

**DEPARTMENT OF THE INTERIOR – AVIATION MANAGEMENT**  
**AIRCRAFT RENTAL AGREEMENT PROVISIONS: SUPPLEMENT NO. 15**  
**SPECIAL USE - INTERAGENCY AIR TACTICAL**

**Definitions**

**Air Tactical:** Aerial coordination and supervision provided by a trained Air Tactical Group Supervisor, to ensure safe aerial and ground suppression operations. Aircraft operations shall remain at a distance greater than 500 feet from the terrain.

**B8.15.1 GENERAL – Refer to Section B1**

**B8.15.2 OPERATIONS – Refer to Section B2**

**B8.15.3 PERSONNEL REQUIREMENTS**

B8.15.3.1 Pilots shall be knowledgeable of all mission-related tasks, i.e., mountain flying techniques, circling maneuvers over a point, and have a basic understanding of fire behavior.

B8.15.3.2 Pilots shall be required to demonstrate proficiency during an initial flight evaluation. The proficiency check may not be required if the pilot has been previously carded for fire reconnaissance, resource reconnaissance, or low level operations.

**B8.15.4 EQUIPMENT REQUIREMENTS**

B8.15.4.1 Aircraft shall meet the basic requirements for airworthiness and conditions as listed in Aircraft Rental Agreement (B4).

B8.15.4.2 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.

B8.15.4.3 Helicopters must have high visibility markings on the main rotor blades as specified in Exhibit 7.

**B8.15.5 AVIONICS REQUIREMENTS**

**Note:** Aircraft approved for Interagency Air Tactical (any Type) meet all requirements for, and may be used on Fire Reconnaissance and/or Resource Reconnaissance missions.

B8.15.5.1 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 basic Aircraft Rental Agreement and the installation and maintenance standards of Section B8.15.5.4.1 Type IV, B8.15.5.5.1 Type III, B8.15.5.6.1 Type II, B8.15.5.7.1 Type I. of this Supplement. **Note: Effective January 1, 2005, aircraft to be approved under this Supplement must be equipped with an ELT meeting either TSO-C91a or TSO-C126, and at least one 760-channel VHF-AM transceiver covering 118.000 to 136.975 MHz.**

B8.15.5.2 Effective January 1, 2008, any VHF-FM transceiver required by this Supplement must also meet APCO Project 25 (P-25) requirements for digital transceivers, in addition to the other specifications described herein.

B8.15.3.3 Air Tactical Avionics Requirements For All Aircraft:

**AIR TACTICAL AIRCRAFT AVIONICS REQUIREMENTS CHART**

ALL TYPES REQUIRE ELT\*, TWO COMM'S\*\*, TRANSPONDER/ENCODER, AND IFR PITOT/STATIC TESTS

\*\*TSO-C91a or TSO-C126 ELT required effective 01/01/2005 \*\*At least one COMM must be 760-channel effective 01/01/2005

I S	AIR TACTICAL	2 ANTENNAS,	VHF-FM	AUX-FM	GPS	GPS	AUDIO	XMIT
	TYPE	3-Pin Pwr, Ckt Bkr	RADIOS	Prov.	portable	pnl mnt	SYSTEMS	Positions
	I	N/A	2	1	N/A	1	2	3
	II	N/A	1	1	N/A	1	2	3
	III	N/A	1	N/A	1	N/A	1	2
	IV	1	N/A	N/A	1	N/A	1	2

DETAILED REQUIREMENT SPECIFICATIONS AND ANY ACCEPTABLE SUBSTITUTIONS ARE LISTED BELOW

B8.15.5.3.1 A second panel-mounted VHF-AM aeronautical transceiver (VHF-2), 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.

B8.15.5.3.2 One transponder and altitude reporting system meeting the requirements of 14 CFR Part 91.215 (a) and (b).

Air Tactical aircraft shall be categorized into one of four types based on avionics equipment furnished as follows:

**B8.15.5.4 Air Tactical Avionics Type IV Requirements:**

B8.15.5.4.1 A Global Positioning System (GPS) unit shall be located conveniently for the pilot. If a "portable" type unit is furnished, it shall be securely mounted and equipped with an antenna mounted separately from the GPS receiver. Panel-mounted units shall be equipped with a fixed, external, aircraft antenna. All GPS units shall be equipped for manual entry of waypoints in flight, utilize the WGS-84 datum, reference latitude and longitude coordinates in the DM (degrees/minutes/decimal minutes) mode for aircraft positioning, and be powered by the aircraft electrical system.

B8.15.5.4.2 One audio control system, with two sets of JJ-033/JJ-034 headset jacks, shall be provided for the pilot and copilot/ATGS. The system shall provide pilot and copilot/ATGS with controls for selection of receiver audio outputs and transmitter microphone/PTT audio inputs for all installed radios. Transmitter sidetone audio shall be provided for the operator(s). The system shall also provide controls for adjustment of both ICS and receiver audio output levels. Labeling and marking of controls shall be clear, understandable, legible, and permanent. Electronic label maker marking is acceptable.

B8.15.5.4.3 Two broadband VHF-FM aeronautical antennas (Comant CI-177 or equivalent) operating from 150 to 174 MHz shall be installed on the aircraft. Each antenna shall be provided with coaxial cable (RG-58 A/U or better) terminated in a male BNC connector within the aircraft cabin in a location which facilitates connection to a unit mounted between the pilot and copilot/ATGS seats plus 4 feet (minimum).

