



OPERATIONS AND SAFETY PROCEDURES GUIDE FOR HELICOPTER PILOTS



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INTRODUCTION

The U.S. Forest Service (USFS) uses rotary-wing aircraft extensively for transportation of personnel and natural resource special use activities including fire protection roles on a variety of public lands. This guide was prepared to help Exclusive Use (EU) and Call When Needed (CWN) contract pilots understand the operations of these programs and to familiarize pilots with USFS Aviation and Safety Regulations and Policies. Additionally this guide is designed to emphasize the pilot's responsibility and authority and the important role they have in these types of aviation operations. These types of flight missions operate in a sometimes hostile natural environment, and safety demands competent personnel, adequate equipment, and adherence to all operational requirements.

It is imperative that all pilots have thorough knowledge of the contract requirements under which they are working. The vendor represented has a contractual agreement to meet the requirements of the contract carried aboard the aircraft. Familiarity with this document will ensure a professional and productive relationship between the company and the Government.

POLICY

In compliance with USFS policies, sexual harassment is unacceptable and will not be tolerated. Sexual harassment is detrimental to morale, performance and the conduct of government business. Certain forms of sexual harassment constitute gender discrimination prohibited by Section 703 of Title VII of the Civil Rights Act of 1964, as amended.

1.1 AUTHORITY AND RESPONSIBILITY

- 1) Regardless of any status as a Public Use aircraft operation, the pilot shall operate in accordance with his/her company's approved FAA Operations Specifications and all portions of 14 CFR 91 (including those portions applicable to civil aircraft) and each certification required under the Contract, unless otherwise authorized by the Contracting officer (CO).
- 2) The pilot is responsible for operating the aircraft within its operating limitations, as well as the safety of the aircraft, its occupants and cargo. No helicopter will be operated outside of the manufacturer's recommended flight profile, such as aerobatic maneuvers. Flight profiles such as nap of the earth flying or any flight regime (such as "e-ticket rides") **will not be tolerated**. Pilots flying in this manner will be removed from the contract with their card suspended or revoked.
- 3) The pilot shall comply with the direction of the Government except when, in the pilot's judgment, such compliance will be a violation of applicable Federal or State regulations or contracting provisions. The pilot will refuse any flight or situation which he/she considers hazardous or unsafe.
- 4) Each pilot shall operate in accordance with the requirements of his/her company's FAA approved 14 CFR 133 Rotorcraft-Load Combination Flight Manual (RLCFM), except when those requirements are specifically waived by the CO. A copy of the RLCFM will be kept with the aircraft at all times.
- 5) The pilots will evaluate and approve all missions. On occasions, they may be asked to perform a mission that, in their judgment, is not safe. It is their responsibility to recognize and refuse all such missions. The pilot's word is final as to whether the flight is feasible and can be conducted in a safe and efficient manner. If at any time the passengers and/or helicopter manager feel that the flight or operation should be terminated for safety reasons, it is the pilot's responsibility to honor such requests in a professional manner.
- 6) Before departure the pilot must understand the mission request and have on board the applicable maps and charts. Additionally the pilot is required to be aware of weather forecasts, winds, hazards, temporary flight restrictions and all pertinent information necessary to perform the mission.
- 7) The pilot shall not permit any passenger to ride in the aircraft or any cargo to be loaded therein unless authorized by the contracting officer or his/her authorized representative.

1.2 RISK MANAGEMENT

The Risk Management Process is in place to ensure that critical factors and risk of the work environment are considered during decision making. IHOG risk management utilizes a five-step process:

- 1) Identify the Hazard
 - a) Obtain up to date information.
 - b) Identify hazards.
 - c) Consider all aspects of past, current and predicted conditions and circumstances that may affect the mission.
 - d) Maintain an ongoing awareness of mission objectives and status.
- 2) Assessing the Hazards / Risk
 - a) Assess hazards to determine risks.
 - b) Identify high-risk hazards.
 - c) Assess hazard impact in terms of probability and severity (how likely is the event to occur and what the consequences are if it does).
- 3) Make a Risk Decision
 - a) Decide whether to accept the risk(s) associated with an action.
 - b) Reject the action if risk versus benefit remains unacceptable.
- 4) Implement Controls
 - a) Determine how best to mitigate the risk.
 - b) Establish controls to mitigate the risk.
 - c) Re-evaluate risks versus controls to the point, benefits outweigh the risk
- 5) Supervise / Evaluate
 - a) **Maintain situational awareness at all times.**
 - b) Anticipate consequences of decisions and risk controls.
 - c) Continuously evaluate effectiveness of decisions and risk controls.
 - d) Adjust risk controls as necessary.

1.3 POWER ASSURANCE CHECKS

The first day of operation, and no more than each ten (10) hours of operation thereafter, a power assurance check shall be performed. The power assurance check shall be accomplished in accordance with the Rotorcraft Flight Manual (pilots operating handbook) or approved company performance monitoring program. The results shall be recorded by the pilot and kept with the helicopter for review by agency personnel. Engines with power output below minimum approved limits shall be removed from contract use until the cause of the low power condition is corrected.

1.4 MAINTENANCE

- 1) The contractor will immediately notify the Contracting Officer of any changes of an engine, engine component, power train, flight control, or major airframe component and circumstances inducing the change.
- 2) A test flight shall be performed following overhaul, repair, replacement of any engine, engine component, rotor, rotor component, major airframe component, and flight control before the aircraft resumes services under the contract or agreement.

A USFS or AMD maintenance inspector must be contacted to obtain authorization to return the aircraft to service on the contract or agreement.

- 3) The pilot may perform preventative maintenance in accordance with his/her company's operations specifications.
- 4) A pilot may function as a mechanic when the helicopter is not available due to maintenance, provided the following specifications are met:
 - a) All the qualifications and experience required to act as a mechanic on a contract or agreement including A&P certificates.
 - b) Flight and Duty limitations will apply when functioning as a mechanic.
 - c) Duty in excess of two (2) hours is counted toward the flight hour limitation of the pilot.
 - d) An additional mechanic meeting the contract qualifications and experience is used to accomplish all scheduled maintenance and inspections.

CHAPTER 2 HELICOPTER MANAGEMENT

2.1 PERSONNEL

- 1) Aircraft Dispatcher – National Interagency Coordination Center (NICC)
 - a) Role: The NICC Aircraft Dispatcher is responsible for the mobilization and flight following of Type I and II helicopters until they arrive at the incident.
 - b) All questions concerning the mobilization of Type I and II helicopters should be referred to the Aviation Desk at the NICC. The phone number is (800) 994-6312.

