input type="checkbox"/>	No <input type="checkbox"/>			
6	Other Agencies Involved <input type="checkbox"/> <input type="checkbox"/>					
7	Local Actions Taken - Planned					

APPENDIX C

Emergency Response and SAFECOM Reporting

Appendix C: Emergency Response and SAFECOM Reporting

A. Introduction

Time is an extremely critical factor in responding to overdue, missing, or downed aircraft. Personnel responsible for aircraft flight following cannot justify any delay in initiating emergency response procedures based on the possibility that a Pilot has forgotten to perform a check-in. Immediate positive action is necessary; the longer the delay in locating the overdue or missing aircraft, the less chance the occupants have to survive an accident.



Warning: Someone's life may depend on your actions.

B. Emergency Response Preparedness Plan

1. **Local Unit Responsibility**

Each local dispatch or other flight following office should have an Aircraft Accident Preparedness Plan or Aircraft Crash, Search, and Rescue Guide. Information in the plan or guide on emergency response procedures should be pre-completed in the event of a mishap.

a) **Purpose**

The purpose of the plan is to establish standard emergency response procedures that local line officers will follow in all cases when an aircraft meets applicable criteria of overdue, missing, or downed. (See Glossary)

b) **Applicability**

The plan will be used in situations where an aircraft meets overdue, missing or downed criteria.

c) **Contents**

Emergency response plans and guides may be formatted in a variety of ways, provided the individual making the initial response to the emergency can easily reference the appropriate situation and then follow a generic checklist of actions to be taken for that situation.

2. **Airtanker Base Manager Responsibility**

Upon arrival at an incident or prior to commencement of flying on a local incident, the Airtanker Base Manager should acquire information from the unit's Emergency Response Plan or the local Aircraft Crash, Search, and Rescue Guide.

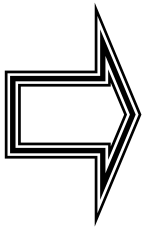
C. Emergency Response Procedures

1. Local Unit responsibility

A “*Mayday Call*” indicates that the pilot of an aircraft is experiencing an in-flight emergency. The dispatcher or aircraft Base Radio Operator must listen closely, since the pilot may be relaying location information essential to the dispatch of rescue services.

For this reason, a dispatcher or Base Radio Operator must always be on duty at the radio during mission-type flights. Fixed-wing base personnel should also closely and continuously track the aircraft’s location so that accurate location information can be relayed in an emergency. A Flight Following Log, accomplishes this tracking. (Depending on the geographic area, type of mission and Mobilization Guide direction, flight Following may be accomplished by other means such as an IFR flight).

After receiving a mayday call, the Radio Operator should attempt to contact the aircraft to determine the nature of the emergency. If the aircraft has landed safely and there is no need to order emergency services, then the responsible Unit Aviation Manger or Airtanker Base Manager should be contacted and appropriate action taken.



Important Note: During an emergency situation involving an overdue, missing, or downed aircraft, close coordination between the local unit dispatch office and the base is critical to the success of the search and rescue operation.

D. Incident, Hazard and Accident Reporting

1. Definitions

These definitions supplement those found in the Glossary. These may vary slightly among agencies, but are generally applicable to all agencies.

a) Aviation Hazard

An aviation hazard is any condition, act, or set of circumstances that compromise the safety of personnel engaged in aviation activities. These hazards may address, ***but are not limited to***, such areas as:

- i. Deviation from policies, procedures, regulations, and instructions as contained in Manual and Handbook releases, Interim directives, standard operating guides, etc.
- ii. Hazardous materials handling and/or transport
- iii. Flight following

- iv. Deviation from planned operations, flight plan, type of use, (for example, general to special-use)
- v. Failure to utilize Personal Protective Equipment or Aviation Life Support Equipment.
- vi. Inadequate training, or failure to meet training requirements
- vii. Failure to utilize load calculation and/or manifests correctly
- viii. Weather conditions
- ix. Ground operations
- x. Pilot procedures
- xi. Fuel contamination
- xii. Unsafe actions by pilot, aircrew, passengers, or support personnel

b) Maintenance Deficiency

A maintenance deficiency is a defect or failure causing mechanical difficulties encountered in aircraft operations, not specifically identified as an incident or aviation hazard.

c) Aircraft Incident

An aircraft incident is an unplanned event that results in damage less than serious aircraft incident criteria or injury less than medical attention. A situation involving an aircraft and/or personnel which have the potential of resulting in an accident is also classified as an aircraft incident. Note that the USDA-FS also has a classification of "Incident With Potential". Examples of incidents are:

i. Injury to Personnel

Injury requiring only first aid.

ii. Damage to Aircraft

The FAA has set criteria to determine whether damage to an aircraft is an accident or an incident. When in doubt, respond to the occurrence as if it were an accident. The accident investigators will determine whether the occurrence is classified as an incident or accident.

iii. Forced Landing

A landing necessitated by failure of engines, systems, or components, which makes continued flight impossible, and which may or may not result in damage or injury.

iv. Precautionary Landing

A landing necessitated by apparent impending failure of engines, systems, components, or incapacitation of the flight crew, which makes continued flight inadvisable.

v. **Aircraft ground Mishap**

A mishap in which there is no intent to fly; however, the power plants are in operation and damage incurred requiring replacement or repair of propellers, tires, wheels, wing tips, flaps, etc., or an injury requiring first aid.

vi. **Ground Damage to Aircraft**

A mishap not specifically addressed as an incident above, where the aircraft or component incurs damage requiring repair or replacement before flight. Power plants may or may not be in operation.

vii. **Near Mid-Air Collision**

When airborne aircraft encroaches within 500 feet of another airborne aircraft, or a pilot or crewmember determines that a collision hazard existed between two or more aircraft.

d) **Accident**

The accident definitions are lengthy and fairly technical. If in doubt as to whether the occurrence was an incident (“Damage to aircraft”) or an accident, treat it as an accident. The investigation team will make the final determination as to classification.

2. **Procedure for Utilizing Agency Forms**

The agency with operational control of the aircraft at the time of the occurrence will complete a SAFECOM (incident/hazard form) and submit it through its agency channels. Use Form FS 5700-14 (OAS-34) for USDA-FS or DOI incidents, and applicable state and local formats.

a) **Form OAS-77 Initial Report of Aircraft Accident**

(See Exhibit D-1)

i. **Purpose**

The purpose of the form is to collect and transmit information concerning an accident from the local level to OAS and the Washington Office.

ii. **Applicability**

The form is to be completed for all aircraft involved in an accident. If it is uncertain whether accident criteria are met, the form should be submitted.

iii. **Responsibility and Requirements for Completion**

The dispatcher or other aviation management staff is responsible for immediate completion and transmittal of the form. In their absence, any responsible agency individual with knowledge of the accident should make the report.

iv. **Instructions for Completion**

(See Exhibit D-1)

Completion is self-explanatory. Remember that the names of injured personnel are not to be released to the public or media.

v. **Routing, Filing and/or Action Necessary**

The form is routed immediately to OAS, the agency's headquarters office, and State, Area, or Regional Aviation Manager.

Exhibit D-1: Example of Form OAS-77 Initial Report of Aircraft Accident

Interagency Airtanker Base Operations Guide	
Initial Report of Aircraft Mishap	
Airtanker Base and Agency Name	

If the aircraft mishap involves *damage* or *injury*, notify the appropriate DOE or USDA-FS Aviation Safety Office (ASO) ***Immediately*** by the most expeditious means available.

DOI-USDA-FS Hour Aircraft Accident Reporting Hot Line: 1-800-4Mishap or 1-888-464-7427

	Name of Person Making This Report		Title	
	Phone		Location	
	Mishap Date		Time	
	Location			
	Nearest Airport		Hospital	Phone
	Brief Description of Mishap			
		Occupants	Employed By	Injuries
	Pilot			Yes No
	Co-Pilot			
	Passenger			
	Passenger			
	Passenger			
	Passenger			
	Passenger			
	Passenger			
	Type Aircraft		No:	
	Owner/Operator		Phone:	
	Damage	Yes No		
	Other Agencies Involved <input type="checkbox"/> <input type="checkbox"/>			
	Local Actions Taken - Planned			

b) **SAFECOM OAS-34/FS 5700-14 Initial Report of Incident or Accident**

(See Exhibit D-2)

i. **Purpose**

The purposes of the form are:

- To report any condition, observance, act, maintenance problem, or circumstance which has potential to cause and aviation related accident.
- To document all aviation hazards, incidents, incidents with potential, or accidents.
- To perform trend analyses for short or long-term changes in policy and procedures, identify areas needing training, etc.
- To establish accountability on the part of all aviation mission participants for meeting flight and employee safety objectives.

ii. **Applicability**

The form is to be completed for any one of the four occurrences: aviation hazard, incident, incident with potential, or accident.

iii. **Responsibility and requirements for Completion**

The responsible employee will document the facts and immediately file the report with his/her supervisor. Regions will immediately report by telephone all aviation accidents or incidents with potential to the National Aviation Safety Officer.

iv. **Instructions for Completion**

(See Exhibit D-2) Completion is self-explanatory.

v. **Routing, filing and/or Action Necessary**

- **Reporting**

Each individual and organization has an obligation to others in aviation to share hazard, mishap, and causal information. Each unit's aviation accident prevention plan should contain provisions for encouraging the reporting of such information by individuals. The information is documented and processed for system-wide distribution

- **Time Frames**

Copies are routed to the Regional Aviation Safety Manager and Forest Aviation Officer as soon as possible. Accidents and incidents with potential are to be reported *immediately*.

c) **State and Local Agency Reports**

Reference local formats. Federal personnel managing airtanker or fixed-wing bases for State or local agencies should complete the State or local format. If none exists, complete a SAFECOM OAS-34/FS 5700-14 and submit to the local unit Aviation Manager.

3. **SAFECOM Submission**

The Forest service and Office of Aircraft Services (DOI) have each created Aviation Safety home pages on the Internet. You can use these sites to submit SAFECOM. Since the homepages are works in progress, to link to other homepages, it is suggested that you **Bookmark** in Netscape or save this site as a **Favorite** in Internet Explorer for quicker access. Submission of SAFECOMs through the Internet is the preferred method. However, not all users have access to the Internet, so the methods of submitting used in the past are still acceptable: fax and/or hard copy.

a) **Instructions for Submitting SAFECOM on the Internet**

(Forest Service)

a) To get on the Internet

- i. If using a PC, from the desktop double click on the Internet Explorer icon. Your default home page should appear on the screen.

b) To open the Forest Service Aviation Safety Home Page:

- i. If using **Internet Explorer**, use the mouse to click in the “Address” box near the top of the window.
- ii. Either delete everything that is in the box, or highlight everything that is in the box, and then type in `http://205.173.2.4` As a general rule of thumb, remember to use lowercase only.
- iii. Then hit Enter and wait for the FS Aviation Home Page to load.
- iv. If using **Netscape**, use the same process as above; the only difference is that the “Address” box is called “Location” in Netscape.
- v. Click on “Bookmark”, depending on which version of Netscape you have, it will be either to the left of the word Location, where you would type the address, or at the top of the Tool Bar.
- vi. Then click on “Add Bookmark.”
- vii. You’re done. It will now be on your Bookmark list for future use.

