DEPARTMENT OF THE INTERIOR – AVIATION MANAGEMENT

AIRCRAFT RENTAL AGREEMENT PROVISIONS: SUPPLEMENT NO. 2

SPECIAL USE - INTERAGENCY FIRE HELICOPTER REQUIREMENTS

Definitions

Interagency Fire Suppression requires aircraft to meet the standards agreed upon between the USDA and DOI. Aircraft equipped and approved for Interagency Fire Suppression may also be used for Local Fire Suppression.

Local Fire Suppression requires aircraft to meet the standards for DOI. (See Supplement No. 3, Local Fire Suppression.)

B8.2.1 CERTIFICATION

B8.2.1.1 The Vendor shall be certificated under 14 CFR Part 133, Rotorcraft External Load Operations. This certificate shall include Class A, B, or C as appropriate.

B8.2.1.2 The Vendor shall be certificated under 14 CFR Part 137, Agricultural Aircraft Operations.

B8.2.2 **FLIGHT OPERATIONS**

B8.2.2.1 **Water Bucket Use.** The following procedure **shall** be used for all bucket operations:

B8.2.2.1.1 Determine allowable payload using the Interagency Load Calculation method, appropriate HOGE helicopter performance charts and current local temperature and pressure altitude (no partial dips for performance planning purposes shall be authorized).

B8.2.2.1.2 At the beginning of the fuel cycle, adjust the bucket capacity so that the actual payload, when the bucket is filled to the maximum adjusted capacity, does not exceed the allowable payload.

B8.2.2.1.3 Use 8.3 pounds per gallon of water. If mixed fire retardant is being delivered by bucket, use the appropriate weight per gallon for that mixture. The weight of the empty bucket and any associated suspension hardware (lines, cables, connectors, etc.) must also be included in calculating the actual payload. The calculation of the actual bucket payload must be documented on the load calculation form or separate load manifest.

B8.2.2.1.4 Helicopters equipped with electronic helicopter hook load measuring system that provides a cockpit readout of the actual external load **and** a bucket that is equipped with a gating system that allows part of the load to be released while retaining the remainder of the load may be exempt from B8.2.2.1.2.

CAUTION: There are many different manufacturers and designs of helicopter buckets. Capacity adjustments are made in various ways: Removing plugs, opening zippers or cinching collapsible/foldable buckets. Capacity at each position or adjustment level should be marked on the bucket. Collapsible buckets with cinch straps should only be adjusted to the marked graduations (as an example, 90%, 80%, 70%, 60%). Attempts to establish intermediate graduations or capacities below the manufacturer's minimum graduation (by tying knots, etc.) is prohibited as this results in estimated capacities and may interfere with the release mechanism.

B8.2.3 PERSONNEL REQUIREMENTS

B8.2.3.1 200 hours PIC in category over typical terrain, involving flights of low-level (below 500 feet above the surface) and over mountains when applicable.

B8.2.3.1.1 Pilots shall show evidence of experience in low-level operations and be knowledgeable of all specialized mission requirements. This may include low level operations, special flight techniques, terrain considerations, use of specialized navigation equipment, or operation of other equipment as appropriate for the specific mission. Pilots may be required to demonstrate their ability during an agency evaluation flight.

B8.2.3.2 The precision placement of externally carried cargo is an operational requirement of this supplement. Pilots shall be required to place external cargo precisely where requested regardless of the cable length while operating within the helicopter's capability. Pilots shall provide written evidence of qualification to transport Class A, B, or C external loads as

appropriate. Pilots may be required to demonstrate their ability during an agency evaluation flight.

B8.2.3.2.1 Pilot endorsements for long line (a cable length greater than 50 feet) and water/retardant application shall require an agency flight evaluation.

B8.2.3.3 Pilots shall have recorded minimum flying time as pilot-in-command as follows:

B8.2.3.3.1 200 hours Mountainous Terrain (When operating in mountainous terrain)

B8.2.3.3.2 10 hours Mountainous Terrain in Make and Model

PIC mountainous terrain experience is defined as: Experience in maneuvering a helicopter at more than 7,000 feet mean sea level (MSL) altitude including numerous take-offs and landings in situations indicative to mountainous terrain. This terrain consists of abrupt, rapidly rising terrain resulting in a high land mass projecting above its surroundings, wherein complex structures in which folding, faulting, and igneous activity have taken place. These mountainous areas produce vertical mountain winds, and turbulence associated with mountain waves, producing abrupt changes in wind direction often resulting in up flowing or down flowing air currents.

Mountain qualified pilots are considered rough terrain qualified.

B8.2.3.3.3 200 hours Rough Terrain (When operating in rough terrain)

B8.2.3.3.4 10 hours Rough Terrain in Make and Model

PIC with rough terrain experience is defined as: Experience in maneuvering a helicopter at less than 7,000-feet MSL altitude including numerous takeoffs and landings in situations indicative to rough terrain. This terrain consists of abrupt, rapidly rising terrain resulting in a high land mass projecting above its surroundings, wherein complex structures in which folding, faulting, and igneous activity have taken place. Rough terrain features can disrupt smooth wind flow into a complex of eddies or mechanical turbulence. Characteristic of this type of terrain is the higher the wind speed and/or the rougher the terrain the greater the turbulence.

