**REVISED (1/04)**

**DEPARTMENT OF THE INTERIOR – AVIATION MANAGEMENT**

**AIRCRAFT RENTAL AGREEMENT PROVISIONS: SUPPLEMENT NO. 12**

**SPECIAL USE - SHORTHAUL/RAPPEL - ALASKA/HAWAII**

Definitions

**Shorthaul** - The transportation of personnel suspended under a helicopter on a fixed line to or from the closest available landing site from which a helicopter can safely operate.

**Rappel** - The deployment of qualified personnel from a hovering helicopter to the ground by means of an approved rope, descent device, and technical equipment.

**B8.12.1 CERTIFICATION**

B8.12.1.1 In addition to the requirements of this Supplement, equipment and personnel shall be furnished to meet the requirements of Supplement No.1, Helicopter Class A, B, & C External Load Including Longline.

**B8.12. 2 FLIGHT OPERATIONS**

B8.12.2.1 Shorthaul/Rappeling is a high risk special use activity. This method is not utilized until all other alternatives have been exhausted. Helicopter Shorthaul/Rappel operations shall be approved by the appropriate bureau national headquarters. Training and qualification requests for helicopter Shorthaul/Rappel operations shall be forwarded to the Director, DOI AM. This request shall include a copy of the bureau's headquarters approval and proposed operational plan indicating when and how helicopter Shorthaul/Rappel will be utilized.

**B8.12.3 PERSONNEL REQUIREMENTS – SHORTHAUL/RAPPEL OPERATIONS**

B8.12.3.1 Pilot Qualifications. Pilots shall meet all the following requirements:

B8.12.3.1.1 Meet the appropriate requirements of this procurement document.

B8.12.3.1.2 100 hours in weight class during last 12 months.

B8.12.3.1.3 25 hours – Shorthaul, Rappel or external load (sling) experience (long line requiring precision placement), last 12 months.

B8.12.3.1.4 Attend Shorthaul/Rappel training (optional to participate on Rappel or Shorthaul simulator). This training shall be conducted and documented by a qualified spotter, and include the following:

B8.12.3.1.4.1 Briefing and familiarization on rappel bracket and hard points for the specific model.

B8.12.3.1.4.2 Seating arrangement for rappelers and/or spotters.

B8.12.3.1.4.3 Rappel cargo placement/location and deployment sequence and method.

B8.12.3.1.4.4 Exit procedures and sequences.

B8.12.3.1.4.5 Perform a minimum of six ground mockups in the aircraft model to be used, including:

(i) Rigging aircraft for Shorthaul/Rappel missions.
(ii) Deploying cargo.
(iii) Deploying Shorthaulers/Rappelers.

B8.12.3.1.4.6 Briefing on any peculiarities of the specific model.

B8.12.3.2 Demonstrate ability to operate helicopter during a series of simulated rappels/cargo letdown/shorthaul.

B8.12.3.2.1 Shorthaul: the pilot shall demonstrate the ability to perform precision placement with a 100-foot line with a dummy load of at least 200 lbs. to a designated point (10 foot diameter circle) and maintain position over the point at + - 3 feet for two minutes out of a three minute time frame.

B8.12.3.2.2 Demonstrate ability to coordinate with the rappel spotter.

B8.12.3.3 Upon meeting the above requirements, the pilot may be approved for helicopter rappel operations or shorthaul operations, as appropriate by a DOI AM or USFS Helicopter Inspector Pilot.

B8.12.3.4 200 hours Mountainous Terrain (When operating in mountainous terrain)

B8.12.3.4.1 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.

B8.12.3.4.2 200 hours Rough Terrain (When operating in rough terrain)

B8.12.3.4.3 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.

B8.12.3.5 Pilot Proficiency.

B8.12.3.5.1 Rappelling. The pilot shall maintain currency in helicopter rappel flying at the same frequency required of the rappel spotter (every 14 days). If this cannot be accomplished every 14 days, a proficiency rappel flight must be completed prior to any actual operational mission.

B8.12.3.5.2 Shorthaul. The pilot shall perform at least one proficiency Shorthaul within 90 days of the last Shorthaul mission to the satisfaction of the check spotter. The check spotter may request the pilot to demonstrate the ability for precision placement on a more frequent basis.

B8.12.3.6 Shorthaul/Rappel Pilot Qualification

B8.12.3.6.1 Initial Shorthaul/Rappel pilot qualification shall be conducted by DOI AM Training Specialists to the guidelines established in the IHRG, Shorthaul Handbook, and operation plans.

B8.12.3.7 Personal Protective Equipment (PPE). The following items shall be worn by the pilot, be operable, and maintained in good repair:

B8.12.3.7.1 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 B8.12.5.4.3). "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.

B8.12.3.7.2 A long-sleeved shirt and trousers (or long-sleeved flight suit) made of fire-resistant polyamide or aramid material or equal.

B8.12.3.7.3 Boots made of all-leather uppers which extend above the ankles.

B8.12.3.7.4 Gloves made of leather, fire-resistant polyamide or aramid material.

B8.12.3.7.5 Shirt with sleeves overlapping gloves and pants with legs overlapping boots.

**B8.12.4 EQUIPMENT REQUIREMENTS**

B8.12.4.1 The helicopter shall have a shorthaul system designed for the specific make/model. The shorthaul system shall be approved by DOI AM prior to use.

B8.12.4.2 For M/D Hughes 500D, the passenger handholds at each exit are required to be free of damage and in good condition.

B8.12.4.3 For M/D Hughes 500D, both aft passenger step welds shall be dye penetrate inspected annually for cracks. Inspection shall be entered in the aircraft records.