- 2) Aircraft Dispatcher – Agency Level
 - a) Role: The dispatcher coordinates with the Local Unit and is responsible for managing the movement of aircraft and personnel.
 - b) A qualified aircraft dispatcher must be on duty during all Agency flights unless prior arrangements for another approved means of flight following has been made.

- 3) Helicopter Manager
 - a) Role: The Helicopter Manager is responsible for working with Dispatch to establish work schedules and coordinate the use of the helicopter, to monitor vendor compliance with the contract, and to oversee government personnel working with the aircraft.
 - b) The Helicopter Manager acts as the primary liaison and point of contact between the Pilot and the using Agency.
 - c) The use of a Helicopter Manager is required on all agency missions.

CHAPTER 3 OPERATIONAL REQUIREMENTS

3.1 WEIGHT AND BALANCE

It is the pilot's responsibility to ensure that the aircraft is operated within the Gross Weight/Center of Gravity limitations as published in the aircraft's FAA approved Flight Manual.

3.2 LOAD CALCULATIONS AND MANIFESTING

- 1) The Standard Load Calculation Form (AMD-67/FS 5700-17) will be used for all flights.
- 2) The pilot is responsible for filling out all sections as directed in the Load Calculation instructions, as well as ensuring that accurate aircraft weight and appropriate performance charts are utilized in the calculations. For the purpose of computing the Interagency Load Calculation, only current, applicable FAA approved Performance Charts shall be used. No performance enhancing data (Power Assurance Checks, etc) will be authorized. Only FAA approved charts based on minimum specification engine performance shall be used.
- 3) A load calculation will be completed prior to the first flight of the day. Additionally, when conditions change (i.e., altitude, temperature or weight), a new load calculation will be filled out. (IHOG, Chapter 7, Section III, Paragraph B)
- 4) The pilot-in-command shall ensure that a manifest of all crewmembers and passengers onboard has been completed. A copy of this manifest shall remain at the point of initial departure. Manifest changes will be left at subsequent points of departure when practical. In those instances involving frequent changes of passengers, where multiple short flights will be made within a specific geographical area, a single manifest of all passengers involved may be left with an appropriate person to preclude unreasonable administrative burden.

3.3 PERSONAL PROTECTIVE EQUIPMENT

- 1) Pilots shall wear an aviator's protective helmet, with a chinstrap fastened whenever the helicopter is in flight. (A list of approved helmets can be found in the ALSE handbook)
- 2) Pilot shall wear long sleeved flight clothing made of fire resistant polyamide or aramide material, leather boots, and leather, polyamide, or aramide gloves. The shirt, trousers and boots shall overlap by two (2) inched when the pilot is at the controls.
- 3) A personal floatation device (PFD) will be worn by each individual on board the helicopter when conducting operations beyond power-off gliding distance to shore and on all hovering flight operations conducted over water sources such as ponds, streams, lakes and coastal waters. This equipment will be maintained in serviceable condition as appropriate to manufacturers' directions.

NOTE: *Water activated PFD's are not permitted!*

3.4 PASSENGER BRIEFING BEFORE FLIGHT: (FAR 135.117)

Before each takeoff, the pilot in command of an aircraft carrying passengers shall ensure that all passengers have been verbally briefed on, at a minimum:

(It is common practice for Helitack to perform this duty, though the pilot retains responsibility)

- 1) Smoking.
- 2) Use of safety belts and shoulder harness.
- 3) Location of, and means for, opening the aircraft doors and emergency exits.
- 4) Location and use of survival equipment, including the ELT.
- 5) Location and operation of the fire extinguishers.
- 6) Main and tail rotor avoidance.
- 7) Location and operation of fuel and electrical shutoffs.
- 8) When a flight involves extended over water operations, ditching procedures and the use of required floatation equipment.

3.5 CARGO

1) INTERNAL

- a) The pilot shall ensure that all cargo is properly loaded and secured; no loose items are to be carried in the cargo or cabin areas.

Contractor will supply adequate cargo nets, straps, etc .necessary for cargo security.

- b) Hazardous materials must be in approved containers.

Pilot shall assure that all Hazardous Materials are transported in compliance with the Interagency Hazardous Materials Handbook and its exemption. . A current copy of this Handbook and exemption, and the Emergency Response Guide, must remain onboard the helicopter at all times.

2) EXTERNAL

- a) The pilot will ensure that all external load operations are conducted in accordance with 14 CFR Part 133, and the company's rotorcraft external load manual. (Ref. 14 CFR Part 133.47)

- b) The pilot will not allow a passenger or non-essential crewmember to be carried on board during external load operations unless specifically approved by the local "Unit Aviation Manager." (IHOG, Chapter 10, Section I, Paragraph C and Chapter 10, Section IV)

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- c) The pilot shall not allow Class C or D rotorcraft load combination operations to be conducted unless specifically approved by the USFS Regional or National Director of Fire and Aviation, or DOI AMD.

For Class D operations the Contractor must have been awarded a contract for this type of operation and the pilot must pass an evaluation and be approved for the operation by a USFS or AMD pilot inspector.

3.6 CHECKLIST USE:

- 1) The pilot(s) shall use a cockpit checklist in accordance with 14 CFR 135 that is current, appropriate and accessible to the pilot(s) at the pilot station:
 - a) Before starting engines;
 - b) Engine Starting;
 - c) Before takeoff;
 - d) Cruise;
 - e) Before landing;
 - f) After landing;
 - g) Engine shutdown;
- 2) In addition, the pilot(s) of all multiengine aircraft are required to have an emergency cockpit checklist that must contain the following procedures, as applicable:
 - a) Emergency operation of fuel, hydraulic, electrical, and mechanical systems.
 - b) Emergency operation of instruments and controls.
 - c) Engine inoperative procedures.
 - d) Any other emergency procedures necessary for safety.

3.7 FUELING

- 1) Aircraft shall not be refueled with the engine(s) running unless authorized on the aircraft card and requested (authorized) by an appropriate government representative. (See IHOG, Chapter 13, Paragraph VIII, Section C)
- 2) Fuel shall pass through a filtering system as outlined in the contract.
- 3) During fueling operations, the aircraft and fueling equipment will be bonded to prevent static discharge.
- 4) Smoking is prohibited within 50-feet of fuel servicing vehicles, fueling equipment, or an aircraft.
- 5) The pilot shall remain at the flight controls while rotors are turning.
- 6) There will be no passengers onboard the aircraft while fueling.