B8.2.3.4 Personal Protective Equipment (PPE). The following items shall be worn by vendor personnel, be operable, and maintained in good repair:

B8.2.3.4.1 An aviator's flight helmet, consisting of a one-piece hard shell made of polycarbonate, Kevlar, carbon fiber, or fiberglass, must cover the top, sides (including the temple area and to below the ears), and the rear of the head. The helmet shall be equipped with a chinstrap and appropriately adjusted for proper fit. Flight helmets for helicopter usage must conform to a national certifying agency standard, such as DOT, Snell-95, SFI, or an appropriate military standard, and be compatible with required avionics (see section B8.2.6.4.3). "Shorty" (David Clark style) helmets are not approved. Flight helmets currently meeting this requirement are the SPH-3, SPH-4, SPH-5, SPH-4B, SPH-8, HGU-56 and HGU-84. Helmets designed for use in fixed wing aircraft do not provide adequate protection for helicopter occupants and are not approved for helicopter use.

B8.2.3.4.2 A long-sleeved shirt and trousers (or long-sleeved flight suit) made of fire-resistant polyamide or aramid material or equal.

B8.2.3.4.3 Boots made of all-leather uppers which extend above the ankles.

B8.2.3.4.4 Gloves made of leather, fire-resistant polyamide or aramid material.

B8.2.3.4.5 Shirt with sleeves overlapping gloves and pants with legs overlapping boots.

B8.2.3.4.6 Pilots shall wear a personal flotation device (PFD) when conducting hovering flight operations (water bucket dipping, snorkeling) over water sources such as ponds, streams, lakes, rivers, and coastal waters. This equipment shall be maintained in serviceable condition in accordance with the manufacturer's instructions. Automatic inflation (water activated) PFD's are not authorized.

B8.2.3.4.7 Personal Protective Equipment For Ground Operations

B8.2.3.4.7.1 While within the safety circle of an operating helicopter, all personnel shall wear the following PPE:

B8.2.3.4.7.2 Shirt with sleeves overlapping gloves and pants with legs overlapping boots, hard hat or flight helmet with chin strap fastened, hearing protection, and eye protection .

Note: Maintenance personnel working on a running aircraft are exempt from glove and hardhat requirements.

B8.2.3.4.7.3 In addition, fuel service vehicle operators shall wear non-static (example: cotton/natural fiber) clothing and gloves.

B8.2.4 EQUIPMENT REQUIREMENTS

B8.2.4.1 One digital hour meter shall be installed in a location observable from the cockpit. The meter shall be wired in series with a switch on the collective control, and a switch activated by engine or transmission oil pressure to record flight time only.

B8.2.4.2 An accessory power source consisting of an MS 3112E-12-3S three-pin connector, accessible to the passenger compartment. Pin B shall be airframe ground; pin A shall be +28VDC (for 28-volt aircraft); and pin C shall be +14VDC (for 14-volt aircraft). The circuit shall be protected by a 5-amp circuit breaker.

B8.2.4.3 A first aid kit containing items specified in Exhibit 4 shall be furnished by the Vendor and carried aboard the aircraft on all flights.

B8.2.4.4 A survival kit containing items specified in Exhibit 4 shall be furnished by the Vendor and carried aboard the aircraft on all flights.

B8.2.4.5 Cargo Compartment, internal or external.

B8.2.4.5.1 **If Internal:** 15 cubic-foot baggage compartment within the aircraft fuselage specifically designed to carry cargo separate from the cabin. This compartment must be capable of accommodating 58-inch long shovels, rakes, and other tools (requiring rear bulkhead modification of baggage compartment of some models).

B8.2.4.5.2 **If External.** One of the following will meet the specifications:

B8.2.4.5.2.1 Cargo Rack. A side mounted external rack attached to the aircraft. The racks shall have at a minimum a horizontal surface of approximately 48 X 15 inches, with a depth of 2.5 inches. Cargo carried in the rack is secured with tie-down net, straps or bungees. Examples – Alaskan Skycraft style Transporters and Garlick Cargo Racks.

B8.2.4.5.2.2 Cargo Pod. An externally side mounted Pod of either fiberglass or Kevlar construction that secures the cargo with a locking lid and is weatherproof. Examples – Heli-Composites Canada Star Pod and Dart Heli-Utility-Pod.

B8.2.4.5.2.3 Cargo Basket. An externally side mounted basket constructed with tubular frame and expanded metal and incorporating a locking lid or tie-down net, straps or bungees to secure cargo. Examples – Dart Heli-Utility-Basket and Aeronautical Accessories Utility Cargo Basket.

B8.2.4.5.2.4 Belly Pod. A Pod attached to the belly of the helicopter constructed of fiberlass or Kevlar that provides protection to the cargo from the weather and access to the cargo from either the front, side or both. Examples – Viking Cargo Pod and Dart Belly-Spacepod.

B8.2.4.5.2.5 All construction methods shall be as prescribed by Advisory Circular 43.13-1B and 43.13-2A or other FAA approval.

NOTE: For MD 500/600 Model, one cargo rack on the right side of the helicopter, and a personnel access step on the opposite side is required.

B8.2.4.6 High skid-type landing gear, if manufactured for make and model.

B8.2.4.7 Helicopters with a floor height greater than 18 inches shall have personnel access steps to assure safe entrance and exit from each door.

B8.2.4.8 (Alaska only) Tundra Boards or Snow Pads. Mandatory when the helicopter is not equipped with standard or emergency flotation gear as noted in the aircraft order.

B8.2.4.9 Aircraft lighting for night operation in accordance with 14 CFR 91.205(c), including instrument lights.

B8.2.4.10 A strobe light, with either a white, or ½ white and ½ red lens, mounted on top of the aircraft, or otherwise visible from above. If the aircraft certification requires the anticollision light to be aviation red, then a white strobe light with an independent activating switch shall be provided in addition to the red strobe.

B8.2.4.11 High visibility markings on main rotor blades as specified in Exhibit 7.

B8.2.4.12 One cargo hook that may be loaded and locked in a single motion with one hand, and is rated at the maximum lifting capacity of the aircraft.