Instructions for Submitting SAFECOM on the Internet

(OAS)

- a) To get on the Internet:
 - i. If using a PC, double click on the **Netscape** icon.
- b) To open the Office of Aircraft Services (OAS) Homepage:
 - i. If using “**Netscape**,” use the mouse to click on the “**Location**” box near the top of the window.
 - ii. Either delete everything that is in the box, or highlight everything that is in the box, and then type in **http://www.oas.gov** Remember to use lowercase only.
 - iii. Then hit Enter and wait for the OAS Aviation Home Page to load.
 - iv. To “Bookmark,” see information provided above.

b) Opening and completing SAFECOM Form

(FS and OAS)

- a) From the Aviation Safety Homepage, click on the word “Submit SAFECOM.”
 - i. On the OAS Aviation Safety Homepage, you can also click on the Pull-down Menu, click on Aviation Safety, and it will also bring you seven options, choose “submit SAFECOM.”
- b) A SAFECOM form will appear on your screen, use the mouse to click in the box you want to start typing in and complete the form. **Tip:** You can use the “Tab” key to jump sequentially form box to box.
- c) There are several pull down screens with pick lists; please use these as much as possible.
- d) When you finish the narrative and corrective portions, if appropriate, scroll to the bottom of the form.
- e) If you want a hard copy of the SAFECOM you are submitting for your records, click on the print icon on your browser at this point. You will not be able to print a copy after you submit the form.

c) Submitting the SAFECOM

- i. At the bottom of the submit SAFECOM screen, you will see three (3) items: “Clear Form,” “Select Region,” and “Submit.”
- ii. The “Clear Form” button, does just that, clears all the information you have just typed in.
- iii. A screen will appear that gives you two choices, “Public Access Areas” and “Protected Access Area.” Click on “Public Access Area” for the Forest Service and on “Public Query of AMIS Data” for OAS.

- iv. Another screen will appear that allows you to set up search criteria such as dates, rations, type of aircraft, etc. You can fill in search criteria as you wish, or to see the entire database, leave the search criteria as they are; click “Submit” near the bottom on the screen.
- v. After you click on “Submit,” a Query Results screen will appear that shows a list of ten SAFECOMs at a time. To see the next ten, click on the forward arrow at the bottom of list (>) to go to the end of the list lick on the double arrow (>>). Use reverse arrow to go back.
- vi. To view an individual SAFECOM from the list, click on the SAFECOM Trac # 99-1, 99-35, etc.
- vii. The SAFECOM will appear on your screen. You can print form this location, or save it to a desired file.

USDA Forest Service	SAFECOM: AVIATION SAFETY COMMUNIQUE (Ref. FSM 5720)	FS-5700-14 (08/97)
1. REPORTED BY (OPTIONAL)		
Name:	Phone: ()	
Organization:	Date:	
Address:	(mm/dd/yyyy)	
E- Mail Address:		
2. EVENT		
Date:	Local time:	Injuries? Y N Damage? Y N
(24 hour clock)		
Location:	State:	
(Airport, City, Lat/Long, or Fire Name)		
3. MISSION		
Type:	Procurement	
(Pax, Cargo, Recon, Sling, Longline, etc.)	(Contract, CWN, Rental, Fleet, etc.)	
Number of Persons:	Special Use? Y N	Hazardous Material Onboard? Y N
Departure Point: Destination:		
4. AIRCRAFT		
(Reg.)N#:	Manufacturer:	Model:
Owner/Operator:		Pilot:
5. NARRATIVE Provide a brief explanation of the event.		
6. CORRECTIVE ACTION		
SEND TO:		
<u>USDA Forest Service</u>	- Local Forest and Regional Aviation Safety Office in which the event took place.	
<u>U.S. Department of the Interior</u>	- Through Bureau channels to OAS safety Manager, P.O. Box 15428, Boise, ID 83715-5428 or Electronically through SAFETYNET at (208) 387-5823 (8-1-N)	
This form is used to report any condition, observance, maintenance problem, act or circumstance which has potential to cause an aviation-related mishap.		
Coding: For use of Regional Aviation safety Manager.		
CAUSE <input type="checkbox"/> <input type="checkbox"/>	PHASE <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	OCCURRENCE <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> TYPE <input type="checkbox"/>
Data Tracking #:		

5. NARRATIVE

Provide a brief explanation of the event.

6. CORRECTIVE ACTION

APPENDIX D

Minimum Equipment Required or Recommended at an Airtanker Base

Appendix D: Minimum Equipment Required or Recommended at an Airtanker Base

A. Required Equipment

QUANTITY	ITEM
-	Fire Extinguisher, aircraft type, NFPA 407, 2-13.4 and NFPA 410, 8, 8-2 standards require each aircraft ramp have a wheeled fire extinguisher with a rating not less than 80BC and a capacity of not less than 125 pounds (55kg) at intervals of 200 feet (61m). (One for each pit.)
1	Outside Audio System (public address)
1	Telephone System with a minimum of two lines – not required in Alaska
2	Handheld radios with headsets for ramp personnel – ANR or noise canceling
1	Dispatch radio system – VHF-AM and VHF-FM
1	Gasoline powered backup retardant pump
1	Chock blocks for each home-base and transient aircraft
1	First Aid Kit – 10 person minimum
2	Body Fluids Barrier Kit
2	High visibility vests for each Parking Tender
1	VCR with monitor for training
1	Organizational chart board
1	FAX machine – plain paper type
1	Pentium or AMD (or better) based computer and printer with Internet access to obtain critical safety information, agency/incident mail, and SAFECOMs.
1	Safety signs as required to meet OSHA/State regulations
1	OSHA and NFPA 30 certified flammable liquids storage cabinet
1	Labor/Civil Rights/OSHA poster to meet Federal/State regulations
1	Material Safety Data Sheets and binder to meet OSHA/State regulations
1	Washdown water/retardant collection containment or collection system
1	Spill containment kit for fuel and other chemical spills
1	Current Flight Hazard Map
1	Refractormeter, labels, and packaging to meet NFES:# 1245 LA/QA for fire retardant
1	Loading and refueling pit

B. **Recommended Equipment** (Asterisked (*) items are required at Forest Service Bases)

QUANTITY	ITEM
1	Copy machine*
1	Programmable scanner
1	Microwave oven*
1	Air compressor
1	Pressure washer
1	Forklift and/or hand truck
1	Refrigerator*
1	Vacuum Cleaner
1	Ice Maker (Forest Service may use bagged ice locker minimum 500 pounds)*
1	Large capacity coffee maker
1	Battery Charger
1	Ladder (6 foot minimum)*
1	Washer and dryer*
1	Erasable briefing board*
1	Easel and paper
1	Electrical outlets (for each loading pit). Class A installation or as required by local code*
1	Assorted automotive type tool kit
1	Bicycle
1	Lock out, tag out kit
1	Right to Know station
1	Eye/Shower wash stations.
1	Mass flow meter for each loading pump with a LCD readout at each nozzle that reports in pounds and switches to turn the pump on and off.

C. **Miscellaneous Parts and Supplies**

QUANTITY	ITEM
1	Aircraft loading valve (3 inch camlock)
1	Pipe Wrench (36 aluminum)
6	3 inch Gaskets
6	3 inch Gaskets
2	3 inch female camlock-to-female thread fittings
2	3 inch female camlock-to-male thread fitting
2	3 inch male camlock-to-female thread fittings
2	4 inch female camlock-to-female thread fittings
2	4 inch female camlock-to-male thread fittings
2	4 inch male camlock-to-female thread fittings
2	4 inch female camlock-to-male thread fittings
2	3 inch sections of loading hose
1	4 inch Section hose (for non permanent plumbed bases)
1	Jar Vaseline Petroleum Jelly
1	Spare refractometer
1	Banding tool kit
5	Hose carts

APPENDIX E

Retardant Hot-Loading Procedures

Appendix E: Retardant Hot-Loading Procedures

A. Objectives

The objective to this Appendix is to provide safe and viable reference procedures for loading aircraft with fire retardant chemicals without fully shutting down all of the aircraft's engines.

B. Definition

Hot-loading is the loading of an aircraft with retardant with one or more engines running.

C. Purpose

The introduction of turboprop aircraft necessitated some fundamental changes in retardant loading procedures. Originally hot-loading was authorized as a procedure to load aircraft without shutting down all of the engines. The original intention was to prevent adverse impacts on aircraft systems, not to decrease response times.

The hot-loading procedure requires an approved base plan, trained personnel, and concurrence by both the flight crew and base personnel. If either the flight crew or base personnel elect not to hot-load, the procedure is not done. Hot-loading is still an approved procedure, and if used must be done properly, safely, and addressed in the base supplement specific to the base that is performing the hot-loading. These procedures may be applied to the other aircraft listed below provided necessary authorizations are in place.

D. Applicability

These procedures are applicable to federally contracted turboprop aircraft and the following:²

1. Single-Engine Airtankers (SEAT) provided the procedure is outlined in Aircraft Manufacture's Operating Handbook or in the Aircraft Manufacture's Pilot Operating Handbook.
2. Grumman S-2F or S-2T (**see footnote**)

During retardant loading operations, only aircraft approved in the Base Supplement may be hot-loaded. One engine may remain running provided it is on the side of the aircraft *not* being loaded and in full compliance with the procedure outlines in the following safety plan.

²Certain federal bases have been authorized to hot-load turboprop and S2F aircraft. In order for a specific airtanker to be hot-loaded, the local Base Supplement must contain an operations plan and authorization to do so from an appropriate level of an agency's aviation management.

E. Responsibility

Each agency's aviation staff remains responsible for implementing a safe and effective hot-loading procedure for each authorized airtanker. Responsibility for compliance with the requirements and procedures outlined within this plan rests with each agency, including the personnel in these procedures. Airtanker loading operations are hazardous under normal conditions. Hot-loading intensifies the degree to which personnel must adhere to these procedures.

Training may be accomplished utilizing the *Turbine-Engine Aircraft Hot-Loading Video* along with the part of the Base Supplement that addresses hot-loading training and safety procedures.

F. Procedures

This procedure should be used for all loading operations for approved airtankers. The Parking Tender/Engine Guard is not necessary during loading operations if **all** engines are shut down.

1. Initial Shut-Down

The airtanker will be shut down for the first loading at an airtanker base from which this airtanker has not previously operated in the current season. Flight crews will review procedures and equipment specific to that aircraft with the retardant ramp personnel including:

- a) Hot-loading procedures
- b) Ramp traffic flow
- c) Base safety considerations
- d) **Prior to the airtanker entering the loading area(s)**, the pilot will contact the Parking Tender/Ramp Manager on the appropriate Airtanker Ramp Frequency for loading pit assignment.
- e) The Parking Tender³ will be properly equipped with a high-visibility vest, PPE, and a hand-held VHF radio. When radio communication is established⁴ with the airtanker pilot, the Parking tender/Ramp Manager will direct the aircraft to the appropriate loading pit.

³At contract retardant loading bases, the Ramp Manager/Parking Tender must be an agency employee trained in parking tender procedures, and **not** a retardant contractor employee.

⁴There may be hot-loading situations where radio communications between the Pilot and Parking tender cannot be established. Hot-loading can be accomplished by the Parking Tender establishing eye contact with the Pilot and utilizing standardized hand signals (see Appendix A).

- f) Entry into the loading pit will be in full compliance with the applicable turning radius of the make/model of the airtanker being directed. Parking of the aircraft must include consideration for unloading the forces on tandem wheels and tires. For the C-130, the final parking spot will provide room for the airtanker to pull straight ahead for at least ten feet.
- g) Flight Crew Parking Action⁵. With the airtanker positioned in the loading pit, the pilot places the propellers in “ground idle” (flat pitch), then shuts down the two engines on the side from which the aircraft is being loaded⁶.
- h) Parking Tender Action
 - i. The Parking Tender/Ramp Manager will take up a position to the front and side of the running engine(s) within a safe area in the vicinity of the running engine providing the maximum view of the engine(s) and cockpit, and will remain in communication (radio or hand signals) with the pilot.
 - ii. The Parking Tender/Ramp Manager must establish that the area is clear and receive a positive signal from the pilot to begin loading. The Parking Tender/Ramp Manager will then signal the reloading crew to begin. The signal may be given by an established hand signal, or by VHF radio on the appropriate ramp frequency.
 - iii. If personnel or equipment is observed approaching the running engine(s), the Parking tender/Ramp Manager will immediately instruct the pilot to shut down the engine(s).
- i) Loaders will remain clear of the aircraft until the Parking tender/Ramp Manager signal has been given to commence loading.