**B8.12.5 AVIONICS REQUIREMENTS**

B8.12.5.1 General. The following systems shall be furnished, installed and maintained by the Vendor in accordance with the manufacturer's specifications and applicable Federal Aviation Administration (FAA) regulations.

B8.12.5.2 Communications systems.

B8.12.5.2.1 Provisions for auxiliary VHF-FM (AUX-FM) portable radio:

B8.12.5.2.1.1 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-17 in Exhibit 6.

B8.12.5.2.1.2 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).

B8.12.5.2.1.3 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.

B8.12.5.2.1.4 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).

B8.12.5.2.1.5 In lieu of the Government-furnished Auxiliary portable radio, the Contractor may furnish a VHF/FM Airborne Transceiver, minimum 9600 transmit and receive channels, 150.000 to 174.000 MHz in 2.5 kHz increments, minimum 5 watts transmit carrier power, minimum 8 preset channels operator programmable, integrated into the aircraft's audio control system, and mounted in a location convenient to both pilot and observer/copilot.

NOTE: The selector panel shall supply positive polarity microphone excitation voltage, from the aircraft DC power system through a suitable resistor network, to the aircraft microphone. A blocking capacitor shall be provided in the selector to prevent the portable microphone excitation voltage from entering the system.

B8.12.5.3 Navigational Systems.

The additional equipment below may be requested for specific projects. Contractors may decline to accept the order if they are unable or unwilling to furnish the exact equipment ordered. Acceptance of order, however, will obligate the contractor to perform in accordance with the order as provided under the specifications.

B8.12.5.3.1 Global Positioning System (GPS). 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.

B8.12.5.4 Audio Systems

B8.12.5.4.1 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).

B8.12.5.4.1.1 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.

B8.12.5.4.1.1.1 The aft spotter position shall be equipped to transmit on the radio(s). Unless the spotter position is equipped with its own audio control system, whenever a radio (or PA, when so equipped) microphone input is selected at the observer/copilot's audio control panel, the aft spotter's radio microphone inputs shall automatically be connected to the same radio, and they shall then be capable of transmitting on that radio via the radio transmit PTT switch.

B8.12.5.4.1.2 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.

B8.12.5.4.1.3 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.

B8.12.5.4.2 An intercommunications system (ICS) shall be provided for the pilot, observer/copilot, the aft spotter, and one additional 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.

B8.12.5.4.3 Earphones, microphones, PTTs, and jacks:

B8.12.5.4.3.1 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.

B8.12.5.4.3.2 All earphone/microphone jacks in the aircraft (except the pilot's) shall be U-92A/U (single/female) type, which will accept U-174/U type plugs.

B8.12.5.4.3.3 Separate PTT switches shall be provided for radio transmitter and ICS microphone operation at the pilot, observer/copilot, and spotter positions. The pilot's PTT switches shall be mounted on the cyclic control. The observer/copilot's and spotter's PTT switches shall be mounted on the cord to the earphone/microphone connector. The aft spotter's cord shall be of adequate length to allow freedom movement throughout the entire aft cabin area. 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.

B8.12.5.5 Other Avionics. - PA/Siren system.

B8.12.5.5.1 The amplifier shall produce 95 watts rms siren power, 45 watts rms voice power with less than 10% distortion.

B8.12.5.5.2 The speaker shall be weatherproof, rated for 100 watts rms continuous input power, and have an efficiency and directivity sufficient to produce 100 dB of siren and 97 dB of voice at 100 feet form the aircraft. The speaker shall be mounted on the observer's side of the aircraft, at a 45-degree angle down from the horizontal plane of the aircraft.

B8.12.5.5.3 The system shall be connected through the aircraft audio control system in such a manner as to utilize the same microphones and PTT switches as those employed in radio transmit operation.

B8.12.5.6 Installation and Maintenance Standards (in addition to those specified in the Basic Aircraft Rental Agreement).

B8.12.5.6.1 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 91.411 and inspected and tested every 24 calendar months as specified by 14 CFR Part 43, appendices E and F.

**B8.12.6 MAINTENANCE REQUIREMENTS**

B8.12.6.1 **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.

B8.12.6.1.1 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.

B8.12.6.1.2 A list of equipment installed in the aircraft at the time of weighing must be compiled. The equipment list will 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.

B8.12.6.2 **Time Between Overhaul and Life Limited Parts.**

B8.12.6.2.1 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.

B8.12.6.2.2 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.

B8.12.6.2.3 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.

B8.12.6.3 **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.

**B8.12.7 MAINTENANCE RELIABILITY**

B8.12.7.1 The suitability of the aircraft for Shorthaul/Rappelling operations will be determined from a subjective evaluation of the overall performance and maintenance history of the aircraft. Additionally, the maintenance history of the aircraft with respect to premature component changes/failures, unscheduled maintenance, and engine trend analysis history will also be evaluated. The overall safety record and operating history of the vendor will also be considered in determining the suitability for Shorthaul/Rappel operations.

B8.12.7.2 Aircraft Requirements for Shorthaul Endorsement

B8.12.7.2.1 Vendor must have one year as a 135 operator on his current FAA Operations Specifications

B8.12.7.2.2 Vendor aircraft by tail number must have been under that vendor's operational control and maintenance system for the past 12 months.

B8.12.7.2.3 Aircraft and engine components as a unit must have accumulated a minimum of 300 hours 135 operational time in the last 12 months or if a new aircraft (factory or rebuilt), 100 hours flight time.

B8.12.7.2.4 Any change of major components requires a run-in time of 50 hours prior to being re-certified for shorthaul operations.

B8.12.7.2.5 A power assurance check every 10 hours of flight time for the last 12 months shall be maintained.

B8.12.7.2.6 The cargo hook shall be overhauled in accordance with the manufacturer's recommended O/H specifications within the last 12 months.

## Exhibit 6

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