B8.2.4.12.1 Helicopters for which an automatic locking cargo hook is not available are exempt from this requirement provided the cargo hook which is provided complies with the Federal Aviation Regulations applicable to the model aircraft.

B8.2.4.12.2 The cargo hook and associated systems shall be completely disassembled, inspected, lubricated, if required, and subjected to an operations check in all operating modes at two year intervals. The inspection and maintenance shall be accomplished in accordance with the manufacturers operating and maintenance instructions as supplemented by this requirement.

B8.2.4.13 The aircraft shall be equipped with a convex mirror for observation of the sling load by the pilot. For aircraft equipped and modified for vertical reference external load operation (i.e., door gauges, modified seat, alternate cargo hook release positions, bubble window, etc.) or for helicopters such as the MD Model 500 where direct vertical reference is possible the convex mirror is not required.

B8.2.4.14 One (1) collapsible, variable capacity water/retardant bucket shall be furnished under this contract. The capacity shall be commensurate with the maximum lifting capability of the aircraft. The bucket to be provided must have a manufacturer's capacity adjustment commensurate with the maximum lifting capability of the offered aircraft at the environmental conditions specified in the order for services. If a longline is used with the water bucket, the bucket shall be capable of being operated with all increments of the longline (i.e., 50, 100, 150 feet). See CAUTION under B8.2.2.

B8.2.4.15 The water/retardant bucket operating switch shall be clearly marked for "open" and "closed", and shall be mounted on the collective control to avoid confusion with the cargo hook release.

B8.2.4.16 An MS 3101E-24-11S, nine-pin connector shall be provided as the power source for a helitorch or remote cargo hook. Pin D shall be airframe ground. Pin E shall be switched 28VDC, protected by a 50-amp circuit breaker. The water bucket open switch shall also activate this circuit. The connector shall be mounted adjacent to the cargo hook (within 12 inches) and be supported in such a way that jettisoning the load shall not damage the connector. A lanyard shall be provided for support of the connector.

NOTE: This connector has multiple circuit capacity sufficient to provide power and control for government furnished equipment. Wiring instructions can be found in FS/DOI AM Drawing A-16 (Exhibit 5).

B8.2.4.17 For Type III helicopters, dual controls shall be removed/deactivated after agency evaluation flights.

NOTE: If Longline equipment is provided, the standards are specified in Supplement 1.

B8.2.5 AVIONICS REQUIREMENTS

B8.2.5.1 General:

B8.2.5.1.1 The following systems, as a minimum, shall be installed or available in addition to the basic requirements listed in the Aircraft Rental Agreement (B5). The avionics systems shall be maintained by the Vendor in accordance with the provisions of the Aircraft Rental Agreement and the installation and maintenance standards of Section B8.2.6.6 of this Supplement.

B8.2.5.1.2 Any ~~digital~~ aeronautical, mobile, or portable VHF-FM radios furnished to meet the requirements of this document shall also be APCO Project 25 (EIA/TIA-102) compliant.

B8.2.5.2 Communications Systems:

B8.2.5.2.1 One automatic-portable/automatic-fixed or automatic-fixed ELT, utilizing an external antenna and meeting the same requirements as those detailed for airplanes in 14 CFR Part 91.207 (excluding section f.), shall be installed per the manufacturer's installation manual, in a conspicuous or marked location. **NOTE: An ELT meeting either TSO-C91a or TSO-C126 is required effective January 1, 2005.**

B8.2.5.2.2 One panel-mounted VHF-AM aeronautical transceiver (VHF-1), operating in the frequency band of 118.000 to 135.975 MHz, with a minimum of 720 channels, and a minimum of 5 watts carrier output power. **NOTE: A 760-channel VHF-AM transceiver covering 118.000 to 136.975 MHz is required effective January 1, 2005.**

B8.2.5.2.3 One VHF-FM multi-mode aeronautical transceiver (FM-1), which provides selection of both narrowband (12.5 kHz) and wideband (25.0 kHz) bandwidth operation on each channel.

B8.2.5.2.3.1 The transceiver's operational frequency range shall include the band of 150 to 174 MHz. The operator shall be able to program any usable channels within that band while in flight.

B8.2.5.2.3.2 Carrier output power shall be 10 watts nominal value (original design specification). The transceiver shall be capable of displaying receiver and transmitter operating frequency, and shall provide both receiver and transmitter activation indicators for main and guard. Simultaneous monitoring of both main (150-174 MHz) and guard (168.625 MHz) receivers is required. Single bandwidth guard receivers which operate in the wideband (25.0 kHz) mode are acceptable. Scanning of the guard frequency is not acceptable. The transceiver's/encoder's operational controls must be located and arranged so that both the pilot and observer/copilot, when seated, have full and unrestricted movement of each control without interference from their clothing, the cockpit structure, or the flight controls.

B8.2.5.2.3.3 One CTCSS sub-audible tone encoder (which may be an integral part of the transceiver), with the lowest 32 TIA/EIA-603 standard tone frequencies (from 67.0 to 203.5 Hz, less 69.3 Hz) being selectable, shall be interfaced to the above transceiver. It is desired that the encoder provide a display of the selected tone or tone frequency.

B8.2.5.2.3.4 The encoder/transceiver system shall be capable of encoding a 110.9 Hz tone on all guard (168.625 MHz) transmissions.

