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BUREAU OF LAND MANAGEMENT
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To: State Directors

From: Director, Office of Fire and Aviation

Subject: Draft - *Aerial Supervision Module Operations Guide* Due Date: 12/08/00

Attached is the draft *Aerial Supervision Module Operations Guide*. This draft was developed to define Aerial Supervision Module operations and crew training requirements. The contents of the guide were developed during an Interagency Aerial Supervision Module Workshop that was conducted the week of October 30, 2000.

Each State Aviation Manager should review and provide comments to Rusty Warbis, Flight Standards Pilot, National Aviation Office, at (208) 387-5185, by December 8, 2000.

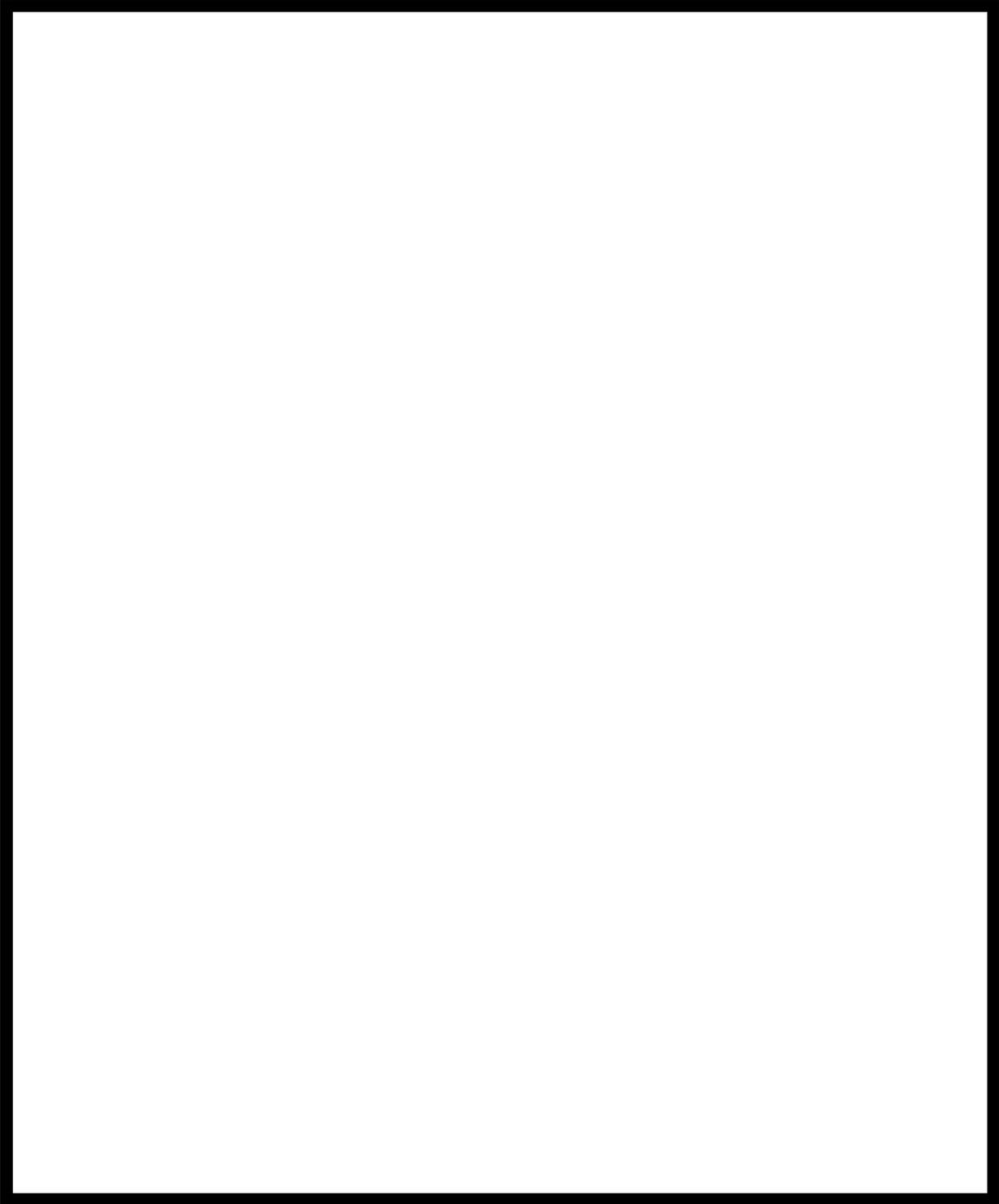
Any questions should be directed to Rusty Warbis.