2. Loading of Retardant

a) General

- i. Radio communications or eye-to-eye contact and hand signals between the pilot and Parking Tender/Ramp Manager will be maintained throughout the retardant loading operations.
- ii. The Parking Tender/Ramp Manager **must not** allow anyone to approach the aircraft until after the props have stopped wind milling on the engines that are shutdown.
- iii. Loaders will approach and depart the aircraft from the rear of the wing.

⁵These actions apply to all aircraft approved for hot-loading.

⁶Both engines on the S2 remain running during hot-loading if so approved.

iv. **C-130 Specific Procedure**

When loading aircraft with no external load indicators, a designated flight crew member will continuously monitor tank filling visually from inside the aircraft and will signal loaders to confirm tank capacity level has been reached or the total pounds delivered have been reached as recorded by a mass flow meter prior to the flight crewperson's signal from within the aircraft. With external quantity indicators installed, the loading crew will load to the desired number of pounds of retardant or if under weight, verify that the tank capacity has been reached.

b) **S2 Specific Procedures**

- i. The Parking Tender signals the Loader to activate electric loading level port and commence loading.
- ii. When the aircraft settles due to weight, the loader reduces the retardant flow to approximately one half.
- iii. The retardant loading system has two electric overflow switches at the loading port, one for 600 gallons and one for 800 gallons. The loader *must* contact the pilot before filling to determine the retardant load limit. If a mass flow meter is present total pounds converted to gallons should determine the load.

c) **S2-T Specific Procedures**

- i. During loading, the ramp Manager/Parking Tender will remain on station near the left or right wing tip in full view of the Pilot and Loader.
- ii. The Ramp Manager/Parking Tender obtains permission from the pilot to load when the aircraft is ready.
- iii. The Ramp Manager/Parking Tender signal the Loader when ready, so that the Loader can activate loading port levels.
- iv. When aircraft settles due to weight, the loader reduces the flow.
- v. The loader observes the loading lights on the right side of the aircraft near the tail and if a mass flow meter is present, monitor the total pounds and compares to gallons.
- vi. When the load weight is reached the top light illuminates, the aircraft is full and the loader stops the flow.

3. Releasing the Aircraft

a) General

- i. After the loading pump is shut down the loading crew will close the loading valve, disconnect the loading hose, and move it and themselves to the designated safe area. Then the Loaders will signal that the hose is clear.
- ii. The Parking Tender/Ramp Manager will notify the pilot by radio or hand signal when the hose and loading crew are clear of the aircraft.
- iii. The Parking Tender/Ramp Manager will take up a position that will allow a view of both sides of the aircraft and be in clear view of the pilot. The Parking Tender/Ramp Manager will then either use hand signals or communicate by the VHF radio that the engines on the loading side are clear to start.
- iv. The airtanker will be cleared to exit the loading pit after the Parking Tender/Ramp Manager has determined that all obstructions and hazards are clear of the aircraft and the loading crew is in the designated safe area free from propeller blast.

4. Emergency Procedures

a) Fire

The Parking Tender will notify the pilot by radio that there is a fire. If the radio fails, the Parking Tender will face aircraft and point to the fire with one hand while drawing a figure-eight in the air with the other (see Appendix A). Fire extinguishers will be discharged to extinguish an engine fire only at the direction of the pilot or flight crewmember. If a fire persists, follow established base emergency procedures.

b) Communications Loss

The Parking Tender will secure eye-to-eye contact with the pilot and pat earphones followed by thumbs down signal. The Parking Tender will continue to use hand signals if no radio is available. If the aircraft radio is inoperable, the aircraft will be shut down until repairs are made.

c) Situation Requiring Engine Shut-Down

If a situation requiring engine shutdown occurs, the Parking Tender will notify the pilot by radio or hand signal drawing index finger across the throat.

5. Safety Awareness

Airtanker base personnel have conducted safe and effective airtanker loading operations for many years; however, the very nature of this type of operation has created many safety hazards. The airtanker industry has undergone a transition into aircraft equipped with powerful, noisy turboprop engines creating new hazards and reasons for an updated Airtanker Ramp Safety Plan and Loading Procedures. Hazards include:

- a) Operating vehicles
- b) Aircraft and machinery
- c) Wet slippery surfaces due to retardant spills or wash down
- d) Obstructions such as hoses and tools to walkways and vehicle routes
- e) Congestion due to limited operating space
- f) Blowing dust
- g) Prop blast
- h) Very high noise levels
- i) **General Precautions**
 - Only qualified persons will perform aircraft and loading operational functions.
 - Only essential personnel will be allowed in the loading area during hot-loading procedures.
 - No personnel are to be involved in activities on the side of the aircraft adjacent to the operating engines. This might require preplanning at bases with wing tip to wing tip loading pits.
 - **Never** walk beneath, between, or in close proximity to aircraft propellers – turning or stopped.
 - **Do not** approach aircraft until the engines have been shut down on the loading side, and the Parking Tender/Ramp Manager has signaled the aircraft clear for loading.
 - **Avoid** the area to the rear of the aircraft while the engines are running due to hazards such as:
 - Propeller Blast
 - Dust
 - Debris
 - Fumes
 - **Be aware** That fumes from raw fuel can ignite

j) **P-3 Precautions**

- i. The APU on a P-3 is located near the nose on the right side. The Ramp Manager should be careful not to approach that side of the cockpit.
- ii. The Parking Tender must remember that aircraft length exceeds wingspan. Caution must be used when operating in tight spaces that the swinging tail may strike objects cleared by the wing tip.
- iii. Remember that this aircraft has a low wing. Personnel operating around the P-3 should use caution since the aircraft may settle during loading.
- iv. Prop blast from departing aircraft may create flying debris.

k) **C-130 Precautions**

- i. Exhaust from running engine
- ii. Lack of prop blast from flat pitch props
- iii. High noise levels
- iv. G.T.C. exhaust port on left side of aircraft
- v. Stronger than usual prop blast and flying debris when aircraft pulls out of pit - secure all items around base.
- vi. Wing height makes it tempting to walk beneath props. **DO NOT DO IT!**

l) **S2/S-2T Precautions**

- i. Exhaust from running engines
- ii. High noise levels
- iii. Lack of prop blast when props in beta mode (S2-T)
- iv. Prop blast and flying debris when aircraft pulls out of the pit.
- v. Always stay behind the wing (except for ramp parking)

6. **Safety Equipment**

The protective equipment outlined in the Interagency Airtanker Base Operations Guide will be worn at all times.

7. Aircraft Description and Specifications

For further information concerning the airtankers discussed in this Appendix, see Appendix J, *Airtanker and Tank Systems*.

APPENDIX F

Airtanker Base Readiness Evaluation

Exhibit F-1:

Airtanker Base Fire Readiness Review

Team Conducting this Evaluation

Name	Agency	Phone

Important Note:

It is recommended that personnel qualifications and knowledge (Section G) be addressed last in the evaluation. During the course of the inspection, items addressed in Sections A-F will provide much of the information needed to make and evaluation of personnel in Section G.

Table of Contents

Section	Title
A.	General
B.	Base Facilities and Communications
C.	Planning and Administration
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E.	Retardant Operations
F.	Airtankers
G.	Personnel
H.	Safety and Security
I.	Summary
J.	Evaluators Signatures

Routing

Title	Signature
Forest Service FMO	
State FMO/Range Unit	
BLM FMO	
BLM State Aviation Manager	
Geographic Aviation Unit	
National FW Specialist	
Regional Airtanker Base Specialists	
State Airtanker Base Specialist	

Section: A. General

Base Name		Managed by (Agency/Agencies)			
Type of Operation Conducted		Consult latest Airtanker Base Directory sheet for this base. Is the information accurate and current? (Review item by item).			
	Airtanker				
	Leadplane				
	Air Tactical	Yes			No
Airtanker base Manager		Ramp Manager			
Mixmaster		Parking Tender			
Mixing Crew <small>May be the same as retardant loading crew</small>		Parking Tender			
Mixing Crew		Retardant Loading Crew			
Mixing Crew		Retardant Loading Crew			
Aircraft Timekeeper		Retardant Loading Crew			
Aircraft Base Radio Operator		Other Positions			
Local Air Officer		Phone Numbers			
COAR or COR on Aircraft Contract		Phone Numbers			
Aircraft Project Inspector(s)		Phone Numbers			
COAR or COR on Retardant Contract		Phone Numbers			
Retardant Project Inspector(s)		Phone Numbers			

Section: B. Base Facilities and Communications

Item #	Evaluation Item/Criteria	Yes	No	Remarks
B1	Does the base's dispatch office have adequate space for the number of personnel working there and for intended operations?			
B2	Does the dispatch office provide adequate visibility of arriving and departing aircraft			
B3	Is the dispatch office well organized (materials and references accessible and labeled, maps on wall, etc.)?			
B4	Is there backup auxiliary power system at the base?			
B5	Is a communications Plan posted in both the Dispatch Office and Pilot Ready Room, and are frequencies (Initial Call-in, Airnet, Forest/Field office Net, Ramp) posted on this plan?			
B6	Does the base have VHF-AM equipment?			
B7	If VHF-AM frequencies are being used, are appropriate, authorized frequencies assigned?			
B8	Does the radio operator know proper radio use procedures?			
B9	Is the telephone system adequate of intended activity (numbers of lines and phones)?			
B10	Are instructions for use of phone system posted, including warning on use of government phones for personal business?			
B11	Are appropriate phone numbers clearly posted (local dispatch, crash-rescue, FBO, etc.)?			
B12	Is there a public address system at the base?			
B13	Is the Pilot Ready Room Standby area adequate? (See below)			
	Air conditioning available?			
	Heating available?			
	Hot and cold potable water?			
	Shower?			
	Restroom facilities?			
	Lounge area?			
	Adequate lighting?			
	Lockers?			
	Desks?			
	Flight planning area?			
	Eating facilities?			
Sleeping and resting facilities?				
Refrigerator?				

Section: C. Planning and Administration				
Item #	Evaluation Item/Criteria	Yes	No	Remarks
C1	Are the following references available at the base and easily accessible?			
	Aviation Management Manuals and Handbooks (all cooperators)?			
	Contract administration Manual or Guide for appropriate agency?			
	Health and Safety Codes for appropriate agency?			
	Current Airtanker Contracts, USDA-FS and USDI			
	Aircraft Communications Plan and Frequency Users Guide?			
	Interagency Retardant Base Planning Guide – NFES # 1259?			
	NFPA 407 Standards for Aircraft Fuel Servicing?			
	Aircraft Rescue and Fire Fighting, 3 rd Edition, International Fire Service Training Association, Oklahoma State University?			
	Geographic Area Mobilization Plans and Local Plans from appropriate agencies?			
	Lot Acceptance, Quality Assurance, and Field Quality Control for Fire Retardant Chemicals, (NWCG Publication, PMS-444-1, May 2000, NIFC, NFES # 1245?			
	Interagency Airspace Coordination Guide			
	Incident/Accident (Aircraft Emergency Response) Action Plan?			
	Agency Contract Administration Guides?			
Training Course material (including applicable videos)?				
Interagency SEAT Operations Guide?				
Interagency Helicopter Operations Guide?				
C2	Has the Interagency Airtanker Base Operations Guide been discussed with aircrews and base personnel			
C3	Is the Interagency Airtanker Base Operations Guide up-to-date? (Check revision page)			
C4	Are aircrews and base personnel aware of the national policy concerning provision of lunches to contract aircrews by the government?			
C5	Have lead plane ATSM and ATGS policy and procedures been discussed with aircrews?			
C6	Are aircrews and base personnel aware of the national policy concerning airtanker rotation?			
C7a	Are aircrews and base personnel aware of dispatch requirements as contained in the aircraft contract?			