B8.2.5.2.3.5 The following models of VHF-FM aeronautical transceivers are known to meet the above requirements:

Eureka Radio ERS-96000NB w/external tone encoder
NAT(Northern Airborne Technology) NPX-138N-050
NAT(Northern Airborne Technology) NPX-138N-070
NAT(Northern Airborne Technology) NTX-138-050
Technisonics TFM-138 (serial number 1540 and up)
Technisonics TFM-138B/C/D, TFM-500 (all)
Technisonics TDFM-136 (all)
Wulfsberg RT-5000/C-5000 with Guard option
Wulfsberg RT-9600N w/C-962A control head

B8.2.5.2.3.5.1 Bendix-King/BK Radio model KFM-985 multi-mode transceivers do not meet the referenced requirements for interagency fire helicopters.

B8.2.5.2.3.6 Effective January 1, 2008, a digital VHF-FM transceiver meeting APCO Project 25 (P-25) requirements, in addition to the specifications of B8.2.5.2.3 above, is required.

B8.2.5.2.4 Provisions for auxiliary VHF-FM (AUX-FM) portable radio:

B8.2.5.2.4.1 The Contractor shall provide the necessary interface for installing and properly operating an auxiliary VHF-FM portable radio through the aircraft's audio control system(s). The interface shall consist of the appropriate wiring from the audio control system, terminated in an ITT/Cannon type MS3112E12-10S 10-pin connector conveniently located for use by the observer/copilot, and utilizing the contact assignments as specified by drawing FS/OAS A-17 in Exhibit 6.

B8.2.5.2.4.2 One weatherproof, external, broadband antenna covering the 150-174 MHz band, with associated RG-58A/U (or equivalent) coaxial cable and connector, terminated in a bulkhead-mounted, female BNC connector (type UG-290A), conveniently located for use by the observer/copilot adjacent to the above 10-pin connector (Comant model CI-177 or equal).

B8.2.5.2.4.3 Mounting facilities, in accordance with the specifications of FAA AC 43.13-2A, for secure installation of the auxiliary VHF-FM portable radio in the cockpit shall be provided. The location of the mounting facilities shall be such that, when connected with an 18-inch adapter cable, the radio's controls shall be located and arranged so that the observer/copilot, when seated, has full and unrestricted movement of the radio's controls, without interference from clothing, the cockpit structure, or the flight controls.

B8.2.5.2.4.4 Positive-polarity microphone excitation voltage shall be provided to the AUX-FM system from the aircraft DC power system through a suitable resistor network. A blocking capacitor shall be provided to prevent the portable radio microphone excitation voltage from entering the system. Sidetone for the AUX-FM shall also be provided (NAT model AA34-300, Premier model PA-34, or equivalent).

B8.2.5.2.4.5 In lieu of the above AUX-FM requirements, the Contractor may substitute one VHF-FM aeronautical transceiver (FM-2) which meets the requirements (less guard) for the VHF-FM aeronautical transceiver (FM-1), as detailed above.

B8.2.5.3 Navigational Systems: One panel-mounted GPS shall be permanently installed in the aircraft. The GPS shall utilize the WGS-84 datum, reference latitude and longitude coordinates in the DM (degrees/minutes/decimal minutes) mode for aircraft positioning, utilize an approved, fixed, external aircraft antenna, and be powered by the aircraft electrical system. The GPS installation shall be FAA-approved (or approval pending). Handheld and/or marine type equipment is not acceptable.

B8.2.5.4 Audio Systems:

B8.2.5.4.1 Two separate audio control systems (which may be combined in a single unit) shall be provided for the pilot and observer/copilot. Each system shall provide pilot and observer/copilot with separate controls for selection of receiver audio outputs and transmitter microphone/PTT audio inputs for all installed radios and PA systems. Each system shall also provide pilot and observer/copilot with separate controls for adjustment of both ICS and receiver audio output levels (NAT AMS-42F or equivalent).

B8.2.5.4.1.1 Transmitter selection and operation. Separate transmitter selection controls shall be provided for the microphone/PTT inputs of both pilot and observer/copilot. The system shall be configured so that the pilot and observer/copilot may each simultaneously select and utilize a different transmitter (or PA system when installed) via their respective microphone/PTT. Whenever a transmitter is selected, the companion receiver audio shall automatically be selected for the corresponding earphone. Transmitter sidetone audio shall be provided for the user as well as for cross-monitoring via the corresponding receiver selection switch on the other audio control system.

B8.2.5.4.1.2 Receiver selection and operation. Separate controls shall be provided for both pilot and observer/copilot selection of audio from one or any combination of available receivers. The ICS-equipped aft passenger positions shall monitor the receiver(s) as selected by the observer/copilot. The receiver audio output shall be free of excessive distortion, hum, noise, and crosstalk, and shall be amplified sufficiently to facilitate ease of use in a noisy cockpit/cabin environment.

B8.2.5.4.1.3 The controls of the audio system(s) must be located and arranged so that both the pilot and observer/copilot, when seated, have full and unrestricted movement of their respective controls without interference from their clothing, the cockpit structure, or the flight controls. Labeling and marking of controls shall be clear, understandable, legible, and permanent. Electronic label maker marking is acceptable.

B8.2.5.4.2 An intercommunications system (ICS) shall be provided for the pilot, observer/copilot, and the two aft exit passenger positions. ICS audio shall mix with, but not mute, selected receiver audio. An ICS audio level control shall be provided for each position above. Adjustment of the ICS audio level at any position shall not affect the level at any other position. A "hot mic" capability, controlled via an activation switch or voice activation (VOX), shall be provided for the pilot and observer/copilot. ICS sidetone audio shall be provided for the earphones corresponding with the microphone in use. The ICS audio output shall be free of excessive distortion, hum, noise, and crosstalk; and shall be amplified sufficiently to facilitate ease of use in a noisy cockpit/cabin environment.