Signed by:
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Acting Director, Office of Fire and Aviation

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1 - Attachment

1 - Draft *Aerial Supervision Module Operations Guide* (26 pp.)



Preface

Mission Statement

The Aerial Supervision Module is dedicated to total support of ground and aerial firefighters while maintaining safe, efficient and effective operations.

Concept of Operations

The Aerial Supervision Module (ASM) program was developed based on recommendations for ASM1 operations in the national TARMS and TMOT report.

The ASM is a fixed wing platform that utilized both crewmembers to perform the functions of traditional air attack and may when necessary perform low level operations including lead profiles. The Module requires crewmembers that are trained to operate as a team, utilizing crew resource management skills and techniques to enhance safety, efficiency and effectiveness. Module operations require a fluid relationship between crewmembers that incorporate task sharing and coordination. The ASM provides aerial supervision and leadership in support of incident objectives.

Participating Agencies

USDI - Bureau of Land Management (USDI-BLM)

State of Alaska, Division of Forestry

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Objectives

The purpose of this document is to:

- Define and standardize ASM roles and responsibilities.
- Define standard operational procedures of ASM.
- Define and standardize Air Tactical Pilot ASM training requirements.
- Define and standardize Air Tactical Supervisor ASM training requirements.
- Facilitate interagency cross-utilization of ASM resources.

Scope

The standards and procedures contained in this guide apply to ASM operations conducted by participating agency providers and users.

Authority

The aviation manuals of participating agencies contain the authority to publish this guide.

Objective

Define individual roles and responsibilities of each ASM crewmember.

Introduction

Each crewmember has specific duties and responsibilities that fall within their area of expertise. These vary in scope based on the mission and task loads of each crewmember. The Air Tactical Pilot (ATP) is the aviation expert and is primarily responsible for aircraft coordination over the incident. The Air Tactical Supervisor (ATS) develops strategy in conjunction with the Incident Commander (IC), and when no IC is present assumes those responsibilities.

Air Tactical Pilot (ATP)

The ATP works in a team concept with the ATS by soliciting input and sharing information regarding aerial fire suppression assets, operations, performance, and safety (incorporates CRM skills). Specific roles and responsibilities include but are not limited to:

- Safely piloting the aircraft in all modes of flight
- Assures the aircraft is ready for dispatch and mission capable
- Provides airspace coordination and air traffic management over the incident
- Surveys the incident for hazards to insure the safe operation for all aircraft
- Provides input to the ATS on overall aviation strategy and tactics to support the mission objectives
- Establishes communications with aircraft approaching and operating over the incident and insures compliance with the communications plan
- Assigns tactical fixed wing and rotor wing aircraft to specific tasks based on action plan and aircraft limitations
- Insures that the tactical aircraft pilots understand the overall strategy and tactics of the action plan
- Gives direct supervision to air tankers and provides lead, chase, and show-me profiles.
- When task overload is recognized by either crewmember an offer and/or request for assistance will be made.

Air Tactical Supervisor (ATS)

The ATS works in a team concept with the ATP by soliciting input and sharing information regarding aerial fire suppression assets, operations, performance, and safety (Incorporates CRM skills) Specific roles and responsibilities include but are not limited to:

- Assures that appropriate information for the assignment is gathered
- Evaluates and recommends resource needs at the incident
- Maintains communications with incident personal and dispatch organizations and monitors ATP aircraft coordination.
- Develops strategies, applies tactics, and makes logistical recommendations in support of incident objectives
- Recommends temporary flight restrictions when appropriate
- Develops, recommends, and implements a communication strategy for air-to-air and air-to-ground frequencies
- Coordinates appropriate action on aircraft incidents and accidents that occur under his/her supervision
- When task overload is recognized by either crewmember an offer and/or request for assistance will be made.

Objective

Define operational procedures for the Aerial Supervision Module

Introduction

ASM operations are conducted in demanding flight conditions during periods of high workload. The program utilizes the experience of both crewmembers to create a safe, efficient and effective method of aerial supervision, which requires strict adherence to standardized flight profiles, terminology and mission briefings. The ASM operations will perform within the parameters defined in this chapter.