Section: C. Planning and Administration

Item #	Evaluation Item/Criteria	Yes	No	Remarks
C7b	Are they aware of the exceptions to the 15 minute dispatch/reaction time clause?			
C8	Are aircrews and base personnel aware of the policies concerning startup/cutoff times and requirements for aerial supervision?			
C9	Are aircrews aware of the national policy concerning dropping of retardant in congested areas (exemptions)?			
C10	Has the base provided adequately for transportation of aircrews to and from lodging/eating facilities?			
C11	Are personnel aware of local policy concerning transportation of aircrews to and from lodging and eating facilities?			
C12	Is a timekeeping clock located in the dispatch office?			
C13	Have aircraft timekeeping procedures been established, reviewed with base personnel and aircrews and are they adequate to ensure accuracy?			
C14	Does the base have an established plan for flight dispatch, flight plans,, and flight following? (Query base personnel and pilots)			
C15	Is a map of known local flight hazards posted?			
C16	Is the hazard map accessible to both dispatch and pilots?			
C17	Has the map been updated? Date of last revision?			
C18	Is there a key on the map that identifies type of hazard?			
C19	Are Military Training Routes and Special Use Airspace (Military Operations Areas, Restricted Areas, etc.) clearly marked?			
C20	Are transmission wires and other hazards clearly marked?			
C21	Has a safety briefing been held with all home-based aircrews concerning local known hazards?			
C22	Is the base utilizing a computer aided aviation hazard program such as IAMS?			
C23	If so, do they have the latest version ?			
C24	Are aircrews aware of the use of Form ATB-3, Flight Resource Order: Tactical Fixed Wing?			
C25	Are aircrews aware of the use form ATB-3a, Airtanker Pilot's Flight Record?			
C26	Has the Local Supplement been updated this year?			
Notes				

Section: C. Planning and Administration - Continued

Item #	Evaluation Item/Criteria	Yes	No	Remarks
C27	Does the Supplement depict or discuss the following:			
	A current organization chart for the airtanker base?			
	A current organization chart for the local air attack organization?			
	A current organization chart for the agency's contracting organization?			
	A current organization chart for the dispatch organization?			
	Allowable takeoff performance chart?			
	A map or the local area with prominent landmarks?			
	A map with zones of influence/exchange/initial attack areas?			
	A map with local airfield hazards/jettison areas?			
	A road map of local area?			
	A list of equipment and parts at the base?			
	Description of fuels and fire behavior common to the area?			
	Agency responsibilities (especially at interagency bases)?			
	Duties and responsibilities of airtanker base personnel (as they differ from those in the Interagency Guide)?			
	Local aircraft contract administration procedures?			
	Use of forms and reports (aside from those outlined in the IABOG)?			
	Local procedures for payment of landing fees and airport use costs?			
	Procedures for submission of payment documents?			
	Retardant contract administration procedures?			
	Retardant billing procedures?			
Local airfield management (procedures/regulations)?				
Use of night lighting equipment?				
Base electrical system (normal and emergency)?				

Section: D. Ramp Operations

Item #	Evaluation Item/Criteria	Yes	No	Remarks
D1	Location acceptable?			
D2	Ramp is capable of accommodating how many airtankers:			
	In the pits:			
	Load simultaneously:			
	Parking:			
	Space for unavailable aircraft:			
D3	Is ramp surface in good condition?			
D4	Are wind indicator(s) properly placed?			
D5	Are foreign object damage avoidance/dust control measures in place?			
D6	Are the following warning signs posted appropriately			
	No Smoking			
	Hazardous Areas			
	Authorized Parking Signs			
	Signing and marking or Ramp Security			
	Vehicle control Signs designated to restricted areas			
D7	Is ramp fenced and can the ramp be secured?			
D8	Are aircraft-type fire extinguishers at each loading pit?			
D9	Are extinguishers the proper type and have they been inspected?			
	Number			
	Type			
	Capacity			
	Condition			
	Dates of last inspection			
D10	Have appropriate airtanker base personnel received training in crash-rescue procedures and use of extinguishers?			
D11	Are there a sufficient number of chock blocks for home-based aircraft and are personnel aware of their proper use?			
D12	Are there extra chock blocks available for transient aircraft?			
D13	Is there a night lighting kit available for night maintenance, etc.?			
D14	Is there a first-aid kit readily available at the ramp?			
	Is the kit well maintained?			
D15	Has the Allowable Takeoff Performance Chart for this base been completed and updated to reflect any airport improvements?			
D16	Are fueling procedures being followed?			

Section: D. Ramp Operations - Continued

Item #	Evaluation Item/Criteria	Yes	No	Remarks
D17	Are catwalks and ladders adequate to meet OSHA standards?			
D18	Are walkways on tanks painted with not-skids type paint?			
D19	Do pump shafts have guards?			
D20	Is all electrical equipment properly grounded?			
D21	Are eyewash and emergency shower facilities provided?			
D22	Is there adequate personal protective equipment and is its use known?			
D23	Does the base have Parking Tender-to aircraft communications? (push-to-talk headsets or other)?			
D24	Are the Parking Tenders knowledgeable of the hand signals for airtankers?			
Notes:				

Section: E. Retardant Operations

Item #	Evaluation Item/Criteria	Yes	No	Remarks
E1	Contractor operated retardant base?			
	Government operated retardant base?			
E2	Is the retardant mixing and storage equipment owned by the retardant company?			
	Is the retardant mixing and storage equipment owned by the government?			
E3	What type(s) of retardant are used at this base?			
E45	How much storage capacity exists at the base?			
	Wet:			
	Dry:			
E5	Is there adequate covered storage area for retardant?			
E6	Is there an adequate supply of retardant available and are personnel aware of procedures for reorder?			
E7	Are retardant testing equipment and charts available and are personnel knowledgeable in their use?			
E8	Are proper charts being used for the type of retardant(s) in use?			
E9	Is mass flow meter in use and is it being used properly?			
	Last calibration date:			
E10	How many aircraft can be loaded simultaneously:			
	Is this loading capability adequate to the level of activity for the base's zone of influence?			
E11	Is there an adequate water supply?			
	Gallons available for immediate use:			
E12	Does the base have off-loading capability?			
E13	Does the base have adequate washdown capability and facilities?			
E14	Are retardant spills and washdown areas being drained properly?			
E15	Is pumping system (hoses, caps, lines, pumps) in working order?			
E16	Does the base "hot-reload" airtankers?			
	If yes, have all personnel received the required training for that operation?			
	Is there a letter of authorization in the Base Supplement?			
E17	If applicable are retardant samples being sent to Missoula, MT as requested?			
E18	Is feedback on samples being received from Missoula, MT and are correction actions being taken in a timely manner?			

Section: F. Airtankers

Item #	Evaluation Item/Criteria	Yes	No	Remarks
F1	Frequency and tone list readily available to the pilot?			
	Is the airtanker contractor in contractual compliance with environmental concerns?			
F2	Any major component changes since arrival on base, or imminent?			

Section: G. Personnel

Complete the following information for *each individual assigned* to the base: Airtanker bas Manager, Ramp Manager, Mixmaster, Radio Operator, Aircraft timekeeper, Retardant Handler(s), and Parking Tender. In evaluating personnel qualifications, knowledge and training, refer to Chapter Two (2) of the Interagency Airtanker Base Operations Guide.

Employee Name	Current Position	Past Experience			
		Position Held	Agency Unit	Period From/To	# Seasons

Fire, Aviation, and Airtanker Base Management Training Courses Attended.

Course	Year	Where Attended

Section: G. Personnel - Continued

Evaluation Item/Criteria	Yes	No	Remarks
Does Individual meet training requirements for position filled?			
<p>Knowledge of job duties and responsibilities (reference Chapter Two (2) of the Interagency Airtanker Base Operations Guide and review individual's knowledge and proficiency).</p>			

Comments

Section:H. Safety and Security

Item #	Evaluation Item/Criteria	Yes	No	Remarks
H1	Are regular safety/security briefings being conducted and documented?			
H2	Are facilities safety inspections being conducted and documented?			
H3	Are background security checks being performed?			
H4	Is there an adequate security operations plan in place?			
H5	Are stolen aircraft reporting procedures prominently posted?			
H6	Are facilities security/surveillance systems in place?			
H7	Is the local airport authority included in the base security plan?			
H8	Are required OSHA plans in place (Lock Out Tag Out, Hazardous Energy, Right to Know, Injury Illness Prevention Plan, MSDS Station, Materials Identification, Confined Space, Etc.)?			
H9	Are JHAs up to date and on file?			
H10	Training documentation up to date? (First Aid, Fire Extinguisher, Forklift, Crash Rescue, etc.)			
H11	Maps, Charts, and Plans in current year?			
H12	Flammable Materials Storage Lockers in place and in use?			

Section: J. Evaluator(s) Signature(s)

Evaluator Name	Signature	Agency	Date

APPENDIX G

Airtanker Identification

Appendix G: Airtanker Identification

AIRTANKER IDENTIFICATION

CAUTION: This information is for aircraft identification and familiarization only. Data provided is typical for each make and model but does not necessarily apply to any specific airtanker.

This data must not be used for load calculations. Specific performance data is contained in each aircraft's flight manual.

Final authority for legal and safe flight is the Pilot In Command.

A. KEY TO AIRTANKER DATA

WINGSPAN: The length of the wing from wingtip to wingtip, in feet, as specified in the aircraft manual.

LENGTH: The length, in feet, of the fuselage from the tail section to the nose of the aircraft as specified in the aircraft manual.

TURN RADIUS: As listed in the aircraft flight manual the distance, in feet, the aircraft's outboard wingtip will travel with the steering control fully deflected.

WHEEL BASE: The distance in feet between the main landing gear centerlines.

GEAR: The configuration of the main landing gear tire(s) / wheel(s); S = Single wheel type, D = Dual wheel type.

CRUISE SPEED: The distance the aircraft will travel in one hour in a (no wind) cruise configuration given in knots.

MAXIMUM TAKEOFF WEIGHT: The maximum weight, as listed in the aircraft manual, that the airtanker can weigh for takeoff.

MAXIMUM LANDING WEIGHT: As listed in the aircraft manual, the maximum weight at which the airtanker may land.

ZERO FUEL WEIGHT: The maximum permissible weight of a loaded aircraft (Crew/Pax/Cargo/etc.) less its fuel. All weights in excess of maximum zero fuel weight must consist of usable fuel.

CONTRACT OPERATING WEIGHT: The average operating weight of the airtanker with the contract load of fire retardant and 2 1/2 hours of fuel.

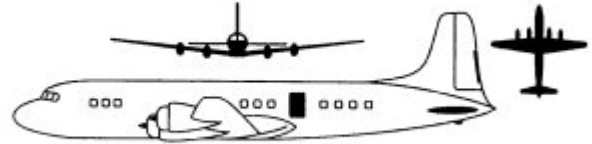
RETARDANT LOAD GALLONS: The amount of fire retardant, in gallons, that the aircraft will carry based on contract requirements.

FPT WHEEL LOAD: The wheel loading, in pounds per square inch, that the main gear place upon a surface.