B8.2.5.4.3 Earphones, microphones, PTTs, and jacks:

B8.2.5.4.3.1 The system shall be designed for operation with 600-ohm earphones and carbon-equivalent, noise-canceling boom type microphones (Gentex electret type model 5060-2, military dynamic type M-87/AIC with type CE-100 TR preamplifier, or equivalent) with U-174/U (single/male) type connector plug. The pilot position only may be configured for low impedance (dynamic) operation.

B8.2.5.4.3.2 All earphone/microphone jacks in the aircraft (except the pilot's) shall be U-92A/U (single/female) type, which shall accept U-174/U type plugs.

B8.2.5.4.3.3 Separate PTT switches shall be provided for radio transmitter and ICS microphone operation at the pilot and observer/copilot positions. The pilot's PTT switches shall be mounted on the cyclic control. The observer/copilot's PTT switches shall be mounted on the cord to the earphone/microphone connector. In lieu of the observer/copilot's cord-mounted PTT switches, a footswitch-operated ICS/radio transmit PTT system may be utilized. ICS PTT switches for any other required positions shall be mounted on the cord to the earphone/microphone connector.

B8.2.5.5 Other Avionics:

B8.2.5.5.1 One ATC transponder and altitude reporting system meeting the requirements of 14 CFR Part 91.215 (a) and (b).

B8.2.5.5.2 A complete set of schematic and wiring diagrams, covering all installed avionics systems, shall be carried aboard each aircraft or the aircraft's dedicated service vehicle.

B8.2.5.6 Avionics Installation and Maintenance Standards (in addition to those of the basic Aircraft Rental Agreement):

B8.2.5.6.1 Although the aircraft to be provided may not be certified for IFR flight, the aircraft's static pressure system, altimeter instrument system, and automatic pressure altitude reporting system shall be maintained in accordance with the IFR requirements of 14 CFR Part 91.411 and inspected and tested every 24 calendar months as specified by 14 CFR Part 43, appendices E and F.

B8.2.5.7 Drawings: FS/OAS A-17: wiring diagram for AUX-FM connector.

B8.2.6 MAINTENANCE REQUIREMENTS

B8.2.6.1 **Weight & Balance.** The aircraft's required weight and balance data shall be determined by actual weighing of the aircraft within 24 calendar months preceding the starting date of the agreement, or renewal date, and following any major repair or major alteration or change to the equipment list which significantly affects the center of gravity of the aircraft.

B8.2.6.1.1 All weighing of aircraft shall be performed on scales that have been certified as accurate within preceding 24 calendar months. The certifying agency may be any accredited weights and measures laboratory.

B8.2.6.1.2 A list of equipment installed in the aircraft at the time of weighing must be compiled. The equipment list shall include the name of each item installed. Items which may be easily removed or installed for aircraft configuration changes (seats, doors, radios, cargo hook, baskets, special mission equipment, etc.) shall also be listed including the name, the weight and arm of each item. Each page of the equipment list must identify the specific aircraft by at least serial number or registration number of the aircraft. Each page of the equipment list shall be dated indicating the last date of weighing or computation. The weight and balance must be revised each time new equipment is installed or old equipment is removed. Weight and balance procedures under 14 CFR 135.23(b) and 135.185 are acceptable.

B8.2.6.2 **Time Between Overhaul and Life Limited Parts.**

B8.2.6.2.1 All components, including engines, shall be replaced upon reaching the factory-recommended TBO or FAA-approved extension. Life limited parts shall be replaced at the specified time in service hours or cycles.

B8.2.6.2.2 Aircraft operated with components or accessories on approved TBO extension programs are acceptable provided: (1) the Vendor is the holder of the approved extension authorization (not the owner if the aircraft is leased), and (2) the Vendor operates in accordance with the extension authorization.

B8.2.6.2.3 The Vendor shall supply, at the time of the initial agency inspection, a list of all items installed on the aircraft that are required to be overhauled or replaced on a specified time basis. This list shall include the components name, part number, serial number, total time, service life (or inspection/overhaul time interval), and time and date when component was overhauled, replaced, or inspected.

B8.2.6.3 **Turbine Engine Power Assurance Check**. The first day of operation and no more than each ten hours of operation thereafter, a power assurance check shall be performed. The power assurance check shall be accomplished in accordance with the helicopter flight manual (pilots operating handbook) or approved company performance monitoring

program. The results shall be recorded and kept in the helicopter or at the designated base. Engines with power output below minimum approved limits shall be removed from use until the cause of the low power condition is corrected.

B8.2.7 FUEL SERVICING VEHICLE EQUIPMENT

B8.2.7.1 A fuel servicing vehicle meeting the requirements of Supplement No. 8 shall be provided for each helicopter when ordered for interagency fire. The fuel servicing vehicle shall have a capacity of a minimum of 8 hours of useable fuel for the make and model helicopter operating on this agreement based on the aircraft fuel consumption chart (see Exhibits). The fuel servicing vehicle shall be capable of carrying all equipment and accessories (i.e. water buckets, water/retardant fixed tank, long lines, remote hook, cargo nets, Vendor crews overnight gear and other items) required to support a lengthy assignment. The fuel servicing vehicle manufacturer's gross vehicle weight (GVW) with full fuel tanks and accessories shall not be exceeded.