The ASM is capable of operations in initial attack and large fire support of incident management teams. The crew has the responsibility to determine when the complexity level of the incident, exceed the capability to perform both functions from one aircraft.

Incident Strategy and Tactics

Land managers predetermine strategies for addressing wildfire within their jurisdiction. The Incident Commander will communicate the strategy that will be used. In the absence of an Incident Commander, it will be the responsibility of the ATS to develop these strategies based on local objectives.

Tactical Planning

Tactical planning takes place before flight, enroute, and upon arrival at the incident. Safety of the operation is the first and foremost consideration. Standardized ASM procedures shall be followed. Tactical Planning includes the following items:

- Incident objectives.
- Coverage levels.
- Hazard identification.
- Target description.
- Ground personnel safety.
- Coordination with other incident aircraft.
- Formulating recommendations to support incident strategy and tactics.

Fire Size-Up

The ASM is often the first resource over an incident. It is important to size up the fire and relay the information to dispatch centers and incident commanders who may not be able to size-up the fire from their vantage point on the ground or while en route to the incident. Fire size-up includes the following abbreviated items:

- Estimated size.

- Character of fire.
- Rate of spread.
- Wind direction
- Fuel type.
- Terrain.
- Remarks.

Tactical Considerations

A reconnaissance will be done prior to descending to low level. Study the fire to analyze the potential for spread. Look for fuel breaks and road access to the incident, etc. Be watchful for adverse conditions that need to be relayed to the Incident Commander, other ground forces and airborne resources. Formulate a tactical plan to recommend to the Incident Commander, or initiate the plan if the Incident Commander is not yet on scene.

ASM Low Level Operations

Low level flight operations will be conducted as required. Situational awareness is the responsibility of both crewmembers to ensure safe flight operations. These operations will be conducted in the following manner.

High Level Reconnaissance

- Will be executed prior to descending to low level.
- Look for aircraft over the incident including media and non- participating aircraft.
- Analyze the terrain. Identify potential approach and departure paths and prominent target identification features. Fly the patterns at altitude to detect hazards. Study the lay of the land, drainage's, etc. to facilitate emergency exits.

Low Level Reconnaissance

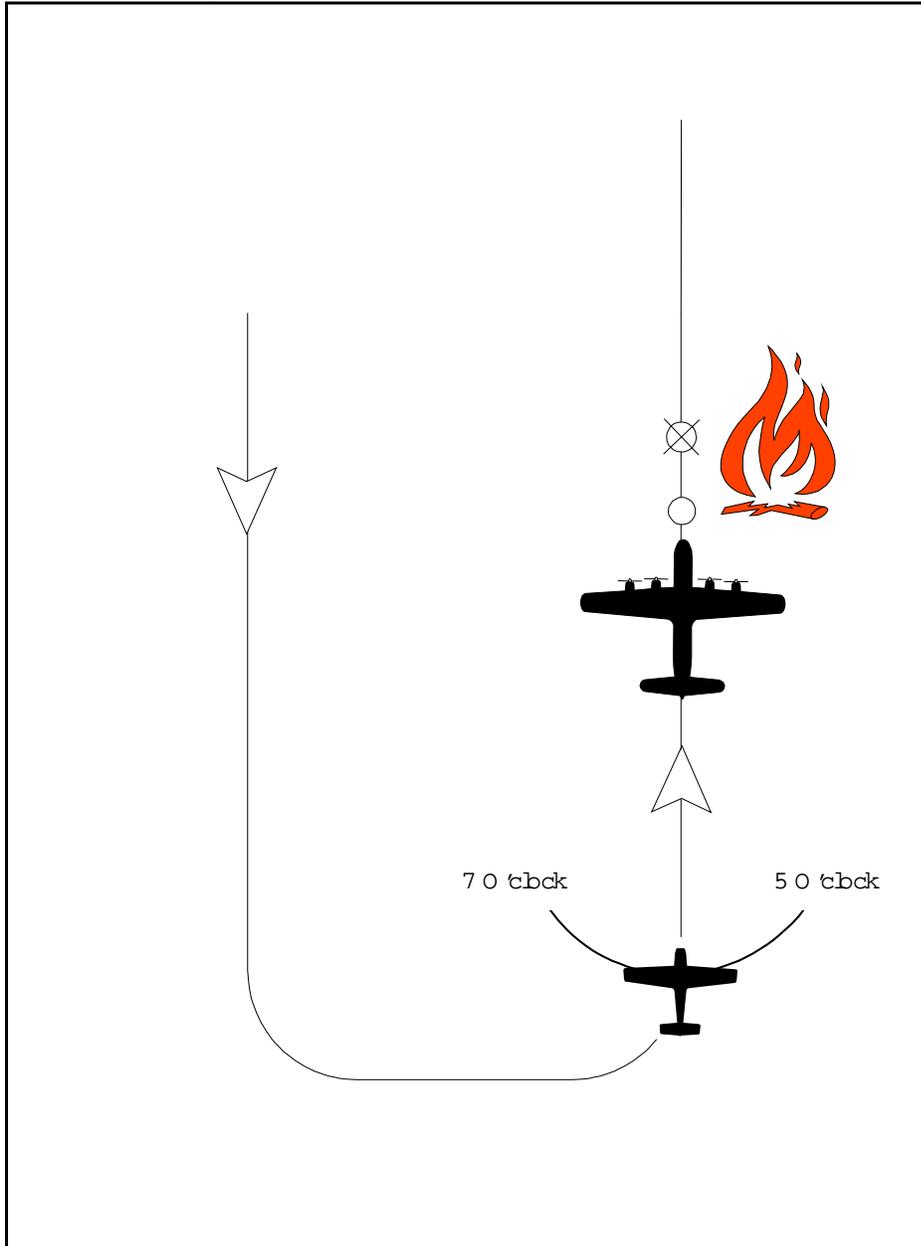
- Check for turbulence, hazards to low-level flight, and low level target identification features. Fly the emergency exit paths to locate potential hazard not identified from a higher level.