CHAPTER 4 OPERATING LIMITATIONS AND WEATHER REQUIREMENTS

4.1 MISSION IDENTIFICATION

- 1) Any flight mission conducted at or above 500' AGL, with no descents at any time, (except for takeoff and landings) below 500' AGL, is considered a **General Use** flight.
- 2) A flight mission where any portion of the mission is conducted below 500' AGL is considered a **Special Use** flight. During a *planned general use* flight, the mission type will not change to an *unplanned special use flight* unless the following conditions have been met:
 - a) Required personal protective equipment (PPE) is being worn by both pilot and all passengers. (See Interagency Operations Guide (IHOG), Chapter 9, and Chart 9-1, for specific requirements.)
 - b) Line manager approval is obtained prior to a change in type of flight activity.
 - c) Pilot and aircraft are carded for the special use activity, as verified by either the dispatcher or Helicopter Manager.
 - d) The dispatcher or other point of contact reviews the unit aerial hazard map and other relevant information regarding the area of operations and this information is relayed to the pilot and/or helicopter manager.
 - e) The pilot performs a high level reconnaissance above 500' AGL of the area to identify hazards prior to descending to low-level flight.

4.2 OPERATING LIMITATIONS

- 1) Single engine helicopters will be limited to flight during daylight hours and only under VFR conditions (minimum of one-half mile visibility). Daylight hours are defined as 30 minutes before official sunrise to 30 minutes after official sunset.
- 2) No helicopter may operate with less than a 20-minute fuel reserve.
- 3) Single skid, toe-in and hover (STEP) exits, are prohibited unless authorized by contract and the pilot and personnel are trained and approved for the mission by the USFS or AMD.
- 4) Aircraft equipped with a tail rotor and conducting external load operations (excluding class A loads) will be limited to an airspeed of 80 knots indicated or the airspeed limitation established by the rotorcraft flight manual, whichever is less. All other aircraft conducting external load operations shall comply with applicable Rotorcraft Flight Manual Limitations.

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- 5) When conducting external load operations, rotors will remain above the canopy, or aircraft will operate within an opening no less than 1 ½ times the main rotor diameter (e.g. an aircraft with a 48' main rotor diameter would require a 72' diameter opening).
- 6) Air crew members on board during external load operations will only be allowed when the appropriate conditions are met. (See IHOG, Chapter 10, Section IV, for further information.)
- 7) No helicopter may operate without the required operable communication equipment.
- 8) The Pilot will not permit anyone else to manipulate the controls of the aircraft, unless that person is a U.S. Forest Service or AMD pilot qualified in that aircraft.

4.3 WEATHER RESTRICTIONS

Wind restrictions: (as defined in the IHOG, Chart 6-2)

FLIGHTS ABOVE 500' AGL:

Flights at or above 500' AGL in steady state winds up to 50 knots is allowed for all types of helicopters.

FLIGHTS BELOW 500' AGL:

TYPE I (*Heavy*) and TYPE II (*Medium*) Helicopters; Flights below 500' AGL are allowed with steady state winds not to exceed 40 knots or maximum gust spreads of 15 knots.

TYPE III & IV (*Light*) Helicopters; Flights below 500' AGL are allowed with steady state winds not to exceed 30 knots or maximum gust spreads of 15 knots.

Visual Flight Rules (VFR) weather minimums:

Helicopter flights will be conducted under VFR only. Pilots will adhere to the visual flight rules required for the class of airspace in which they are operating.

4.4 FLIGHT AND DUTY LIMITATIONS

All flight time, regardless of how or where performed, except personal pleasure flying, will be reported by each flight crewmember and used to administer flight hour and duty time limitations. Flight time to and from the Host Base as a flight crewmember (commuting) will be reported and counted toward limitations if it is flown on a duty day. Flight time includes, but is not limited to: military flight time; charter; flight instruction; 14 CFR 61.56 flight review; flight examinations by FAA designees; any flight time for which a flight crewmember is compensated; or any other flight time of a commercial nature whether compensated or not.

- 1) Pilot flight hour computations shall begin at liftoff and end at touchdown and will be computed from the flight hour meter installed in the aircraft. All flight hours shall fall within duty hour limitations.
- 2) Flight time shall not exceed a total of 8-hours per day.
- 3) Pilots accumulating 36 or more flight hours in any 6-consecutive duty-days shall be off duty the next day. Flight time shall not exceed a total of 42-hours in any 6-consecutive days. After any 1-full off-duty day, pilots begin a new 6-consecutive day duty-period.
- 4). During any 14 consecutive day period, each pilot shall have a minimum of two (2) full days off duty. Days off need not be consecutive but are on a sliding scale. For example, if after two (2) consecutive days off the pilot is off two non-consecutive days in the next 14 day period, then the next 14 day period must be calculated from the first non-consecutive day off.
- 5) Assigned duty of any kind shall not exceed 14-hours in any 24-hour period. Within any 24-hour period, pilots shall have a minimum of 10-consecutive hours off duty immediately prior to the beginning of any duty-day. Local travel up to a maximum of 30-minutes each way between the work site and place of lodging will not be considered duty time. When one-way travel exceeds 30 minutes, the total travel time shall be considered as part of the duty day.
- 6) Duty includes flight time, ground duty of any kind, and standby or alert status at any location.
- 7) During times of prolonged heavy fire activity, the Government may issue a notice reducing the pilot duty-day/flight time and/or increasing off-duty days on a geographical or agency-wide basis.
- 8) Flights point-to-point (airport to airport, heliport to heliport, etc.) with a pilot and co-pilot shall be limited to 10-flight hours per day. (A helicopter that departs "Airport A," flies reconnaissance on a fire, and then flies to "Airport B," is not point-to-point).
- 9) Pilots may be relieved from duty for fatigue or other causes created by unusually strenuous or severe duty before reaching duty limitations.
- 10) When pilots act as a mechanic, mechanic duties in excess of 2-hours will apply as flight hours on a one-to-one basis toward flight hour limitations.
- 11) Relief, additional, or substitute pilots reporting for duty under this Contract shall furnish a record of all duty and all flight hours during the previous 14-days.