EXHIBIT 1

INTERAGENCY HELICOPTER **LOAD CALCULATION** OAS-67/FS 5700 (11/03)		**MODEL** **N#**
PILOT(S)		**DATE**
MISSION		**TIME**
1 **DEPARTURE**	**PA**	**OAT**
2 **DESTINATION**	**PA**	**OAT**
3 **HELICOPTER EQUIPPED WEIGHT**		
4 **FLIGHT CREW WEIGHT**		
5 **FUEL WT** (_____gallons **X** _____ lbs per gal)		
6 **OPERATING WEIGHT** (3 + 4 + 5)		

	Non-Jettisonable		Jettisonable
	HIGE	**HOGE**	**HOGE-J**
7a **PERFORMANCE REF** (List page/chart from FM)			
7b **COMP GROSS WT** (FM performance Section)			
8 **WT REDUCTION** (Req for all Non-Jettisonable)			
9 **ADJUSTED WEIGHT** (7b minus 8)			
10 **GROSS WT LIMIT** (FM Limitations Section)			
11 **SELECTED WEIGHT** (Lowest of 9 or 10)			
12 **OPERATING WEIGHT** (From Line 6)			
13 **ALLOWABLE PAYLOAD** (11 minus 12)			

14 **PASSENGERS/CARGO MANIFEST**	
15 **ACTUAL PAYLOAD** (Total of all weights listed in Item 14) **Line 15 must not exceed Line 13 for the intended mission.**	
PILOT SIGNATURE	
MGR SIGNATURE	HazMat Yes ___ No ___

INTERAGENCY HELICOPTER LOAD CALCULATION INSTRUCTIONS

A load calculation must be completed for all flights. A new calculation is required when operating conditions change (± 1000' in elevation or ± 5°C in temperature) or when the Helicopter Operating Weight changes (such as changes to

the Equipped Weight, changes in flight crew weight or a change in fuel load).

All blocks must be completed. Pilot must complete all header information and Items 1-13. Helicopter Manager completes Items 14 & 15.

1. DEPARTURE – Name of departure location and current Pressure Altitude (PA, read altimeter when set to 29.92) and Outside Air Temperature (OAT, in Celsius) at departure location.

2. DESTINATION – Name of destination location and PA & OAT at destination. If destination conditions are unknown, use MSL elevation from a map and Standard Lapse Rate of 2° C/1000' to estimate OAT.

Check the box in Line 1 (Departure) or Line 2 (Destination) to indicate the most restrictive values used to obtain Computed Gross Weight in Line 7b.

3. HELICOPTER EQUIPPED WEIGHT – Equipped Weight equals the Empty Weight (as listed in the Weight and Balance Data) plus the weight of lubricants and onboard equipment required by contract (i.e. survival kit, rappel bracket).

4. FLIGHT CREW WEIGHT – Weight of the Pilot and any other assigned flight crewmembers on board (i.e. Co-pilot, flight engineer, navigator) plus the weight of their personal gear.

5. FUEL WEIGHT – Number of gallons onboard **X** the weight per gallon (**Jet Fuel = 7.0 lbs/gal**; AvGas = 6.0 lbs/gal).

6. OPERATING WEIGHT – Add items 3, 4 and 5.

7a. PERFORMANCE REFERENCES – List the specific Flight Manual supplement and **hover performance** charts used to derive Computed Gross Weight for Line 7b. Separate charts may be required to derive HIGE, HOGE and HOGE-J. **HIGE:** use Hover-In-Ground-Effect, External/Cargo Hook Chart (if available). **HOGE & HOGE-J:** use Hover-Out-Ground-Effect charts for all HOGE operations.

7b. COMPUTED GROSS WEIGHT - Compute gross weights for HIGE, HOGE and HOGE-J from appropriate Flight Manual **hover performance** charts using the Pressure Altitude (PA) and temperature (OAT) from the most restrictive location, either Departure or Destination. Check the box in Line 1 (Departure) or Line 2 (Destination) to indicate which values were used to obtain Computed Gross Weight.

8. WEIGHT REDUCTION – The Government Weight Reduction is required for all "non-jettisonable" loads. The Weight Reduction is optional (mutual agreement between Pilot and Helicopter Manager) when carrying jettisonable loads (HOGE-J) where the pilot has total jettison control. The appropriate Weight Reduction value, for make & model, can be found in the current helicopter procurement document (contract).

9. ADJUSTED WEIGHT – Line 7b minus Line 8.

10. GROSS WEIGHT LIMITATION – Enter applicable gross weight limit from **Limitations section** of the basic Flight Manual or the appropriate Flight Manual Supplement. This may be Maximum Gross Weight Limit for Take-Off and Landing, a Weight/Altitude/Temperature (WAT) limitation or a Maximum Gross Weight Limit for External Load (jettisonable). Limitations may vary for HIGE, HOGE and HOGE-J.

11. SELECTED WEIGHT – The lowest weight, either line 9 or 10, will be entered for all loads. Applicable limitations in the Flight Manual must not be exceeded.

12. OPERATING WEIGHT – Use the value entered in Line 6.

13. ALLOWABLE PAYLOAD – Line 11 minus Line 12. The maximum allowable weight (passengers and/or cargo) that can be carried for the mission. Allowable Payload may differ for HIGE, HOGE and HOGE-J.

14. PASSENGERS AND/OR CARGO – Enter passenger names and weights and/or type and weights of cargo to be transported. Include mission accessories, tools, gear, baggage, etc. A separate manifest may be used.

15. ACTUAL PAYLOAD – Total of all weights listed in Item 14. Actual payload must not exceed Allowable Payload for the intended mission profile, i.e. HIGE, HOGE or HOGE-J.

Both Pilot and Helicopter Manager must review and sign the form. Check if HazMat is being transported. Manager must inform the pilot of type, quantity and location of HazMat onboard.