ASM Tactical Flight Checklists

The ASM aircraft shall be configured for tactical flight operations in accordance with the checklist specific to the aircraft being flown. Tactical checklists shall be completed before low-level flight is conducted.

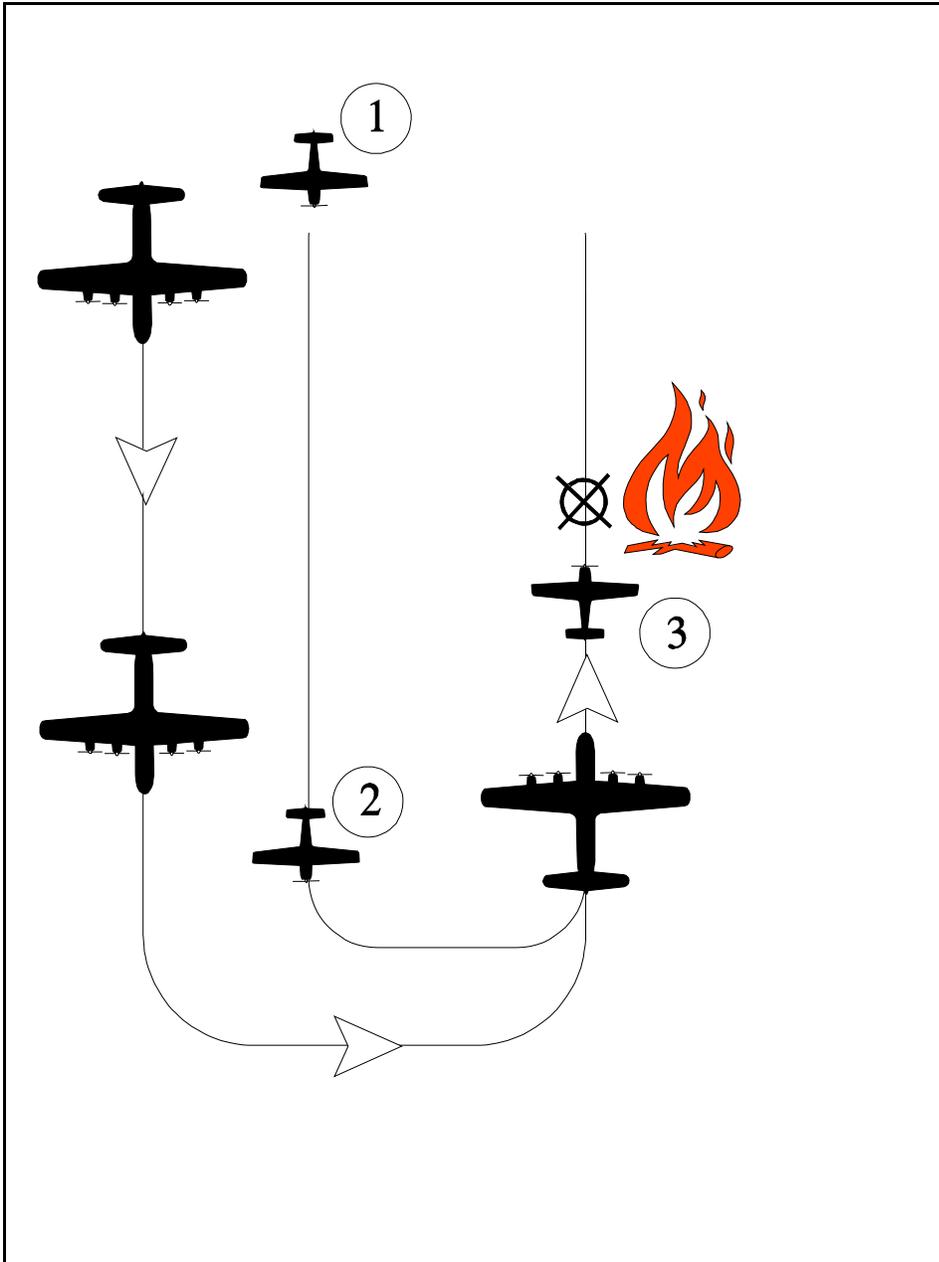
Chase Position Profile

An observation position in trail of and above the airtanker at a position of 5 to 7 O'clock. The Chase Position Profile is used to verbally confirm or adjust the airtankers position on final and to evaluate the drop.



Lead Profile

A low-level (below 500' AGL) airtanker drop pattern, made with the leadplane approximately 1/4 mile ahead of the airtanker. The Lead Profile should only be used when the line or start point is difficult to see or to describe due to lack of visibility or references and at the Airtanker Crews request.



On-Scene Briefings

The ATP and ATS will brief airborne and ground resources as follows:

Briefing Type	Air to Air	Air to Ground
Initial	<ul style="list-style-type: none"> - Initial position/other aircraft* - Altitude/Altimeter Settings* - Hazards* - % of load and coverage level 	<ul style="list-style-type: none"> - Flight following - Tactical coordination - Prioritize objectives
Tactical	<ul style="list-style-type: none"> - Target description/objectives - Drop headings/altitudes - Hazards - Exit - Drop clearance 	<ul style="list-style-type: none"> - Line clearance - Notification of aerial tactics - Dry run/Live run
Post Drop/ Departure	<ul style="list-style-type: none"> - Drop evaluation - Reload instruction 	<ul style="list-style-type: none"> - Request drop evaluation - Additional needs - Flight following