5.1 FM RADIO OPERATION

There are a number of different makes and models of FM radios installed in the aircraft that are being utilized by the government. Pilots must be familiar with, and capable of operating the radio equipment installed in the aircraft to which they are assigned.

Programming

- 1) Frequencies in Narrow or Wide band:
 - a) How to identify if a frequency is narrow or wide band when changing channels
 - b) How to change from narrow to wide band / wide to narrow band

When programming aircraft or handheld FM radios, personnel are assuming that by entering four (4) digits beyond the decimal point, that they are narrow banding that channel. **THIS IS A MISCONCEPTION!** Radios capable of narrow banding require that each channel be specifically programmed in the narrow band mode. The radio display will show that the frequency that is narrow banded is marked with a small "n". Just because FM frequencies are shown out to 4 digits past the decimal point does not mean that the frequency will modulate in the narrow band mode.

- 2) Tones
 - a) How to tone a frequency
 - b) How to tone the Guard frequency
- 3) Guard
 - a) How to narrow band and assign a tone to guard

5.2 UNDERSTANDING FM WIDE BAND AND NARROW BAND ISSUES

It is important to understand that wide and narrow band modes are functions of frequency modulation and not the number of digits following the decimal point. Any frequency can be programmed to modulate either in wide or narrow-band. In order to get a frequency to modulate in narrow-band mode, the unit itself must be physically programmed to do so.

Most Federal Agencies are operating with FM radio frequencies between 162.0000 MHz and 174.0000 MHz that transmit and receive in the narrow-band mode.

Cooperating Agencies may be working with frequencies in the wide-band mode. These frequencies are usually below 162.0000 MHz.

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Pilots operating their radios with frequencies that are not programmed with the proper wide or narrow band mode will experience poor radio communications between base stations, ground personnel and/or aircraft.

Frequency lists generated by the agencies must designate whether the frequency is narrow or wide banded, using a "w" or "n" on each frequency line entry.

Note: *If the frequency list received from an agency or incident does not indicate that a frequency is wide or narrow banded, "ASK".*

Wide band frequencies are interfering with narrow band communications, as wide band modulation affects adjacent narrow band frequencies. Close proximity exacerbates this problem. Examples of this are broken transmissions and poor reception when communicating between radios banded differently. This problem gets worse when the radios get closer to each other. Narrow banded dispatch centers or heli-bases that adjust their volume to accommodate the over-modulation of wide-band transmissions have now compounded the problem: They can barely (if at all) hear transmissions from properly narrow banded radios. Conversely, if the base stations are adjusted for narrow band modulation, wide banded transmissions will "blow them out."

The new narrow banded portable repeaters are programmed to shut-down when over-modulated wide band transmissions are received. To protect their circuitry, they are programmed to stay shut-down for up to 15 minutes after the offending modulation is detected thereby effectively preventing all communications through that repeater for that time period.

5.3 USE OF THE GUARD FREQUENCY

The Guard frequency has in the past has been mistakenly thought of as an emergency frequency only. This is a common misconception, as the Guard frequency has a number of uses, including emergency.

The Guard Frequency can be used for:

- 1) Initial contact to an incident if the incident frequency is not known or is not responding.
- 2) Recall/ Redirect of the aircraft.
- 3) Emergency communications

The Guard frequency (168.625 Tx/Rx with a Tx only tone of 110.9) is a common Frequency that can and should be monitored by everyone. Pilots must monitor Guard when the aircraft is utilized in a tactical situation, e.g.. fire dispatch. There have been many serious incidents that have had successful outcomes because ground personnel and aircraft crews utilized the guard frequency correctly. ***Guard is not to be utilized for routine conversations or business, but only for the three items listed above.***

5.4 TRANSPONDER CODE USEAGE

Pilots will input a transponder code of "1255" any time the aircraft is being operated on a fire incident. The pilot will use the proper codes when operating outside the fire environment as dictated by the FAR's for VFR or when ATC assigns a code.

5.5 GPS OPERATION

- 1) Use of the GPS
 - a) Finding present position
 - b) Saving present position
 - c) Entering a Latitude and Longitude as a Way point
 - d) Navigating to a Way point

- 2) Coordinates:
 - a) Extrapolating Longitudes and Latitude from a map.
 - b) Plotting Longitudes and Latitude on a map.

CHAPTER 6 FLIGHT FOLLOWING AND FLIGHT PLANS

6.1 FILING AND MAINTAINING FLIGHT PLANS

- 1) All tactical or special use mission flights (reconnaissance, helitack, etc.) will maintain radio communication with the appropriate dispatch center where the mission is being conducted. The aircraft position will be reported to the dispatcher every 15 minutes. If radio contact cannot be maintained as prescribed, the pilot will terminate the flight at the nearest accessible helibase or camp and reestablish contact with dispatch before proceeding with the mission. Alternate provisions will be made in the event of radio system failure.
- 2) Non-tactical or general use flights (ferry, preposition, point-to-point, etc.) require either an agency or FAA flight plan. Regardless of which type of flight plan is used, pilots should call the appropriate dispatch office on departure, at all intermediate stops, and upon arrival of the final destination.

6.2 CONTROL AND TRACKING OF FLIGHTS

When current status and location are reported by an aircraft, the dispatcher will record the aircraft tail number, location, destination, route of travel, weather status, and any other pertinent information. At the termination of the flight, contact will be made with a dispatcher to close the flight plan. Failure to make contact will result in activation of the agencies emergency action plan procedures.

6.3 FLIGHT PLANS AND FLIGHT FOLLOWING FOR TYPE I AND II HELICOPTERS

- 1) The pilot will file an FAA flight plan for all airport-to-airport flights. In addition, the pilot will contact NICC (800-994-6312) prior to departing for the incident and upon arrival at each airport. The incident will be responsible for reporting the aircrafts arrival at the incident through normal dispatch channels.
- 2) When it is necessary to RON prior to reaching the incident, the pilot will furnish NICC with phone numbers where he/she is staying.
- 3) The service truck driver will advise NICC as to his/her status and trip plans at every fuel stop and RON location or as otherwise directed. This applies to trips of four or more hours in duration. Any delays in arriving at the incident must be reported to NICC.
- 4) Pilots and service truck drivers will follow the same process when released from an incident. NICC must be notified upon arrival at a final destination.