B. AIRTANKER IDENTIFICATION

1. *Douglas DC-7*

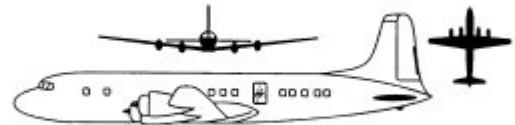
The DC-7 is a converted civilian airliner with a retardant capacity of 3000 gallons. The DC-7 can be distinguished from the DC-4 and DC-6 models by square windows, with three being forward of the wing (DC-4 has round windows), and four-blade propellers (DC-4 & DC-6 have three-blade propellers).



WINGSPAN	LENGTH	TURN RADIUS	WHEEL BASE	GEAR	CRUISE SPEED
117 FT 6 IN	105 FT 7 IN	72 FT 8 IN	24 FT 8 IN	DUAL	235 KTS
MAX TAKEOFF WT	MAX LANDING WT	ZERO FUEL WT	CONTRACT OPERATING WT	RET. LOAD GAL.	FPT WHEEL LOAD
116,900 LB	102,000 LB	96,000 LB	102,000 - 110,000 LB	3000	111 PSI

2. *Douglas DC-6*

The DC-6 airtankers have been converted from civilian and military models. The DC-6 is similar to the DC-7 as it has the same wingspan and square windows but is about 1 foot shorter in length and has smaller engines. The DC-6 has three-blade propellers (DC-7 has four-blade propellers) and may or may not have windows (1 or 2) ahead of the wing.



WINGSPAN	LENGTH	TURN RADIUS	WHEEL BASE	GEAR	CRUISE SPEED
117 FT 6 IN	107 FT 0 IN	72 FT 8 IN	24 FT 8 IN	DUAL	215 KTS
MAX TAKEOFF WT	MAX LANDING WT	ZERO FUEL WT	CONTRACT OPERATING WT	RET. LOAD GAL.	FPT WHEEL LOAD
92,200 LB	85,000 LB	96,000 LB	81,300 LB	2450	92 PSI

3. *Douglas DC-4*

The DC-4 airtankers have been converted from civilian and military transport models. The DC-4 has the same wingspan as the DC-6 and DC-7 models but is considerably shorter in length. It can be identified by the round windows and three-blade propellers. The "Super" DC-4 is a stock model that has been converted to operate with larger engines.



WINGSPAN	LENGTH	TURN RADIUS	WHEEL BASE	GEAR	CRUISE SPEED
117 FT 6 IN	93 FT 11 IN	86 FT 2 IN	24 FT 8 IN	DUAL	178 KTS 200 KTS SUPER
MAX TAKEOFF WT	MAX LANDING WT	ZERO FUEL WT	CONTRACT OPERATING WT	RET. LOAD GAL.	FPT WHEEL LOAD
VARIES	VARIES	VARIES	63,500 LBS	2000	75 PSI
71,200 LB SUPER	61,500 LB SUPER	60,700 LB SUPER	65,370 LB SUPER	2200 SUPER	78 PSI SUPER

4. *Lockheed C-130A "Hercules"*

The C-130 turbine airtanker is flown by civilian operators with bottom discharging retardant tanks, and by select military units who operate them as needed with temporary rear (over tail gate) discharging retardant tanks called "MAFFS" (Modular Airborne Fire Fighting System). The C-130 can be identified by the four turboprop engines with four-blade propellers, high wing, rear cargo door below the tail section, and in-line main dual landing gear wheels.



WINGSPAN	LENGTH	TURN RADIUS	WHEEL BASE	GEAR	CRUISE SPEED
132 FT 7 IN	99 FT 6 IN	106 FT 1 IN	14 FT 3 IN	DUAL	250 KTS
MAX TAKEOFF WT	MAX LANDING WT	ZERO FUEL WT	CONTRACT OPERATING WT	RET. LOAD GAL.	FPT WHEEL LOAD
120,000 LB	97,000 LB	83,500 LB	108,553 LB	3000	70 PSI

5. Lockheed P2V "Neptune"

The Lockheed P2V-5 and -7 models were used extensively by the Navy as long-range over-water patrol and anti-submarine warfare aircraft. The P2V has a mid-wing with reciprocating (piston) engines and jet engines. The jet engines burn the same fuel as the piston engines (AV-Fuel) and are used primarily for take-off assist and during the drop sequence.



WINGSPAN	LENGTH	TURN RADIUS	WHEEL BASE	GEAR	CRUISE SPEED
100 FT 0 IN	86 FT 0 IN	71 FT 6 IN	25 FT 9 IN	SINGLE	187 KTS
MAX TAKEOFF WT	MAX LANDING WT	ZERO FUEL WT	CONTRACT OPERATING WT	RET. LOAD GAL.	FPT WHEEL LOAD
80,000 LB	67,000 LB	75,850 LB	73,000 LB	2450	109 PSI

6. Lockheed SP-2H

The SP-2H is a modified version of the Lockheed P2V. The SP-2H can be identified by the smaller retardant tank profile, mid wing, and the absence of the jet engines. (See Lockheed P2V-5, -7 description).



WINGSPAN	LENGTH	TURN RADIUS	WHEEL BASE	GEAR	CRUISE SPEED
100 FT 0 IN	92 FT 0 IN	71 FT 6 IN	25 FT 9 IN	SINGLE	195 KTS
MAX TAKEOFF WT	MAX LANDING WT	ZERO FUEL WT	CONTRACT OPERATING WT	RET. LOAD GAL.	FPT WHEEL LOAD
67,500 LB	67,000 LB	59,100 LB	62,000 LB	2000	92 PSI

7. Lockheed P3A "ORION"

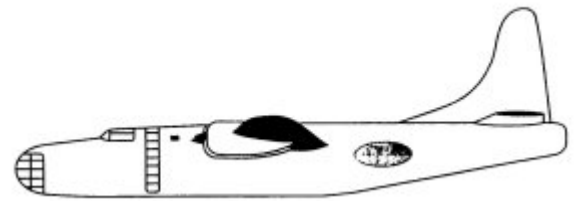
The Lockheed P3A was designed to meet the military's need for a turboprop submarine surveillance aircraft. Current versions of the P3 are still active in the military inventory. The civilian version of this aircraft is the L-188 "Electra." The P3 can be identified by the low wing, four turbine engines with four-blade propellers and eyebrow cockpit windows.



WINGSPAN	LENGTH	TURN RADIUS	WHEEL BASE	GEAR	CRUISE SPEED
99 FT 8 IN	106 FT 1 IN	88 FT 0 IN	31 FT 2 IN	DUAL	275 KTS
MAX TAKEOFF WT	MAX LANDING WT	ZERO FUEL WT	CONTRACT OPERATING WT	RET. LOAD GAL.	FPT WHEEL LOAD
105,500 LB	105,000 LB	83,500 LB	97,000 LB	3000	89 PSI

8. Consolidated PB4Y-2 "PRIVATEER"

The "Privateer" was designed as a long-range bomber during World War II. The Navy version has a single tail and the Army version - the B-24 model - has a double tail. The PB4Y-2 airtanker has been modified with larger engines and is designated as the "Super" PB4Y-2 model. The PB4Y-2 can be identified by the bomber appearance of the nose, outside ladder on the fuselage, high wing, four piston engines and three-blade propellers.



WINGSPAN	LENGTH	TURN RADIUS	WHEEL BASE	GEAR	CRUISE SPEED
110 FT 0 IN	74 FT 8 IN	68 FT 0 IN	25 FT 8 IN	SINGLE	184 KTS
MAX TAKEOFF WT	MAX LANDING WT	ZERO FUEL WT	CONTRACT OPERATING WT	RET. LOAD GAL.	FPT WHEEL LOAD
60,900 LB	60,000 LB	N/A	57,500 LB	2000	90 PSI
			59,480 LB	2200	93 PSI

9. Grumman S-2 "TRACKER"

The Grumman S-2s were used extensively by the Navy as surveillance aircraft. These military aircraft have been converted to airtankers for the California Department of Forestry. The CDF S-2 airtankers are being modernized to turbine power, longer fuselages, and larger retardant tanks. **Information is for the S-2 recip version airtanker.**



WINGSPAN	LENGTH	TURN RADIUS	WHEEL BASE	GEAR	CRUISE SPEED
69 FT 8 IN	42 FT 0 IN	44 FT 8 IN	18 FT 6 IN	SINGLE	160 KTS
MAX TAKEOFF WT	MAX LANDING WT	ZERO FUEL WT	CONTRACT OPERATING WT	RET. LOAD GAL.	FPT WHEEL LOAD
27,000 LB	24,500 LB	N/A	25,000 LB	800	102 PSI

10. Marsh S-2F3AT "Turbine Tracker"

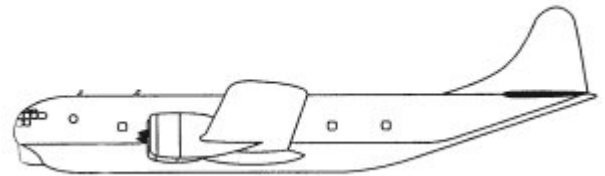
Marsh Aviation has upgraded and extensively modified the Grumman S-2 for the California Department of Forestry. Modifications include turboprop engines, a new electrical system, new avionics, and a new 1200 gallon constant flow retardant tank system.



WINGSPAN	LENGTH	TURN RADIUS	WHEEL BASE	GEAR	CRUISE SPEED
72 FT. 7 IN	43 FT 6 IN	45 FT 6.5 IN	18 FT 6 IN	SINGLE	256 KTS
MAX TAKEOFF WT	MAX LANDING WT	ZERO FUEL WT	CONTRACT OPERATING WT	RET. LOAD GAL.	FPT WHEEL LOAD
29,150 LB	24,800 LB	N/A	29,150 LB	1200	110 PSI

11. Boeing KC-97

The KC-97 was originally designed for the military to serve in roles such as airborne refueler and personnel/cargo transport aircraft before its civilian conversion to an airtanker. The KC-97 can be identified by the round glass cockpit nose area, square windows, mid wing, four engines and four-blade propeller.



WINGSPAN	LENGTH	TURN RADIUS	WHEEL BASE	GEAR	CRUISE SPEED
141 FT 3 IN	110 FT 4 IN	84 FT 10 IN	28 FT 6 IN	DUAL	210 KTS
MAX TAKEOFF WT	MAX LANDING WT	ZERO FUEL WT	CONTRACT OPERATING WT	RET. LOAD GAL.	FPT WHEEL LOAD
153,000 LB	153,000 LB	128,000 LB	126,000 LB	3000	117 PSI

APPENDIX H

Recommended Outline for a Local Supplement to the Interagency Airtanker Base Operations Guide

Appendix H: Recommended Outline for a Local Supplement to the Interagency Airtanker Base Operations Guide

The following is recommended as an outline for each base to develop its required Supplement.