* Required briefing for all aircraft arriving on scene.

MAFFS Operations

MAFFS operations will be conducted as per national program policy.

Resource Status and Identification

ASM resources status and identified will be reported in the following manner:

Tactical Aircraft Report

NICC and area GACC's will status the ASM crews as a specific resource. The ATPs national designator will be used (Example: ASM B-4) to identify the operating agency and crewmember. The ASM resource will be separated in the report from both Lead Planes and Air Attack aircraft.

Radio Identification

Each agency operating an ASM will be assigned an alphabetical designator and each pilot operating within that agency is issued a numeric designator. ASM will identify themselves to aircraft, dispatch, and ground forces in the following manner. B-4, “B” indicates that it is a BLM ASM and is operated by ATP-4, listed in the National Interagency Mobilization Guide.

Base of Operation

It is recommended that the ASM base of operations be at an air tanker base. This allows for the briefing and post mission de-briefing with the tanker crews and air tanker base personnel. (See National & GACC Mob-Guides)

Crew Utilization other than ASM Configuration

ASM crewmembers will not be separated from their ASM assignment for the utilization of individual roles. When a portion of the module is unavailable (aircraft/crew member) the remaining assets may be used per the following limitations. ASM operations have priority over all other assignments. The ASM is not to be used as a conventional Air Tactical Group Supervisor (ATGS) training platform.