6.4 AUTOMATED FLIGHT FOLLOWING

- **Automated Flight Following (AFF):** AFF is a satellite/web-based system. The dispatcher can “see” an aircraft icon on a computer screen and view in real time its location, speed, heading, altitude, and flight history.

NOTE: An agreement to utilize AFF **must** be made between the pilot and dispatcher. It is preferable that this agreement be made prior to takeoff and by phone, but may be done via radio while airborne.

Pilot Procedures:

- 1) Contact dispatch with request to utilize AFF (preferably via phone prior to flight).
- 2) Provide Dispatch with appropriate flight information (same as radio check-in procedures).
- 3) If Dispatch is willing and able to accommodate AFF request, obtain appropriate FM frequencies and tones to be monitored during flight and brief on radio calls to be made as well as the response expected.
- 4) Shortly after takeoff, and outside of sterile cockpit environment, contact dispatch via radio stating “N xxxx departing (departure point), requesting AFF.”
- 5) If radio contact is not made with dispatch office, return to departure point. (Disregard this requirement if you made prior arrangements with dispatch to utilize an FAA flight plan.)
- 6) After radio contact is made, and AFF is verified by the dispatch office, monitor assigned frequencies (including guard) for the duration of the flight.
- 7) For helicopter operations, positive radio contact must be made with Dispatch prior to, and immediately after, each takeoff and landing (IHOG 4.2.E.2).
- 8) If a deviation from the planned and briefed flight route occurs, contact the dispatch office via radio with the change.
- 9) If AFF capability is lost at the dispatch office, or the signal is lost during the flight, revert to flight and begin 15 minute radio check-in procedures.
- 10) Inform dispatch upon arrival.

6.5 OVERDUE AIRCRAFT

If an aircraft fails to complete a position report after 30 minutes, the dispatcher will initiate the agency's Emergency Action Checklist procedures for overdue aircraft.

6.6 ACCIDENT AND INCIDENTS

- 1) Pilots involved in any incident, incident with potential, or accident are automatically suspended from performing pilot duties under **any** interagency contract, regardless if FAR's or Federal policies have been violated. The pilot cannot be used for government flights until an investigation is concluded and approval for reinstatement is issued by authorized USFS or DOI personnel. Reinstatement is neither automatic nor guaranteed. Reinstatement may require a Pilot Review Board, completion of professional education and training, additional company training, a flight evaluation by the appropriate Pilot Inspector, or any combination thereof.
- 2) Aircraft involved in any accident or major component change are suspended from further use under a contract or agreement until released by authorized USFS or DOI personnel.
- 3) Safe-Coms are used to disseminate lessons learned from conditions and/or circumstances that have the potential to cause, or have contributed to, accidents and incidents. Contracted pilots are urged to participate in this valuable program.

7.1 FIRE TRAFFIC AREA (FTA)

No aircraft may operate within the FTA unless they are in compliance with the Three C's.

1. **Communications:** must have communications with aerial supervisor on assigned frequency.
 2. **Clearance:** must have clearance from aerial supervisor to enter the FTA.
 3. **Comply:** must be able to comply with aerial supervisor instructions.
-
- The FTA is a standard incident airspace configuration used to provide aircraft separation, safety and efficient utilization.
 - Incoming aircraft must attempt initial contact with the aerial supervisor when 12 nm from the incident. (12 nm Initial Contact Ring)
 - If communications are not established, no inbound aircraft may cross the 7 nm (NOCOM) ring.
 - When communications are established with the aerial supervisor, incoming aircraft will be given operating altitudes and instructions.

FIRE TRAFFIC AREA (FTA) 31 MAR 06

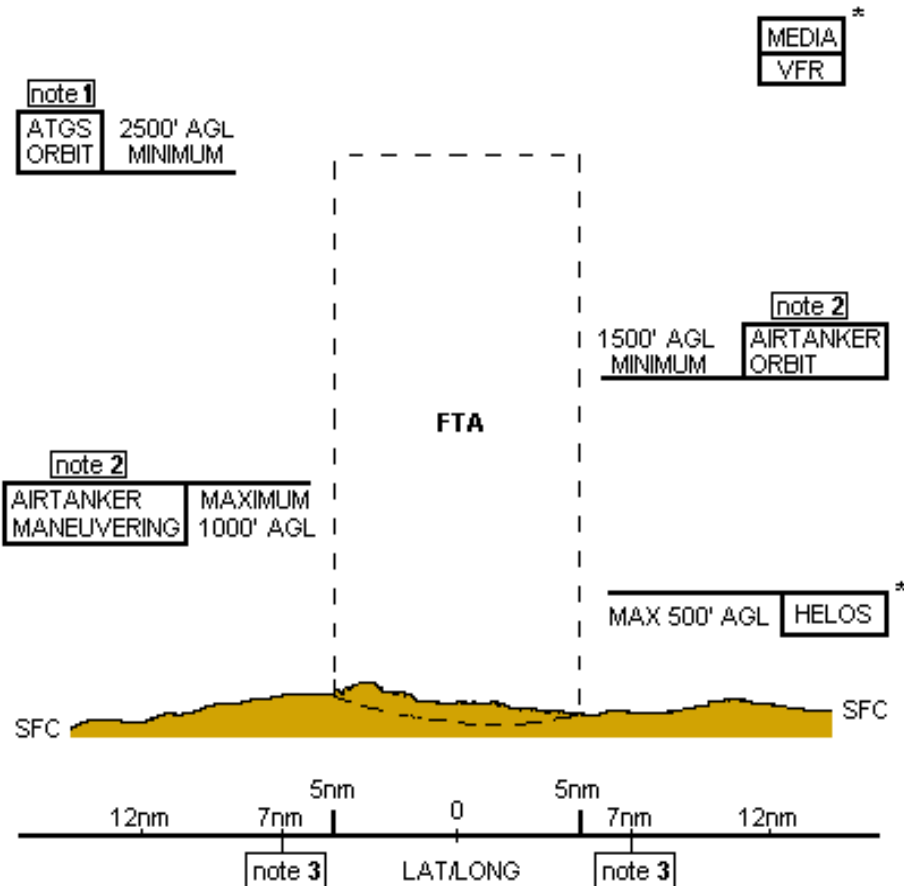
FTA

INITIAL RADIO CONTACT: 12nm on Assigned Air Tactical Frequency.

CLEARANCE IS REQUIRED TO ENTER FTA

NO RADIO CONTACT: Hold a minimum of 7nm from the incident.