CHAPTER 1 – INTRODUCTION

- A. Objectives
- B. Authority
- C. General Information
 - 1. State/Regional organization
 - 2. Airtanker Base location in State/Region
 - 3. Air tactical organization
 - 4. Fuels and fire behavior common to area]
 - 5. Prominent landmarks in area
 - 6. Local area orientation flight

CHAPTER 2 – ORGANIZATION AND RESPONSIBILITIES

- A. Agency (or Interagency) responsibilities
- B. Airtanker Base personnel
 - 1. Organization chart
 - 2. Duties and responsibilities

CHAPTER 3 – ADMINISTRATIVE PROCEDURES

- A. Forms and reports
- B. Contract administration
 - 1. Aircraft contracting organization
 - 2. Retardant contract
 - a) Responsibility and procedures
 - 3. Aircraft payment procedures
 - a) Verification of flight times at home base and when at alternate bases
 - b) Schedule for submission of flight use reports]
 - c) Payment of subsistence
 - d) Payment of landing fees and airport use costs
 - 4. Availability and standby requirements
 - b) Pilot standby/availability hours
 - c) Off-duty scheduling and means of contact
 - 5. Dispatch reaction time requirements
 - 6. Maintenance scheduling
 - 7. Liquidated damages

CHAPTER 4 – BASE FACILITIES, OPERATIONS AND DISPATCH

A. Facilities

1. Equipment at the base
 - a) Parts and equipment storage
 - b) Maintenance responsibility
2. Base/Ramp/Dispatch communications
3. Lighting equipment
4. Electrical system
5. Flight crew accommodations and facilities
6. Reference library
7. Local airfield management
 - a) Regulations
 - b) Procedures

B. Operations

1. General
2. Environmental considerations
 - a) Base operations
 - b) Retardant dropping in sensitive areas
 - c) Recall drop area for retardant disposal (jettison area map)
3. Retardant operations
 - a) Types of retardant in use
 - b) Retardant testing schedule and procedures
4. Parking procedures (with map)
5. Preflight checks
 - a) Safe engine operation (run-up procedure)
6. Loading
 - a) Pumping equipment (diagram)
 - b) Maintenance responsibility and requirements
7. Fueling
 - a) Local vendor
 - b) Procedures
 - c) Equipment inspection
8. Releasing the aircraft
 - a) Local procedures
9. Air tactical/ASM/lead plane organization and procedures

C. Dispatch procedures

1. Briefing and orientation
 - a) Area and local dispatch organization
 - b) Zones of influence/exchange areas
2. Use of the Flight Resource Order: Tactical Fixed-Wing
 - a) Local dispatch procedure from initial report to dispatch of aircraft

3. Communications
 - a) Local system
 - i. Map showing base stations, repeaters, and VOR navigational aids
 - ii. Airfield and base communications
 - iii. Frequencies, call signs and identifiers
 - iv. ASM/lead plane communications and communication procedures
 - v. Large fire communication plan
 - b) Flight tracking and check-in requirements
4. Dispatch priority
5. Start-up and cut-off times
6. Termination of drop activities
7. Agricultural airtanker procedures

CHAPTER 5 – SAFETY

- A. Airtanker Base Evaluations
 1. Schedule
- B. Aerial hazard maps
 1. Responsibility and procedures for update
 2. Briefings on airport hazards
 3. Turbulence, wind and time of day limitations on flight activity
- C. Temporary Flight Restrictions/Military Training Routes
 1. Local procedures
 2. Map
- D. Crash-rescue planning and equipment
 1. Local Incident/Accident Action Plan
 2. Local crash-rescue equipment
 - a) Fire extinguishers: inspection and location
 - b) Local organization and responsibility
 3. Single engine/engine out procedures
 4. Emergency fields
- E. Hazard, incident, and accident reporting
 1. Local procedures
 2. Routing
- F. Proficiency flights
- G. Dropping on or near congested areas
 1. Local Procedures
- H. Landing with full or partial load
 1. Local contract specifications
 2. Runway and ramp wheel-loading capability
 - a) Allowable takeoff performance chart
- I. Base safety items
 1. Inventory
 2. Maintenance responsibility

LOCAL BASE SUPPLEMENT

APPENDIX I

OSHA and Hazardous Material Compliance Information

Appendix I: OSHA and Hazardous Material Compliance Information

- A. The U S Department of Labor, Occupational Safety and Health Administration, offers Catalog 2019, ‘OSHA Publications and Audiovisual Programs,’ free of charge. The document can be used to assist with obtaining information to meet compliance with workplace safety regulations.

The catalog can be ordered from: **U S Department of Labor
OSHA Publications Office
P O Box 37355
Washington, D. C. 20012-1535
(202) 693-1888 Fax (202) 693-2498**

OSHA operates a Website on the Internet, which provides extensive information on workplace safety and compliance. The address www.osha.gov/index.html

The following is a listing of OSHA Regional Offices that service various parts of the country. In addition, there are area offices within each region. States marked with an (*) operate their own OSHA approved job safety and health programs (CT and NY plans cover public employees only). States with approved plans must have a standard that is identical to, or at least as effective as the federal standard. Addresses for state agencies can be found in the OSHA Website.

Region I
(CT*, MA, ME, NH, RI, VT*)
JFK Federal Building
Room E340
Boston, MA 02203
(617) 565-9860

Region II
(NJ, NY*, PR*, VI*)
201 Varick Street
Room 670
New York, NY 10014
(215) 596-1201

Region III
(DC, DE, MD*, PA, VA* WV)
US Dept. of Labor, OSHA
The Curtis Center, Suite 740W
170 S. ??Mall West
Philadelphia, PA 19106-3309
(215) 5961201

Region IV
(AL,FL,GA,KY*,MS,NC*,SC*,TN*)
61 Forsyth Street
Suite 587
Atlanta, CA 30367
(404) 562-2300

Region V
(IL, IN*, MI*, MN*, OH, WI)
230 South Dearborn Street
Room 3244
Chicago, IL 60604
(312) 353-2200

Region VI
(AR, LA, MN*, OK, TX)
525 Griffin Street
Room 602
Dallas, TX 75202
(214) 767-4731

Region VII
(IA*, KS, MO, NE)
City Center Square
1100 Main Street
Suite 800
Kansas City, MO 64105
(816) 426-5861

Region VIII
(CO, MT, ND, SD, UT*, WY*)
Federal Building
1999 Broadway
Suite 1690
Denver, CO 80202
(303) 844-1600

Region IX
(AZ*, CA*, HI*, NV*, Samoa,
Guam, Territories)
71 Stevenson Street
Room 420
San Francisco, CA 94105
(415) 975-4310

Region X
(AK*, ID, OR*, WA*)
1111 Third Avenue
Suite 715
Seattle, WA 98101-3212
(206) 553-5930

The following information provides some of Title 29, Code of Federal Regulation that may pertain to OSHA compliance at airtanker bases. State agencies may have jurisdiction over regulating workplace safety standards. **The information provided is not a complete listing of all regulations.** Consult your agency technical specialist or the regulating agency for assistance.

Accident Prevention and Signing.....	29 CFR 1910.145
Blood Borne Pathogens.....	29 CFR 1910.1030
Cabinet, flammable and Combustible Liquid Storage	29 CFR 1910.106 (d) (3)
Cleaning Compounds and Degreasers.....	29 CFR 1910.252 (c) (II)(i)(ii)
Clothing, Protective.....	29 CFR 1910.252 (b)(3), .132
Compressed Gas Cylinders	29 CFR 1910.253 (a)(2)
Confined Spaces.....	29 CFR 1910.120, .146 252 (B)(4), 146
Dust Hazards and Employee Exposure	29 CFR 1910.94(a)(2)
Exits.....	29 CFR 1910.37
First Aid Standards and Sources	29 CFR 1910.151
Fire Extinguishers	29 CFR 1910.157
Fuel Handling and Storage.....	29 CFR 1910.178(f)
Fire Prevention Plan.....	29 CFR 1910.38(b)
Guarding.....	29 CFR 1910.211, .212(A)
Guardrails.....	29 CFR 1910.20-.22(c)
Handrails	29 CFR 1910.24(h)
Head Protection.....	29 CFR 1910.135
Hazard Communication, The Right to Know Law	29 CFR 1910.1200
Hazardous Waste Operations	29 CFR 1910.120
Hearing Conservation.....	29 CFR 1910.95
Lockout/Tag	29 CFR 1910.147
Material Safety Data Sheets	29 CFR 1910.1200(a)
Mechanical Handling Equipment.....	29 CFR 1910.176(a)
Medical Standards and Sources.....	29 CFR 1910.151
Noise Exposure Standards and Sources	29 CFR 1910.95
Personal Protective Equipment	29 CFR 1910.132
Pits.....	29 CFR 1910.23(a)(5)
Powered Hand Tools, Standards and Sources.....	29 CFR 1910.Subpart P
Respiratory Protection.....	29 CFR 1910.134
Spill Containment.....	29 CFR 1910.106(d)
Tanks, Storage.....	29 CFR 1910.106(b)(2)
Training, Personnel	29 CFR 1910.120 Appendix E
Trucks, Forklifts	29 CFR 1910.178
Ventilation Standards and Sources.....	29 CFR 1910.252(b)(4)(ii)
Walking and Working Surfaces	29 CFR 1910.Subpart D

B. Procurement Source Information (Disclaimer)

The following information is provided to assist with procuring equipment, supplies, and training materials to meet compliance with SHA Regulations. *The sources listed are not endorsements or recommendations of vendor products and services, but are offered as information only.*

When procuring any equipment and supplies, always check with the vendor and see if there are discounts for government agency purchases. Consolidations of orders within an administrative unit can result in savings when purchasing quantities. There are many companies that supply safety products through the GSA Federal Supply Schedule or Defense Supply Logistics Agency. Consult your agency purchasing personnel for assistance,. Additional sources for procurement can also be assessed through the Internet.

Lab Safety and Supply

P O Box 1368
 Janesville, WI 53547-1368
 Catalog Request..... 1-800-356-0783
 Technical Support 1-800-356-2501
 Safety Information by FAX..... 1-800-393-2287
 Internet Website <http://www.LabSafety.com>

J. J. Keller & Associates

3003 W. Breezewood Lane
 P O Box 368 (Ordering)
 P O Box 548 (Remittance)
 Neenah, WI 53547-0368
 Catalog Request and Product Ordering..... 1-800-327-6868
 FAX..... 1-800-727-7516
 Internet Website <http://www.jjkeller.com>

Ideal Environmental Products and Services

P O Box 307
 Gilroy, CA 95021
 Catalog Request and Product Ordering..... 1-800-844-6998
 FAX..... 1-408-848-2579
 Internet Website <http://www.CHEM-STOR.com>

Conney Safety Products

3202 Latham Drive
 Madison, WI 53744-4190
 Catalog Request and Product Ordering..... 1-800-356-9100
 FAX..... 1-800-845-9095
 Internet Website <http://www.conney.com>

APPENDIX J

Daily Aviation, Tactical, and Safety Briefings

Appendix J: Daily Aviation, Tactical and Safety Briefings

A. General

Aviation resources are often an integral part of fire suppression tactics and long-term strategies. In many cases, Airtanker Base personnel are not included in daily briefings due to being geographically removed from the IDP. For the Forest Service or incident occurring on Forest Service land serviced by other agency's airtanker base, FSM 5720.3.6, states that we must, "***Ensure that aviation safety briefings are conducted prior to any aviation mission either by a person responsible for the mission or, in situations where the pilot may be the only official present, as part of the normal preflight activities, such as dispatch, weather, and flight plan briefings.***" It becomes the Airtanker Base Managers responsibility to provide information regarding tactics, planned use, and above all, a comprehensive safety briefing prior to work on a daily basis. Equally important is a daily debriefing to identify any safety concerns that may have developed through the operational period and to review what is and is not working operationally.

Military adherence to pre-and post-operations briefings has proven to be highly effective and we have adopted their example in this regard to strengthen our own operations. This has also been identified as a National Safety Council recommendation.

During ongoing fire support, all Airtanker Base Managers/Assistants or Air Support Supervisors, identified as a part to a fire operation should provide the following:

1. A printed copy of daily Incident Action Plans (IAP)
2. A pre-mission safety and operations briefing
3. A post-mission safety and operations debriefing

The person responsible for conducting these briefings and debriefings shall be clearly identified by position and relationship to the operation, assigned to the task, and held accountable for its completion as well as for insuring that aviation risk assessments are completed prior to conducting airtanker missions. Possible persons to be assigned this task are the Forest Aviation Officer (FAO), Airtanker Base Manager, Air Support Group Supervisor, or Air Operations Branch Director.