EXHIBIT 2

HELICOPTER FUEL CONSUMPTION AND WEIGHT REDUCTION CHART

		Fuel Consumption	Load Calculation
		Gallon/Hour	Weight Reduction-Lb
EUROCOPTER	AS-330J	179	NOT ESTABLISHED
	AS-332L-1	160	NOT ESTABLISHED
	AS-350B	45	130
	AS-350B-1	46	160
	AS-350B-2	48	160
	AS-350B-3	50	175
	AS-350D	38	130
	AS-355F-1	58	140
	AS-355F-2	58	140
	AS-365N-1	87	275
	BK-117	77	160
	BO-105CBS	55	180
	SA-315B	58	180
	SA-316B	58	170
	SA-318C	56	80
	SA-319B	55	NOT ESTABLISHED
	SA-341G	56	170
	EC-135	64	220
BELL	47	17A	90
	47/SOLOY	23	120
	204B (UH-1 SERIES)	88	200
	205A-1	89	260
	206B-II	25	100
	206B-III	27	130
	206L-1	32	150
	206L-3 (Incl L-1 C30P)	38	180
	206L-4	38	180
	212	100	390
	214B	160	380
	214ST	133	NOT ESTABLISHED
	222A	70	NOT ESTABLISHED
	222B	83	NOT ESTABLISHED
	222UT	83	NOT ESTABLISHED
	407	45	155
	412	110	390
	412HP	110	390
MD	500C	23	110
	500D/E	28	120
	520N	32	100
	530F	34	120
	600N	41	155
	900/902	69	210
HILLER	SL-3/4	21A	90
	UH-12	17A	90
	1100B	22	130
	UH-12/SOLOY	23	100
SIKORSKY	S-55T	47	170
	S-58D/E	83A	OGE 000 IGE 400
	S-58T/PT6T-3	115	OGE 000 IGE 400
	S-58T/PT6T-6	115	OGE 000 IGE 460
	S-62A	70	300
	S-70	160	N/A

"A" after the gallons indicates Avgas; all others are turbine. 12/01

EXHIBIT 4

FIRST AID & SURVIVAL KITS

These are minimum required items for Special Use Activities in the United States and U.S. Possessions. Additional survival kit items are required for flight activities conducted in Canada and Alaska.

Minimum First Aid Kit Items

Each kit must be in a dust-proof and moisture-proof container.
The kit must be readily accessible to the pilot and passengers.

Item	Passenger Seats 0-9	Passenger Seats 10-50
Adhesive bandage strips, (3"long)	8	16
Antiseptic or alcohol wipes (pkts)	10	20
Bandage compresses, 4"	2	4
Triangular bandage, 40" (sling)	2	4
Roller bandage, 4"x 5 yds (gauze)	2	4
Adhesive tape, 1"x 5 yds (std roll)	1	2
Bandage scissors	1	1
Body Fluids Barrier kit:	1	1
2 - pair latex gloves		
1 - face shield		
1 – mouth-to-mouth barrier		
1 – protective gown		
2 – antiseptic towelettes		
1 – biohazard disposable bag		

NOTE: Splints are recommended if space permits.

MINIMUM AIRCRFT SURVIVAL KIT ITEMS

These are minimum required items for special use activities in the conterminous United States (including Alaska) and U.S. possessions.

Fire Starter (can be two boxes of matches in a waterproof container)
One knife
Signal Flares (six each)
Candles
Collapsible water bag
Space Blanket (one per occupant)
Magnesium fire starter
Signal Mirror
Food (two days emergency rations per occupant)
Water purification tablets
Whistle
Nylon rope or parachute cord (50 feet)

These are additional items for the contiguous U.S. and U.S. Possessions:

Water (one quart per occupant required when operating over areas without adequate drinking water)

These are additional items for Alaska only:

Rations for each occupant sufficient to sustain life for one week
One axe or hatchet
One first aid kit
One mosquito headnet for each occupant
Insect repellant
An assortment of tackle such as hooks, flies, lines, sinkers, etc.

OCTOBER 15 TO APRIL 1

One pair of snowshoes
One sleeping bag
One wool blanket or equivalent for each occupant over four years of age

Note: Operators of multiengine aircraft licensed to carry more than 15 passengers need carry only the food, mosquito nets, and signaling equipment at all times other than the period from Cctober 15 to April 1 of each year, when two sleeping bags and one blanket for every two passengers shall also be carried. All of the above emergency rations and equipment requirements are the minimum requirements under current law.

FS/DOI AM A-16: ACCESSORY CONNECTOR PIN ASSIGNMENTS

Griffith Bucket (7 wire)

Pin	MS 3101E-24-11S (Helicopter) Function	MS 3107B-24-11P (Bucket) Function	
A	Up limit relay coil	Up limit switch	(Green)
B	Up switch	Up limit switch	(White #16)
F	28VDC/Ground (up)	28VDC/Ground (up)	(White #12)
G	Down limit relay coil	Down limit switch	(Red #16)
H	Ground/28VDC (down)	Ground/28VDC (Down)	(Black #12)
I	Down switch	Down limit switch	(Black #16)

Sims Bucket (3 wire)

Pin	MS 3101E-24-11S (Helicopter) Function	MS 3107B-24-11P (Bucket) Function	
B	28VDC/Ground	28VDC/Ground	(Green)
G	Ground (close)	Ground (close)	(White)
I	28VDC (open)	28VDC (open)	(Black)

Sims Bucket (8 wire)

Pin	MS 3101E-24-11S (Helicopter) Function	MS 3107B-24-11P (Bucket) Function	
A	28VDC (Open)	28VDC (Open)	(White/Black)
D	Ground	System Ground	(Blue/Green)
F	28VDC	System Power	(White, Red, Black)
H	Indicator light	Indicator light return	(Red/Black)
I	28VDC (Close)	28VDC (Close)	(Orange)

Chadwick Bucket (2 wire)