ATP Solo Lead plane missions

Agency program manager authorization is required before an ATP can operate in a single crew leadplane function.

Aircraft Crewed With ATP and ATGS

If the ASM aircraft is staffed with an ATGS (non-ATS qualified) the resource is limited to conventional air attack. In this configuration low-level flights are NOT authorized. Normal “roles and responsibilities” of the ASM are no longer applicable. The status of the resource is now listed as “air attack”.

Authorized Personnel Onboard ASM

The following positions are authorized to be on board the aircraft during ASM operations:

- Air Tactical Pilot / Air Tactical Pilot Trainee
- Instructor Pilot / Check Pilot
- Air Tactical Supervisor / Air Tactical Supervisor Trainee
- Other personnel must be authorized in writing by the agency program manager and approved by the flight crew.

Objective

Define training and qualification standards for the Air Tactical Pilot, Instructor Pilot, and Check Pilot.

Documentation of Training

Training folder

The pilot is responsible for maintaining his individual training folder. The training folder must include:

- Course completion certificates
- Copy of the initial training plan
- Record of ground and flight training including documentation of corrected deficiencies.
- Sign-off documenting completion of each phase of tactical flight training
- Authorizations and endorsements issued by Agency Program Manager.

Task Book

The pilot's supervisor initiates the task book after the initial review and training recommendations. The Mentor maintains the document to track progress and ensures all the required training has been completed.

Initial Review and Evaluation

Once an employee is designated as an ATP trainee the Supervisor, Mentor and Agency Program Manager review and evaluate the individuals flying and wildland fire experience. The supervisor initiates the individual's task book, documents the panels training recommendations and forwards a copy of the recommendations to the ATP/Leadplane Check Pilot Cadre. The ATP trainee carries a copy of this document in the training folder. The training folder must accompany the ATP trainee during all modes of training.

Mentor Program

Each ATP trainee is assigned a Mentor by the supervisor. Mentors are employees with a minimum of two seasons experience as an ATP/Leadplane Pilot and are responsible for the following:

- Assists in the development of training plan for the trainee
- Tracks the trainees progress in the task book and ensures that all training requirements are scheduled in a timely manner.
- Assists the trainee in solving problems regarding agency requirements and trainee needs.
- Serves as the training evaluator working in conjunction with the instructors to ensure that any

- deficiencies encountered during training are corrected.
- Completes a record review of the candidate's training folder and task book prior to the final evaluation to ensure that all requirements have been met.
 - Forwards the completed training package to the Agency Program Manager for endorsement and schedules the final check ride.

Air Tactical Pilot Training Syllabus

Training includes all of the following except when it is altered by the Initial Review Panel before training begins.

STAGE	GROUND TRAINING	FLIGHT TRAINING
Prerequisites	Aircraft Systems/Ground School	<ul style="list-style-type: none"> - Current agency VFR and IFR check in aircraft to be flown - 5 hours as PIC, make and model and type, if required, within the last 90 days
Phase 1	<p><u>Organizational</u> I-200 Basic ICS S-290 Intermediate Fire Behavior S-378 Air Tactical Group Supervisor</p> <p><u>Operational</u> Air tanker Base Operations Dispatch Operations ASM/CRM Training</p>	<ul style="list-style-type: none"> - Minimum of 10 hours' flying, assisting in flight or observing in flight, actual air tactical fire missions - Minimum of 5 hours' tactical flight training comprising low-level flight, mountainous terrain, tactical proximity flight and leadplane simulations - Progress and flight review conducted by a current ATP including all activities covered under Phase 1 and a re-evaluation of the candidate's training plan to strengthen any weak areas, prior to advancement to Phase 2 - OAS Low Level Checkride
Phase 2	<p><u>Organizational</u> S-270 Basic Aviation Operations National ASM Standardization</p>	<ul style="list-style-type: none"> - Minimum of 10 hours' observation of ASM/Lead-in missions during air tanker operations on actual fires (mixed with the mission requirements in this Phase) - Minimum of 15 missions that include lead in operations as the flying Pilot and supervised by a ATP Flight Instructor during air tanker operations, on actual fires of varying size and complexity
Phase 2 Continued	<p><u>Operational</u> Helicopter Operations</p>	