Personnel who are informed on tactics and strategies and supported by sound risk management decisions as well as having received timely safety reminders will add to the overall safety and effectiveness of an operation. We look to positive leadership roles to assure the briefings/debriefings and risk assessments are accomplished in a professional, effective manner.



Remember: Any briefing or training must be documented or "it never happened". Documentation should include the Briefer's Name, attendees PRINTED and SIGNED name, date and topics discussed.

B. Formats:

Exhibit J-1: Fixed-Wing Base Daily Safety Briefing Format

Exhibit J-2: Daily Operational Airtanker Base Checklist

Exhibit J-3: Tactical Debriefing Form (Aerial Crews – Fixed and Rotary Wing)

Exhibit J-4: Fixed-Wing Base Briefing Board (Example:4' X 8')

**Daily Incident Airtanker Base Operation Briefing Checklist
Exhibit J-1**

	Adequate Parking for Loading/ Overflow / Fixed and Rotor Wing
	Adequate Fuel and Oil / FBO Support
	Briefing Area Established / Briefing Information Collected
	Adequate Rest and Sanitation Facilities
	Adequate Logistic Support / Dispatch / Food / Transportation / Lodging
	Airbase Positions Briefed
	Check Security Facilities / Retardant Plant / Personnel
	Review of Incident Action Plan / Initial Attack Procedures
	Weather / Current / Expected
	Personnel Assignments / ATBM / MXMS / RAMP etc.
	Personal Protective equipment Reviewed
	All Personnel Trained for Hot Loading if Applicable
	Communications Frequencies / Airport / Ramp / Incident
	Procedures Specific to the Base / Airport / Fueling / etc.
	Security Procedures
	Fire, Medical , Evacuation and Emergency Procedures
	Flight Following Procedures
	Airtanker Rotation
	Other Aircraft Assignments / Lead / SMJ / ATGS / Days Off
	Dispatch Procedures
	Communications Procedures / Air / Ramp
	Aerial Hazards
	Allowable Takeoff Charts Being Reviewed During Hot Days
	Weight and Balance and Airtanker capacities Reviewed
	Airspace Restrictions / MOA's / TFR's / MTR's
	Sensitive Areas / Wilderness / Wildlife / etc.
	Crew Comfort items / Housekeeping
	Effectiveness of Air and Base Operations
	Ensure feedback from AOB / ATGS / ATCO / RAMP / MXMS / Pilots etc.
	Previous Days Operational Concerns
	Next Briefing
	Debriefing

Daily Incident Airtanker Base Operation Briefing Checklist
Exhibit J-1 Continued

Date and Time		
Person Conducting Briefing		
	Personnel in Attendance	Title

**Daily Operational Airtanker Base Checklist
Exhibit J-2**

<p>This checklist should be used to assure that the operational and overnight limitations of an airbase are not exceeded. These limitations are developed and specified in the Job Hazard Analysis, which should be reviewed by all personnel assigned at the airbase.</p>	
A	Site
	Adequate parking and projected numbers and types of airtankers
	Adequate loading pits for projected numbers and types of airtankers
	Recommended wing tip to wing tip separation to type 1, 2, and 3 airtankers maintained
	Adequate parking for current and projected air attack and lead aircraft provided
B	Facilities
	Briefing area established, incident action plans, aircraft assignments, rotation, NOTAMS, TFR's and frequencies posted
	Rest and sanitation facilities are adequate for personnel assigned
	Adequate logistical support provided for personnel assigned to airbase (Food, transportation, and lodging)
C	Operations
	Previous day's safety problems discussed with assigned personnel and pilots and resolved
	Briefing held for all personnel
	All airbase positions have been assigned to qualified personnel
	Ramp manager procedures discussed and known
	Pilots are checking allowable takeoff performance charts in the heat of the day
	Personal protective equipment is being used by pilots and airbase personnel
	All personnel have received the required training for hot-loading
	Communication, flight paths, and airport procedures have been reviewed and are in place
	Military training routes, special use airspace considerations have been discussed with pilots
Airbase capacity and operations limits are provided to appropriate dispatch facilities and Air Operations Directors on incidents	
	Load calculation for each aircraft known and posted and airtankers are loaded accordingly
D	Fueling
	FBO can support fuel, oil, and other special requirements for projected number and types of aircraft
	Fueling areas and procedures are reviewed and identified
E	Administration
	End of Shift debriefing procedures established, including pilots, and made aware of requirement for constructive feedback and critique
	Provision made for debriefing of pilots and airbase personnel going off-shift early

**Tactical Debriefing Form, Aerial Crews, Fixed and Rotor Wing
Exhibit : J-3**

Date		Pilots Name	
Fire Name		Location	
P#			

GENERAL INFORMATION

Number of Tactical Aircraft on Fire:	
Altitudes	
Fire Weather	
Risks Involved	

QUESTIONS

	YES	NO
Was correct dispatch information given? If no, please explain in "comments"		
Were you able to check weather?		
Any delays launching aircraft?		
Were you given a proper briefing? Hazards, altitudes and coverage levels?		
Was there proper aircraft separation?		
Was the fire operation organized?		
Was safety implemented?		
Were procedures followed?		
Was activity effective?		

COMMENTS

GENERAL INFORMATION CONTINUED

Date			
Fire Name		Fire Number	
Pilot in Command			

**Tactical Debriefing Form, Aerial Crews, Fixed and Rotor Wing
Exhibit : J-3 Continued**

POINTS TO PONDER

General Ground Conditions*					
Aircraft		Attitudes		Risks Involved	
Crew		Fire Weather		Ongoing Assessment	

	Yes	No
Was correct dispatch Information received?		
Frequencies		
Location		
Contacts		
Other		
Other		

If not, what information was missing?

Activity Highlights	Yes	No
Was the fire organized?		
Was safety implemented?		
Were procedures followed?		
Was activity effective?		

How did it go?

Optional Questionnaire
Please fill out what you can.

APPENDIX K

Portable Bases

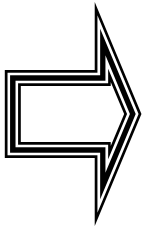
Appendix K: Portable Bases

A. General

The current national Long-Term Fire Retardant Requirements Contract contains the Emergency Equipment Rental Agreements (EERAs) for the portable base operations offered by the retardant manufacturers. ***Portable mix plants are no longer agency resources and aren't carried in the National Cache System.*** If there is a need for a portable retardant operation, these EERAs should be utilized. Mobile/portable retardant mixing bases (fixed-wing or helicopter) should be ordered directly from the companies by the local user agency. If required, the EERA under the National Retardant Supply Contract provision shall be utilized.) When ordering a portable base, order the appropriate retardant base and type of retardant product by considering factors such as type of product generally used in the area and whether need is for fixed-wing or helicopters. Questions regarding the qualified and approved retardant types may be directed to the San Dimas Technology Development Center at (909) 599-1267.

An agency Plant Manager/Mix Master should be assigned to each portable operation. Agency Plant Managers/Mix Masters are responsible for contract administration functions such as:

1. Ensuring LA/QA (Lot Acceptance and Quality Assurance) functions are performed according to NWCG Publication PMS 444-1, Lot Acceptance, Quality Assurance, and Field Quality Control for Fire Retardant Chemicals (NFES 1245)
2. Verifying receipt of retardant quantities and maintaining agency records,
3. Communication any safety and environmental concerns with the contractor which include compliance with OSHA and EPA regulations.



Remember: It is the responsibility of the State or Agency Representative serving as a contract representative on a portable base, whether contractor or agency operated, to insure that OSHA and Agency or State Health and Safety Regulations are being complied with and that applicable EPA regulations are followed.

Since the equipment needs of the Government and availability of Contractor's equipment during the emergency cannot be determined in advance, it is mutually agreed that, upon request to the Government the Contractor will furnish the equipment listed in the requirements contract to the extent the Contractor is willing and able at the time of the order. At the time of the dispatch, a resource order number will be assigned. The contractor must furnish this number upon arrival and check in at the incident. When such equipment is furnished to the Government, the clauses to refer, to manage the EERA, are within the requirements contract on the EERA Form OF-294.

APPENDIX L

Sterile Cockpits, Air Traffic Guidance and Uncontrolled Airport Procedures

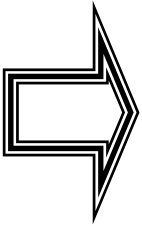
Appendix L: Sterile Cockpits, Air Traffic Guidance, and Uncontrolled Airport Procedures

A. General

It is essential that pilots be alert, look for other traffic, and exchange traffic information with other pilots when approaching or departing from an airport without an operating tower. Forest Service employed or contracted pilots use the common traffic advisory frequency (CTAF) designated for the airport to communicate their intentions and to obtain airport and traffic information. Communications may also be established with a flight service stations (FSS), a Unicom station, other ground facility if available, or by making self-announced broadcasts, whichever is appropriate for the airport. The CTAF for a particular airport can be obtained by consulting the Federal Aviation Administration's Airport Facility Directory (AFD), AOPA's Airports USA, Flight Guide publication, WAC Charts, Sectionals, or Jeppesen approach charts if so charted as an Instrument Approach Airport (IPA).

1. Arrival Procedures – Communications

- a) *Sterile cockpit procedures will be maintained at all times when within a 5-mile radius of the airport. Airtanker bases, dispatch offices, or other personnel will initiate no radio or cockpit communication, which is not directly related to safe flight of the aircraft until after landing and clearing the runway.*



Note: Sterile Cockpit Procedures means NO COMMUNICATIONS between an agency or contract aircraft and the airtanker base, dispatch office, or ramp managers while the aircraft is in the Airport Traffic Area or Landing unless it involves the safety of flight. Fire dispatching or reload instructions are NOT emergency.

b) **Pilot Actions**

- i. Pilots of arriving aircraft select and monitor the designated CTAF or ATC assigned frequency when the aircraft is not less than 10 miles from the airport except when FARs or local procedures require otherwise.
- ii. Communications are established and maintained with the appropriate ground facility not less than 5 miles from the airport or self-announced broadcasts if no ground facility is available.
- iii. Communications include the pilot's intentions, aircraft location, altitude, and any other information the pilot deems necessary to ensure the safe outcome of the arrival.

2. Uncontrolled Airport Arrivals – Traffic patterns/Procedures

- a) When two or more aircraft are approaching an airport for the purpose of landing, the aircraft at the lower altitude has the right of way, but it will not take advantage of this rule to cut in front of another which is on final approach to land, or to overtake that aircraft [14 CFR Part 91.113 (f)].
- b) Airports without operating control towers usually have a segmented circle visual indicator system. The device provides visual information on established traffic patterns and comprises the following components: Wind Direction indicator, Landing Direction Indicator, Landing Strip Indicators, and Traffic Pattern Indicators. Before entering the traffic pattern at an uncontrolled airport or an airport without an operational tower, the pilot should be concerned with the indicator for the approach end of the runway to be used. When approaching for landing, all turns must be made to the left unless the airport displays approved light signals or visual markings indication that turns should be made to the right, in which case the pilot must make all turns to the right; and pilots of helicopters must avoid the flow of fixed-wing aircraft (14 CFR Part 91.126).
- c) The FAA and Airman's Information Manual (AIM) recommends the following procedures for fixed-wing entering the traffic pattern at uncontrolled airports:
 - i. Enter the traffic pattern in level flight, abeam the midpoint of the runway, at traffic pattern altitude (TPA).
 - ii. Maintain pattern altitude until abeam the approach end of the landing runway on the downwind leg.
 - iii. Complete the turn to final approach at least one-quarter mile from the runway.
 - iv. If parallel runways exist, do not overshoot final or continue on a track which will penetrate the final approach of the parallel runway.