NOTE: Airtanker Maneuvering altitude determines minimum Airtanker and ATGS Orbit altitudes. Assigned altitudes may be higher and will be stated as **MSL**.



- note 1 | 1000' min. separation between ATGS orbit and Airtanker orbit altitude.
- note 2 | 500' min. separation between Airtanker Orbit and Maneuvering altitude.
- note 3 | On arrival reduce speed to cross 7nm at assigned altitude and 150 KIAS or less.

* **HELOS** – Fly assigned altitudes and routes.

* **MEDIA** – Maintain VFR separation above highest incident aircraft or position and altitude as assigned by controlling aircraft.

AIR BASE 123.975	AIR GUARD 168.625 TxTone 110.9	AIR to AIR 122.925	NATIONAL FLIGHT FOLLOW 168.650
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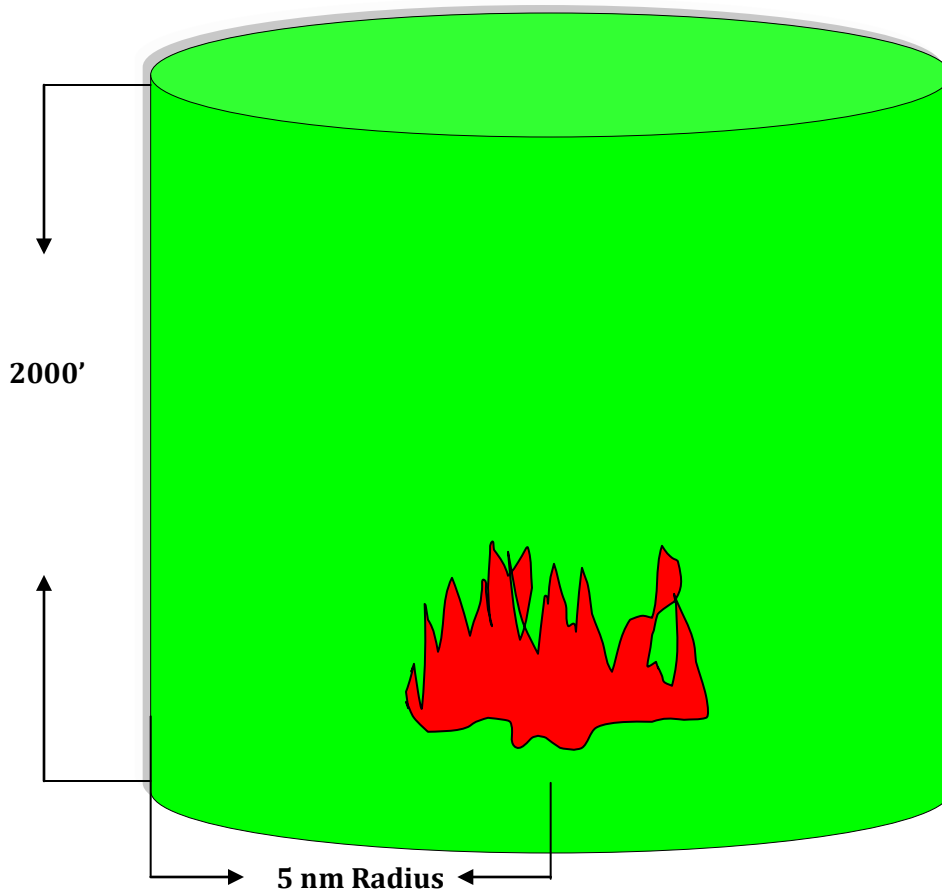


7.2 TEMPORARY FLIGHT RESTRICTIONS (TFR)

TFRs are frequently granted by the FAA for fires with sustained air operations.

Standard dimensions are:

- 5 nm radius from the center of fire/project
- Ceiling 2000' above the highest terrain of the incident/ project



It is important to review the emphasis areas listed below. Accident and incident rates have shown that these areas warrant special attention. In review, emphasis should be placed on the cause and effect, as well as appropriate corrective actions, for these emergencies.

8.1 EMERGENCY RECOGNITION

Unanticipated Yaw (LTE): Aircraft characteristics identified as contributing factors in Loss of Tail Rotor Effectiveness.

- a) High power settings in conjunction with low airspeed
- b) Aircraft turns (left or right) in a direction opposite of main rotor rotation.
- c) Tail rotor vortex ring state
- d) Main rotor disc vortex interference
- e) Loss of ETL (effective translational lift)

Helicopter Dynamic Rollover: An increasing percentage of helicopter accidents are being attributed to dynamic rollover, a phenomenon that will, without immediate corrective action, result in destruction of the helicopter and possible serious injury. Critical conditions that help attribute to this condition are:

- a) High gross weight
- b) Right lateral center of gravity
- c) Crosswind from the left
- d) Hovering with only the right skid or wheel in contact with the surface and with thrust (lift) approximately equal to the weight.

NOTE: *Items b, c, & d are opposite on some aircraft depending on the direction of the main rotor rotation.*

Settling With Power: Many of the special use missions that are associated with natural resource flying place the pilot and passengers within a flight envelope that can result in settling with power. A thorough understanding of how this condition occurs and how to affect proper emergency procedures are a must. Basically for a helicopter to enter Vortex Ring State (Settling with Power) the following three (3) conditions must be present simultaneously:

- a) The airspeed is at or below effective translational lift (ETL)
- b) At least 20% power is applied
- c) The rate of descent is greater than 300 fpm.

8.2 PILOT KNOWLEDGE REVIEW

Unacceptable Flight Profiles: Pilots approved to perform interagency missions are expected to conduct those missions in a safe and professional manner. Operating an aircraft in an inappropriate flight profile **will not** be tolerated and may be grounds for **suspension** and/or **revocation** of the *“Interagency Helicopter Pilot Qualification Card”*.

Situational Awareness: Loss of “Situational Awareness” or “Focus” while in the cockpit has been responsible for, or factored into, numerous accidents and incidents. Blade strikes, settling with power, LTE, etc. are the typical consequences of pilot failing to maintain situational awareness. It is imperative that the pilot-in-command remain focused on the **overall** environment in which he/she is operating, to include proximity of obstacles, wind speed and direction, rate of closure, rate of descent, LZ conditions as they relate to slope, surface and size, etc. Make an honest evaluation as to mission benefit versus risk. Is your proficiency level sufficient for the task at hand?