	Fireline Operations & Tactics	- Flights as observer in a variety of air tankers- Phase check consisting of an oral examination covering all Phase 2 activities and a flight review on an actual fire. The flight review is conducted by a ATP Check Pilot to identify problem areas
Phase 3	None	<ul style="list-style-type: none"> - Minimum of 25 total fire missions including Phase 2 as the Flying Pilot supervised by a ATP Instructor Pilot during air tanker operations on actual fires of varying size and complexity and state/regional locations - Final progress check and recommendation by a ATP Instructor Pilot upon completion of the Phase 3 mission requirement, consisting of an oral review of all aspects of ATP operations and assurance that all deficiencies have been corrected and the corrections are documented - Complete records review of the candidate's training folder and task book by the Mentor to determine that all requirements have been met and signed. The Mentor presents the completed package to the agency program manager for endorsement and schedules the final evaluation with a nationally qualified ATP check pilot

Air Tactical Pilot Qualification Flow Chart

- | |
|---|
| <ul style="list-style-type: none"> - Mentor Assigned - Initial Review & Evaluation - Task Book Initiated |
|---|

- | |
|--|
| Flight Training Prerequisites |
| <ul style="list-style-type: none"> - Current Agency VFR/IFR Sign-off - 5 hrs PIC in make & model in the last 90 days |

Phase 1

Organizational Training	Operations Training	Flight Training	Phase 1 Completion
I-200 S-290 S-378 Initial ASM / CRM	Air tanker Operations Dispatch Operations	- 10 hours ATS/ ATGS - 5 hours ASM simulations - OAS Low-Level endorsement - Progress review by ATP	Phase one completion signed off by reviewing ATP

Phase 2			
Organizational Training	Operations Training	Flight Training	Phase 2 Completion
S-270 ASM Standardization	Helicopter Operations Fireline Operations / Tactics	- 10 hours observing actual ASM/Lead-In missions during air tanker operations - 15 missions minimum flying with ATP Instructor Pilot - Observer on various air tankers during drops - Progress check with ATP Instructor Pilot	Phase 2 completion signed off by ATP Check Pilot

Phase 3			
Flight Training	Final Check Ride	Authorization	Post Qualification
- 25 total fire missions including Phase 2 - Out of area/region experience - ATP Instructor Pilot recommendation and review - Records review by Mentor and forward to agency program manager - Final checkride scheduled by the Mentor	- Final Checkride by ATP Check Pilot	- Letter of Authorization issued by the agency program manager to allow ATP operations	- Post-authorization Training Plan (within two years) - MAFFS (If required by agency) - Aerial Retardant and Use

Currency

Recent Experience

The ATP will perform at least 30 lead missions in a 3-year period. Pilots not meeting this requirement shall pass a flight check on an actual ASM mission, where a lead is performed, with an ATP Check Pilot.

Annual Recurrent Training and Checks

Ground training shall include:

- Target Description Exercise
- Safety Review
- Communications
- Tactics
- Incident Command System
- Pre-season Update
- ASM /CRM refresher

Flight Training will include:

- Fire Size-up
- Target description
- ATP Tactical Flight Training
- Communications
- Escape Routes
- Emergency Procedures
- ASM/CRM refresher simulation

All ATPs will pass a competency check annually by an ATP/Leadplane Check Pilot

All ATPs will attend National ASM/Lead Standardization Recurrent Training every four years.

ATP Flight Instructor Requirements

Qualifications

- Current ATP/Leadplane Pilot with a minimum of two seasons experience after initial qualification.
- Multi-Regional and Southern California experience

Nomination Process

The agency ATP program coordinator, in conjunction with the ATP/Leadplane Check Pilot Cadre, will nominate pilots who meet the qualifications and whom they consider to have the experience, aptitude, dedication, and ability to perform the duties of an ATP Flight Instructor. The nominee's name will then be forwarded to the agency program manager for approval.

Certification

Pass an ATP Flight Instructor oral and flight check administered by an ATP/Leadplane Check Pilot (persons qualified as Leadplane Instructors under the provisions of the ILOG meet the Instructor Pilot qualifications of this section).