3. Departure Procedures – Communications

- a) Pilots of departing aircraft will select the designated CTAF or ATC assigned frequency, establish and maintain communications, or make self-announced broadcast prior to taxiing, and announce their departure intentions on the appropriate frequency prior to taxiing onto the active runway and prior to take-off roll.
- b) Communication will include runway departing, direction of flight after departure, current altitude and altitude climbing to, and any other information the pilot deems necessary to ensure a safe outcome of the departure.
- c) **Sterile cockpit procedures will be maintained at all times while 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.**
- d) The CTAF or ATC assigned frequency will continue to be monitored until the aircraft is at least 10 miles from the airport except when FAR's or local procedures require otherwise.

4. Uncontrolled Airport Departure Procedures

The FAA and Airman's Information Manual (AIM) recommend the following procedures for fixed-wing aircraft when exiting the traffic pattern at an uncontrolled airport:

- a) On takeoff, maintain runway heading until beyond the departure end of the landing runway.
- b) If remaining in the traffic pattern, begin the turn to crosswind beyond the departure end of the runway and within 300 feet of pattern altitude.
- c) If departing the traffic pattern, continue straight out or exit with a 45-degree left or right turn beyond the departure end of the runway after reaching pattern altitude.
- d) If parallel runways exist, do not continue on a track which will penetrate the departure path of the parallel runway.

5. Sterile Cockpit

- a) *Sterile cockpit procedures will be maintained, whenever feasible, within 5-miles of all airports whether controlled or uncontrolled.*

6. Exception to Sterile Cockpit Requirement

- a) There may be occasions when there is a fire within 5 miles of an airport making it impossible to maintain the sterile cockpit. Under these circumstances, the departing aircraft will maintain a sterile cockpit until departing of the traffic pattern and reaching final altitude, at that time performing any mission required communications. The pilot will continue to monitor the CTAF frequency until engaged in the firefighting activity, but should continue to monitor the CTAF if feasible.
- b) Upon completing the fire mission or being released from the fire, the pilot will immediately select and monitor the CTAF frequency, if not already monitoring it. Maintain a sterile cockpit as soon as practical, but no later than upon entering the traffic pattern

7. Definitions

a) Uncontrolled Airport

Any airport that does not have an operation control tower. This includes airports at which control towers operate only during certain hours and is considered uncontrolled when the tower is closed.

b) Sterile Cockpit

Procedures by which the crew of an aircraft do not perform any conversations between each other, with other aircraft or with any ground activity that are not directly related to flying the aircraft in a safe manner. Normally this would consist of reading checklists, communication with Air Traffic Control (ATC), Flight Service Stations, a Unicom, or other aircraft with the intent of ensuring separation from other aircraft or complying with ATC requirements. Ordering fuel, ground services, or checking with the dispatch facility should not be accomplished during this time.

APPENDIX M

Pilot Briefing and Orientation

Appendix M: Pilot Briefing and Orientation

- A. This is an outline for the Local Base Supplement that discussed the areas of operation and safety. The outline should be briefed to all Airtanker, ASM/lead plane and Air Tactical Group Supervisor Flight Crews upon their arrival at the beginning or the season. A package should also be put together to hand to the flight crews. This information may include:
1. Noise abatement procedures as they pertain to each particular base
 2. Contact frequency charts and lists for all local cooperators
 3. Agency maps
 - a) USFS and Ranger Units
 - b) BLM Field Offices
 - c) NPS
 - d) Refuges
 - e) Miscellaneous maps
 4. If Class B, current Class B Chart, NOAA
 5. If Military co-located, local procedures, Discuss with local military units
 6. Local Communications
 - a) Local communications system base and repeaters
 - b) Frequencies, call signs, and identifiers
 - c) Lead plane communications and communication procedures
 - d) Incident communication plan
 - e) Airfield and Airtanker Base communications

7. Dispatching Procedures

- a) Use of the incident information – Tactical Fixed-Wing Form
 - i. Verification of flight times at home bases and when at an alternate base
 - ii. Schedule for submission of flight use reports
- b) Prominent local landmarks
- c) Local radio navigational aids
- d) Local dispatch organizations and locations
- e) Regional dispatch organization and procedures
- f) Local dispatch procedures from initial report to dispatch of aircraft
- g) Flight following, check-in requirements
- h) Zones of influence and/or exchange areas
- i) Fuels and fire behavior common to the area

8. Contact Administration

- a) Payment procedures
- b) Contract administration procedures
- c) Contract administration Organization (CO, COAR, COR, PI)
- d) Pilot standby and availability hours, off-duty scheduling and mean of contact
- e) Dispatch times, unavailability for failure to meet requirements
- f) Maintenance scheduling
- g) Meal policy

9. Base Operations

- a) Type of retardant in use
- b) Loading/pumping equipment capabilities
- c) Aircraft parking locations and procedures
- d) Local hazards with accompanying maps
- e) Military Training Routes and operations areas
- f) Airport hazards: ramps, runway, approach, and departure
- g) Pilot duty day and flight time limitations
- h) Safe engine operations (run-up procedures)
- i) Proficiency flights
- j) Weather, time of day limitations for flight activities, or military operations (if collocated)
- k) Flight plans, including check-in requirements
- l) Crash-Rescue Plan
 - i. Single engine-engine out procedures
 - ii. Emergency field and crash rescue equipment
- m) ASM/lead plane procedures and other operations
- n) Any other item that is specific to the base and its operations

REFERENCE SECTION

References for Publications and Website Information

REFERENCES

- Aircraft Rescue and Fire Fighting, 3rd Edition, International Fire Service Training Association, Oklahoma State University, 1992, ISBN No. 0-87939-099-9.
- Aircraft Use Report, OAS-23 (9/91). USDI Office of Aircraft Services. (All NFES fire caches stock this form; order NFES # 0406).
- Interagency Airtanker Base Planning Guide, 3rd Edition. National Wildfire Coordinating Group, Fire Equipment Working Team, 1995. National Interagency Fire Center, ATTN: Supply, 3905 Vista Avenue, Boise, ID 83705. Order NFES # 1259. Not recommended until revised in 2002.
- Aviation Mishap Information System (AMIS) Incident/Aviation Hazard/Maintenance Deficiency Report, OAS-34 (3/92). USDI Office of Aircraft Services, Box 15428, Boise, ID 83715-9998.
- SAFECOM, FS-5700-14, OAS-34. 205
- Cumulative Aircraft Use/Payment Summary, FS-6300-49 (3/94). USDA Forest Service.
- Flight Use Report, FS 6500-122 (8/95). USDA Forest Service. (All NFES fire caches stock this form; order NFES #0878)
- Initial Report of Aircraft Mishap., OAS-77 (5-93). USDI Office of Aircraft Services, Box 15428, Boise, ID 83715-9998
- Interagency Contract Information for Airtanker, Helicopter, Large Transport, and Smokejumper Aircraft. USDA Forest Service, National Contracting Office. Revised annually. National Interagency fire Center, ATTN: Supply, 3905 Vista Avenue, Boise, ID 83705. Order NFES #277 for the Test pages; order NFES #2276 for the binder.
- Lot Acceptance, Quality Assurance, and Field Quality Control for Fire Retardant Chemicals. National Wildfire Coordination Group, Fire Equipment Working Team, 1995. National Interagency Fire Center, ATTN: Supply, 3905 Vista Avenue, Boise, ID 83705. Order NFES #1245.
- Interagency Airtanker Base Directory. National Interagency Fire Center, ATTN: Supply, 3905 Vista Avenue, Boise, ID 83705. Order NFES #2537 for the text pages. Annually updated.
www.fs.fed.us/fire/aviation/basedir.html
- Interagency Airspace Coordination Guide. Interagency Airspace Committee. USDI Office of Aircraft Services. Box 15428, Boise, ID 83715-9998
- National Interagency Mobilization Guide, National Interagency Fire Center, National Incident Coordination Center. Revised annually. National Interagency Fire Center, ATTN: Supply, 3905 Vista Avenue, Boise, ID 83705. Order NFES #2091
- National Long Term Fire Retardant Requirements Contract. USDA Forest Service, National Contracting Office, 3905 Vista Avenue, Boise, ID 83705. Revised annually. www.fs.fed.us/business/nifc.htm
- Resource Order-Aircraft, ICS 259-1 (7/87). National Interagency Fire Center, ATTN: Supply, 3905 Vista Avenue, Boise, ID 83705. Order NFES #2200.

USDA/USDI Aircraft Radio Communications and Frequency Guide. USDA Forest Service. National Incident Radio Support Cache, Avionics Section. 1989. National Interagency Fire Center, ATTN: Supply, 3905 Vista Avenue, Boise, ID 8.705. Order NFES # 0969 for the guide; order #2969 for the annual supplement.

USDA Forest Service Manual 5700. USDA Forest Service, National Aviation Operations, NIFC, 3905 Vista Avenue, Boise, ID 83705

USDI Departmental Manual 350-354 Aviation Management (including 351 DM 1 Aviation Fuel Handling Handbook). USDI Office of Aircraft Services, Box 15428, Boise, IF 83715-9998

AVAILABLE WEBSITES

- www.wildlandfire.com Multiple fire links
- www.aviation.fs.fed.us Aviation Safety Homepage
- www.faa.gov Federal Aviation Administration
- www.nts.gov National Transportation Safety Board
- www.oas.gov . Office of Aircraft Services
- www.noaa.gov . NOAA Weather
- www.fs.fed.us/fire/aviation Forest Service Fire& Aviation
- www.aerounion.com Aero union Corporation
- www.airtanker.com Associated Airtanker Pilots
- www.fs.fed.us/fire/fire_new/aviation Aviation web page
- www.fs.fed.us/r6/fire/aviation/airspace Interagency airspace Coordination (AP/1B)
- www.nifc.gov/contracting Aircraft contracts
- www.oas.gov/dam/seat/seat Seat contracts, source lists
- www.fs.fed.us/rm/fire/aerial_delivery Aerial Delivery Systems (Drop guides and Retardant info.)
- www.fs.fed.us/rm/fire/wildland_chemicals Retardant Information
- www.atp.com/ad Aircraft AD notes
- www.weather.com Weather Channel
- www.fs.fed.us/fire/planning/nist/amia IAMS Initial Attack Management System
- www.neptune Neptune Aviation
- <http://164.214.2.111/products/digitalaero/dafifindex.cfm> direct link AP1B
- www.aviation.fs.fed.us/carding/index.asp Direct to Aircraft database
- www.fs.fed.us/fire/fire_new/av_safety/safecomms/index.html direct to Safecomms
- <http://www.avweb.com/newswire/news024ob.htm> Aviation web news
- <http://www.aviationnow.com> aviation news

www.landings.com aircraft database

www.justhelicopters.com Helicopter and helicopter pilot info

<http://airspace.blm.gov> BLM Temporary Flight Restrictions (try the map you will like it)

<http://iat.nifc.gov/> Interagency Aviation Training

<http://www.fs.fed.us/r1/pgr/fireinfo/index.html> (then go to state type in Montana NRCC , then to Aircraft Forms)
good source of aircraft forms

<http://www.fs.fed.us/r6/fire/aviation/cor/seat/> Seat site

<http://aff.nifc.gov> Automated flight Following

www.osha.gov/index.html OSHA Website

<http://www.labsafety.com> Lab Safety and supply

<http://www.jkeller.com> JJ Keller & Associates

<http://www.cornerstonedirect.com> Cornerstone Direct Corporation

<http://www.chem-stor.com> Ideal Environmental Products and Services

www.conney.com Conney Safety Products

AGENCY GUIDANCE