Aircraft Operator’s Manual Review: Continual review of the aircraft operator’s manual is essential for all professional pilots. Knowledge of aircraft equipment, limitations and emergency procedures are mandatory for conducting a safe operation. Importance should be given to the value of continual review of the aircraft operator’s manual.

Cockpit Procedures and Check List: Cockpit procedures should strictly adhere to the manufacture’s recommendations for make and model. Utilization of the aircraft checklist is required. Careful attention must be given that the procedures are not transferred from one aircraft model to another or from habits learned in the past that are not appropriate for the aircraft being flown.

Fire Shelter: Individuals involved in wildland fire activities are continuing to suffer serious injuries and fatalities which could have been prevented if proper actions had been taken. Contract pilots often do not have the chance to attend fire shelter deployment training and should make every effort with the helicopter manager to familiarize themselves with the use of the shelter. A publication of the National Wildfire Coordinating Group, “Your Fire Shelter, Beyond the Basics” (NFES 2179), is available through the system. It is recommended that all pilots take the opportunity to review the contents of this publication.

CHAPTER 9 REGIONAL PROCEDURES

(Reserved)

SUMMARY

- 1) Remember! Your word is final as to whether or not the flight is feasible. The pilot can discern limitations better than anyone else and is able to operate within these limitations, building in a margin of safety at all times. Pilots should not allow themselves to be persuaded to attempt anything against their better judgment.

WHEN IN DOUBT, DON'T!!

- 2) A copy of this Operations and Safety Procedures Guide shall be kept in the aircraft.
- 3) This document is intended to furnish the pilot with information useful in the operation of aircraft involved in natural resource missions. For additional information please consult the contract or refer any questions, comments or suggestions to the U. S. Forest Service .

REFERENCE WEB SITES

U.S. Forest Service
<http://www.fs.fed.us/fire/aviation/>

Aviation Management
<http://amd.nbc.gov/>

Federal Aviation Administration
<http://www.faa.gov/>

Training (Helicopter Fire Operations)
<https://www.iat.gov/>

Temporary Flight Restrictions (TFR)
<http://airspace.nifc.gov/mapping/nifc/index.cfm?isNIFC=True>

GLOSSARY

AFF	Automated Flight Following	HIGE	Hover In Ground Effect
ALSE	Aviation Life Support Equipment	HOGE	Hover Out of Ground Effect
AMD	Aviation Management Directorate	IHOG	Interagency Helicopter Operations Guide
ARA	Aircraft Rental Agreement Contract	NICC	National Interagency Coordination Center
CWN	Call When Needed Contract	NIFC	National Interagency Fire Center
DOI	Department of the Interior	PPE	Personal Protective Equipment
EU	Exclusive Use Contract	RLCFM	Rotorcraft Load Combination Flight Manual
FAA	Federal Aviation Administration	TFR	Temporary Flight Restriction
FAR	Federal Aviation Regulations	USDA	United States Department of Agriculture
FTA	Fire Traffic Area	USFS	United States Forest Service
GPS	Global Positioning System		

PILOT CERTIFICATION

I certify that I have read and/or have been briefed on the Interagency Operating and Safety Procedures and that I understand and will comply with these procedures. I also understand that failure to comply with these procedures, violations of the Federal Aviation Regulations, or other unsafe actions may result in the suspension or revocation of my approval to perform missions for the Federal government.

Company Name: _____
(Please Print)

Pilot Name: _____
(Please Print)

Pilot Signature

___/___/___

Date

Helicopter Inspector Pilot Signature

___/___/___

Date

INSPECTOR'S COPY

APPENDIX B: VERIFICATION OF VERTICAL REFERENCE TRAINING (LONG-LINE)

National Interagency Helicopter Standards require that contractors develop a Vertical Reference / External Load Training Syllabus and that contract pilots receive this training before applying for Agency Special Use approval. Each contract pilot must have a current proficiency endorsement from the company's chief pilot in order to qualify for a Flight Evaluation by an Interagency Helicopter Inspector Pilot.

The Applicant has demonstrated VTR proficiency with a 150' long-line by:

- 1) Exhibiting knowledge of the elements of vertical reference / external load operations.
- 2) Performing a thorough preflight briefing of ground personnel to include hookup procedures, signals, and pilot and ground personnel actions in the event of an emergency or hook malfunction.
- 3) Visually determining that the cargo hook(s) and cables are installed properly and that electrical and manual releases are functioning properly.
- 4) Ascending vertically using vertical reference techniques while centered over the load until the load clears the ground, then maintain a stable hover with a load 10 feet (+ - 5-feet) above the ground for 30 seconds. *(The applicant should insure that the long-line does not become tangled on external parts of the helicopter).*
- 5) Controlling the hook movement and stopping load oscillations while in a hover.
- 6) Maintaining positive control of the load throughout the flight while maintaining specified altitude within 50 feet, airspeed within 10 knots, and heading within 10 degrees.
- 7) Maintaining the proper approach angle and rate of closure to establish an out-of-ground effect hover with the load 10 feet above the ground (+ - 5 feet) for 30 seconds and then placing the load within a 10-foot radius of the specified release/touchdown point.
- 8) Maintaining the proper approach angle and rate of closure to establish an out-of-ground effect hover **within a confined area** with the load 10 feet above the ground (+ - 5 feet) for 30 seconds and then placing the load within a 10-foot radius of the specified release/touchdown point.

.....

NAME: _____ CERT NO: _____ INITIAL RECURRENT
 (Check One)

I certify that the above listed pilot has completed training as outlined in the National Interagency Helicopter Standards and meets the currency and performance requirements of this company's Vertical Reference / External Load Training Manual and recommend him/her for evaluation.

CHIEF PILOT: _____ COMPANY: _____
Printed Name

CHIEF PILOT: _____ DATE: ____/____/____
Signature

APPENDIX C: VERIFICATION OF VERTICAL REFERENCE TRAINING (SNORKEL)

National Interagency Helicopter Standards require that contractors develop a Vertical Reference / External Load Training Syllabus and that contract pilots receive this training before applying for Agency Special Use approval. Each contract pilot must have a current proficiency endorsement from the company's chief pilot in order to qualify for a Flight Evaluation Check by an Interagency Helicopter Inspector Pilot.