Currency

- Shall maintain lead currency as per ILOG/ASM operations guides.
- Shall maintain MAFFS currency (If required by operating agency)
- Biannually pass an ATP/Leadplane Flight Instructor oral and flight check administered by an ATP/Leadplane Check Pilot.

ATP Check Pilot Requirements

Qualifications

- A minimum of five years ATP/Leadplane experience
- A minimum of three years as an active ATP/Leadplane Instructor Pilot
- Possess the appropriate FAA Flight Instructors Certificates.

Nomination Process

The agency ATP program coordinator, in conjunction with the ATP/Leadplane Check pilot Cadre, will nominate pilots who meet the qualifications and have demonstrated that they have the ability to train and evaluate ATP in accordance with these requirements. The nominee's name will then be forwarded to the agency program manager for approval.

Certification

Pass an ATP Check Pilot standardization ride administered by an ATP/Leadplane Check Pilot (persons qualified as Leadplane Check Pilot under the provisions of the ILOG meet the Check Pilot qualifications of this section).

Training

Attend the biannual ATP/Leadplane Check Pilot Cadre meeting

Currency

- Shall maintain ATP/Leadplane currency
- Shall maintain MAFFS currency (If required by agency)
- Shall maintain ATP/Leadplane Flight Instructor currency

Objective

To establish the qualification and training requirements necessary to perform as an Air Tactical Supervisor attached to an Aerial Supervision Module that performs low-level flight profiles.

Documentation of Training

It is the responsibility of the ATS to maintain and update a training and experience folder to include:

- Course completion certificates
- ATGS Task Book completed and signed off
- Annual update of experience to agency specific Incident Qualification and Certification System
- Documentation of initial ASM in-flight training
- Documentation of annual ASM in-flight recurrent training
- Documentation of completion of ASM/CRM training
- Documentation of demonstrated ability to perform aerial supervision during low level-flight profiles
- Authorization and endorsement as ATS by instructor

Initial Training and Evaluation

Candidates will be reviewed and selected by Agency Fire and Aviation Management Representatives. The selection board will review the candidate's wildfire and aviation experience, leadership and supervisory skills. The minimum fire qualification for an ATS trainee is Division/Group Supervisor. Recommended selection criteria should also include demonstrated ability to perform during low-level tactical flight profiles.

Initial training for ATS trainees will be individually developed by the supervisor and agency program lead. The supervisor will initiate an ATGS task book if the employee is not a qualified Air Tactical Group Supervisor. A qualified ATS will assist with and oversee the candidate's training. Upon successful completion of all tasks and skills that are required for ATS, the supervisor and qualified ATS must both recommend certification. The Agency ASM program manager will be notified upon certification of an ATS.

Recurrent Training

Annual recurrent training is to provide qualified ATS with aircraft familiarization, ASM crew resource management training and mission refresher exercises. Qualified ATS will complete ASM/CRM training/refresher to include aircraft orientation and mission simulations.

ASM / CRM Training

The ATS and the ATP attend as a team. Completion of ASM/CRM training is required prior to a low-level ASM being operational. Relief ATS will attend ASM/CRM training. All agencies conducting ASM operations must conform to the standards in this guide.

Air Tactical Supervisor Training Syllabus

ATS trainee Phase 1	
Requirement	Target
- NWCG 310-1 (S-378) ATGS Minimum-DIVS	N/A
- ATGS Task Book	As performed (minimum 10 mission hours)
- Performance as stand alone ATGS	Multiple missions with varying complexity
ATS trainee Phase 2	
Requirement	Target
Qualified ATGS	N/A
CRM/ASM training	First year
CRM/ASM refresher	Annual qualification
Post ATS Qualified Recommendations	
Training Recommendation	Target
Private Pilot Ground School	First year
S-430 Operations Section Chief	Within 3 years of qualification as ATS
Current in line qualifications	Every 3 years
S-420 Command and General Staff	Within 4 years of qualification as ATS

* If currently qualified as an ATGS, Phase I would be waived

Recommendations

Annual short-term assignments with local Initial Attack forces should be secured to maintain perspective and enhance credibility and relevance with users.

Current in line qualifications includes but is not limited to Initial Attack IC, Type III IC, Strike Team/ Task Force Leader, Division Group Supervisor, and Crew Boss.