Pin	MS 3101E-24-11S (Helicopter) Function	MS 3107B-24-11P (Bucket) Function
B	28VDC/Ground (Open)	28VDC/Ground (Open)
H	Ground/28VDC (Close)	Ground/28VDC (Close)

Brackett Carousel/Chadwick Bucket (3 wire)

Pin	MS 3101E-24-11S (Helicopter) Function	MS 3107B-24-11P (Bucket) Function
C	28VDC Reset/bucket (close)	28VDC Reset/bucket (close)
D	Airframe Ground	System Ground
E	28VDC Hook/bucket (open)	28VDC Hook/bucket (open)

Simplex Helitorch, Bambi Bucket, Remote Hook, And Seeders (2 wire)

Pin	MS 3101E-24-11S (Helicopter) Function	MS 3107B-24-11P (Bucket) Function
D	Airframe Ground	System Ground
E	28VDC (bucket open)	28VDC Bucket/Hook Open-Torch/Seeder on

FS/DOI AM A-17: AUXILIARY FM RADIO INTERFACE

Exhibit 6

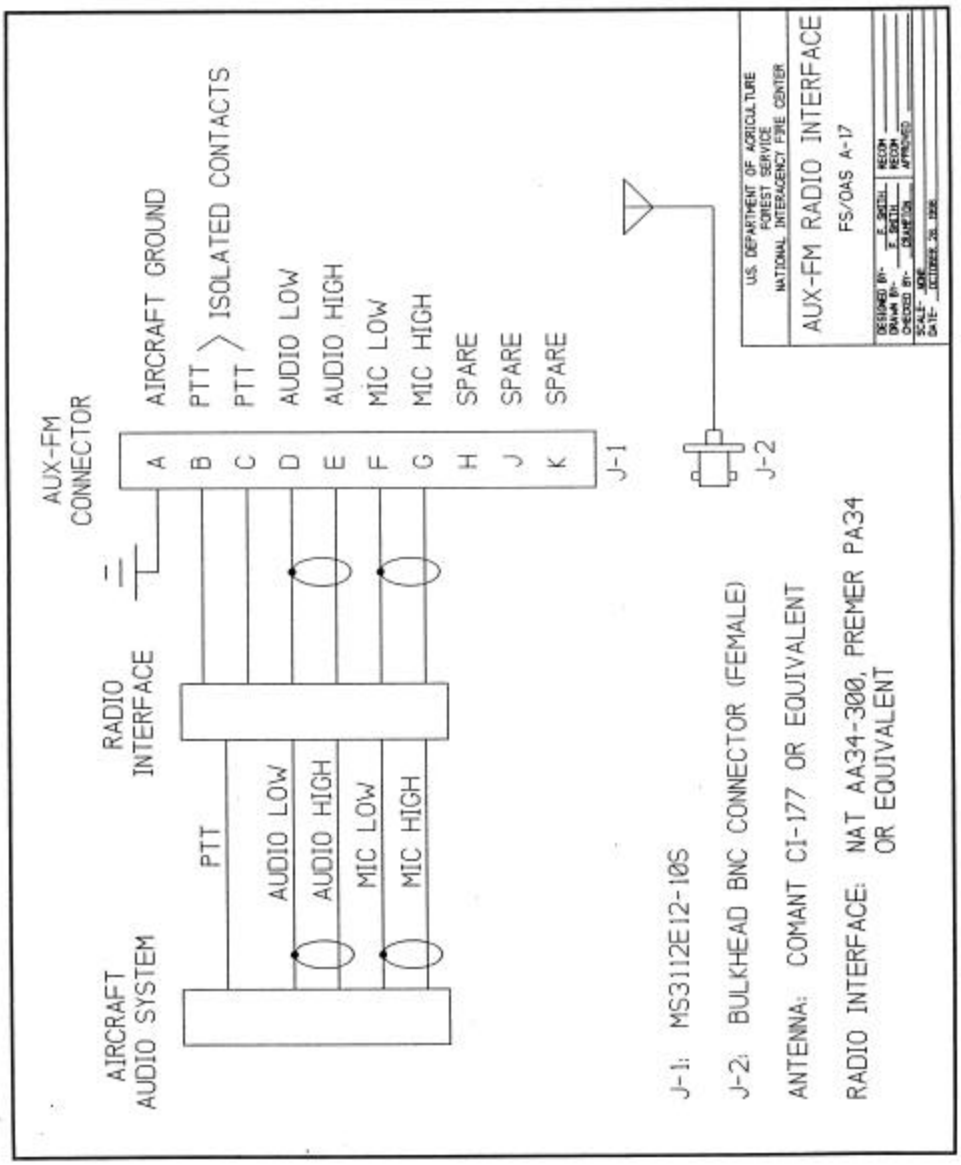

EXHIBIT 7

ACCEPTABLE PAINT SCHEMES

1. Starting at blade tip, paint the first 1/6th of the blade length with gloss white. Paint the second 1/6th length with yellow or orange. Paint the third 1/6th of blade length with gloss white. Paint the next 1/3rd of blade length with yellow or orange. Paint remaining 1/6th of the blade length with gloss white.

HUB **W** **Y**

W	**Y**	**W**	**W**	**Y**	**W**	**Y**	**W**		
1/6	**1/6**	**1/6**	**1/3**	**1/6**	**1/6**	**1/3**	**1/6**	**1/6**	**1/6**

2. One black and one white blade (two-bladed rotor systems).

3. Pant schemes previously approved under a U.S. Forest Service or DOI AM contract.

4. High visibility paint schemes and color variations specified by manufacturer in a service bulletin, instruction, or other manufacturer-published document or text.