The applicant has demonstrated VTR proficiency with a Snorkel by:

- 1) Exhibiting knowledge of the elements of vertical reference operations.
- 2) Performing a thorough preflight of the tank and snorkel.
- 3) Establishing a takeoff hover by ascending using vertical reference techniques and **without** dragging the snorkel.
- 4) Establishing and maintaining the proper approach angle and rate of closure to establish a 5 foot snorkel height above the tank and then lowering the snorkel into the tank. Maintaining a stable hover for 30 seconds. Ascending vertically while keeping the snorkel clear of the edges of the tank until the snorkel is at least five (5) feet above the tank. Transitioning to forward flight without allowing the snorkel to settle back into the tank,

OR

- 5) Establishing and maintaining a proper approach angle and rate of closure to establish a 5 foot snorkel height above the ground and over a circle 10 feet in diameter (*the circle shall be marked by paint or other easily identifiable material*). Descending from a stable hover until the snorkel head is touching the ground. Executing a 360 degree turn (left or right) in 120 seconds or less while maintaining the snorkel head in contact with the ground within the circle and not allowing any part of the snorkel hose to touch the outside of the circle.

AND

- 6) Performing a landing using vertical reference techniques while placing the main landing gear in a 6 foot diameter circle.

.....

NAME: _____ CERT NO: _____ INITIAL RECURRENT
 (Check One)

I certify that the above listed pilot has completed training as outlined in the National Interagency Helicopter Standards and meets the currency and performance requirements of this company's Vertical Reference / External Load Training Manual and recommend him/her for evaluation.

CHIEF PILOT: _____ COMPANY: _____
 Printed Name

CHIEF PILOT: _____ DATE: ____/____/____
 Signature

OPERATIONS AND SAFETY PROCEDURES GUIDE FOR HELICOPTER PILOTS

APPENDIX D: FLIGHT HOUR REQUIREMENTS & EXPERIENCE VERIFICATION

AMD-60B (12/06) / FS-5700-20b (pending)

CONTRACTOR'S VERIFICATION OF INDIVIDUAL HELICOPTER PILOT REQUIREMENTS AND EXPERIENCE FOR INITIAL INTERAGENCY APPROVAL

Note: This form is required prior to initial (first-time) approval/carding. This form is not for pilots previously approved or carded by the USDA Forest Service or DOI, NBC Aviation Management (formerly Office of Aircraft Services).

The Contractor must ensure that a pilot who is presented for initial carding meets all requirements as outlined in the contract's Section B, Technical Specifications/Pilot Qualifications, after award. The Contractor must verify all pilot hours submitted on this form as determined from a certified pilot log or permanent record to ensure accuracy. In addition, the Contractor must identify previous employers and submit the information on this form. The information provided by the pilot / External Load Training Syllabus and that contract pilots receive this training before applying on *USFS Form FS-5700-20A Or AMD Form 64B*, Interagency Helicopter Pilot Qualifications and Approval Record, prior to approval needs to be verified as accurate by the Contractor. The information submitted is subject to verification by an interagency pilot inspector.

Date (mm/dd/yyyy):

Company name:

Pilot name:

Pilot total helicopter pilot-in-command hours (verified from pilot's logbook or permanent record):

Pilot info and flight time/experience as submitted on AMD-64B or FS-5700-20a verified accurate? Check if yes:

Previous Employers:

Previous Employer	Address & Telephone Number	Current Contact: Name & Telephone No.	Period Employed	Make/Model(s) Flown & PIC Hours in each
1.				
2.				
3.				
4.				

Helicopter Training Courses Completed:

Name of Course & Provider	Address & Telephone Number	Contact Name & Telephone No.	Date of Completion	Flight Hours Completed
1.				
2.				
3.				
4.				

Comments (use additional sheets if necessary):

Check one: Chief Pilot Director of Operations Other

Print name: _____ **Signature:** _____

APPENDIX E: REQUIRED DOCUMENTATION FOR PILOT CARDING

Contractors shall ensure **all** documentation submitted for pilot approvals has been verified for accuracy and completeness. Pilot evaluations will not be administered, nor approvals issued, until all required documentation is complete. The contractor shall submit the following documentation annually for each pilot seeking interagency approval: *(Note; the CO may require additional information and documentation)*

Please submit documents in the order listed and without the use of staples

-
1. Completed "Pilots qualifications and Approval Record".
(USFS Form FS-5700-20a Or AMD Form 64B)
 2. Completed "Flight Hour Requirements & Experience Verification form."
(This form required only for pilots seeking their initial (first time) interagency approval)
 3. Signed and dated signature page from the "Operations and Safety Procedures Guide for Helicopter Pilots".
 4. Copy of FAA Pilot Certificate. *(Both front and back may be needed to get all required info)*
 5. Copy of **current** Medical Certificate.
 6. Copy of **current** FAR 135 Airman Competency / Proficiency Check. "FAA form 8410-3" for each standard category make and model helicopter in which the pilot is seeking approval.
(Required if operating aircraft listed on the operators 135 Certificate)
 - "OR"**
 7. Documentation of a **current** FAA Flight Review.
-PLUS-
Copy of **current** *(within the last 12 calendar months)* Equipment Check Endorsement *(or comparable document (I.E. CFR 14, part 61.58 Pilot Proficiency Check))* for each Limited Use or Restricted Category make and model helicopter in which the pilot is seeking approval.
(Required only if operating aircraft not listed on the operators 135 Certificate)
 8. Copy of FAR 133 endorsement. *(If pilot requires approval for Part 133 operations)*
 9. Copy of FAR 137 endorsement. *(If pilot requires approval for Part 137 operations)*
 10. Completed "Vertical Reference Flight Training Endorsement - Long-line or Snorkel" *(required for all long-line operations and all snorkel operations conducted in aircraft not equipped with mirrors for viewing external load operations)*
 11. Completion certificates for Interagency Aviation Training (IAT) courses MH1, MH2, MH3 (Aviation Firefighting) and A-110 (Aviation Transportation of Hazardous Materials).
(Certificates must show a completion date within the 36 calendar months prior to application submission)
 12. Completed Load Calculation form for each aircraft make/model in which the pilot is seeking approval. Included with the Load Calculation will be notations indicating which chart(s) are used. *(i.e. page and illustration or chart number)*
 13. Copy of the front and back of the pilots most recently issued Interagency Helicopter Qualification Card. *(If the card cannot be produced it may be necessary to demonstrate proficiency for all Special Use operations required under the contract)*