B8.15.5.4.4 An accessory power source. An MS3112E12-3S type power connector protected by a 10 amp circuit breaker connected to the avionics or aircraft power buss shall be provided. The connector shall be permanently mounted in a location convenient to the copilot/ATGS. Pin A shall be +24 VDC in 24 volt aircraft, Pin B shall be aircraft ground and Pin C shall be +12 VDC in 12 VDC aircraft. NEVER apply power to both Pins A and C simultaneously.

B8.15.5.4.5 Although not a requirement, any aircraft equipped with a Vendor-owned "Air Attack Kit", containing at least one VHF-FM radio meeting the requirements for such specified in B8.15.3.5.2 below (audio control system, ICS, etc.) to meet the requirements of Air Tactical Type(s) I, II, or III, shall be designated as "Air Tactical Type IV Plus Radio Kit".

**B8.15.5.5 Air Tactical Avionics Type III Requirements:**

B8.15.5.5.1 A Global Positioning System (GPS) unit shall be located conveniently for the pilot. If a "portable" type unit is furnished, it shall be securely mounted and equipped with an antenna mounted separately from the GPS receiver. Panel-mounted units shall be equipped with a fixed, external, aircraft antenna. All GPS units shall be equipped for manual entry of waypoints in flight, utilize the WGS-84 datum, reference latitude and longitude coordinates in the DM (degrees/minutes/decimal minutes) mode for aircraft positioning, and be powered by the aircraft electrical system.

B8.15.5.5.2 One audio control system, with two sets of JJ-033/JJ-034 headset jacks, shall be provided for the pilot and copilot/ATGS. The system shall provide pilot and copilot/ATGS with controls for selection of receiver audio outputs and transmitter microphone/PTT audio inputs for all installed radios. Transmitter sidetone audio shall be provided for the operator(s). The system shall also provide controls for adjustment of both ICS and receiver audio output levels. Labeling and marking of controls shall be clear, understandable, legible, and permanent. Electronic label maker marking is acceptable.

B8.15.5.5.3 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. All main preset channels shall be capable of being scanned (single VHF-FM aeronautical transceiver installations only).

B8.15.5.5.3.1 The transceiver's operational frequency range shall include the band of 150 to 174 MHz. The transceiver's operational frequency range shall include the band of 150 to 174 MHz. The operator shall be able to program any of a minimum of 15 main preset channels with any usable frequency within that band while in flight. A programmable scan feature shall be provided for main preset channels in aircraft with only a single VHF-FM multi-mode aeronautical transceiver.

B8.15.5.5.3.2 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.

B8.15.5.5.3.3 One CTCSS sub-audible tone encoder (which may be an integral part of the transceiver), with the lowest 32 TIA/EIA-603 tone frequencies 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.

B8.15.5.5.3.4 The encoder/transceiver system shall be capable of encoding a 110.9 Hz tone on all guard (168.625 MHz) transmissions.

B8.15.5.5.3.5 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 (all)
- Technisonics TFM-500 (all)
- Technisonics TDFM-136 (all)
- Wulfsberg RT-5000/C-5000 with Guard option
- Wulfsberg RT-9600N w/C-962A control head

B8.15.5.5.3.5.1 Bendix-King/BK  
Radio model KFM-985 transceivers do not meet the referenced requirements for Interagency Air Tactical.

B8.15.5.5.4 An intercommunications System (ICS) shall be provided for the pilot, copilot/ATGS, and any other required positions. ICS audio shall mix with, but not mute, selected receiver audio. An ICS audio level control shall be provided for each position above. A Contractor-furnished headset with integral volume control for any required aft seat position shall satisfy this requirement. 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 each position above. 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.

#### **B8.15.5.6 Air Tactical Avionics Type II Requirements:**

B8.15.5.6.1 One panel-mounted GPS unit shall be permanently installed in the aircraft. The GPS shall be equipped for manual entry of waypoints in flight, 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, portable, and/or marine type equipment is not acceptable.

B8.15.5.6.2 Two separate audio control systems (which may be combined in a single unit) shall be provided for the pilot and copilot/ATGS. Each system shall provide pilot and copilot/ATGS with separate controls for selection of receiver audio outputs and transmitter microphone/PTT audio inputs for all installed radios. Each system shall also provide pilot and copilot/ATGS with separate controls for adjustment of both ICS and receiver audio output levels. Labeling and marking of controls shall be clear, understandable, legible, and permanent. Electronic label maker marking is acceptable.

B8.15.5.6.2.1 Earphones, microphones, PTT's, and jacks:

B8.15.5.6.2.1.1 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 CE-100 TR preamplifier, or equivalent).

B8.15.5.6.2.1.2 J-033 and J-034 type connector jacks shall be provided at all required positions in the aircraft to accept the PJ-055B and PJ-068 type connector plugs as utilized with the headset/microphone.

B8.15.5.6.2.1.3 Separate PTT switches shall be provided for radio transmitter and ICS microphone operation at the pilot, copilot/ATGS, and one (aft) ATGS instructor positions. The pilot's PTT switches shall be mounted on the control yoke. **Note:** At the copilot/ATGS position, PTT switches other than those mounted on the flight controls must be furnished. The aft seat passenger (fourth) position shall be provided with an ICS PTT switch, unless a voice-activated (VOX) ICS system is provided.

B8.15.5.6.2.2 Transmitter selection and operation. Separate transmitter selection controls shall be provided for the microphone/PTT inputs of both pilot and copilot/ATGS. The system shall be configured so the pilot and copilot/ ATGS may each simultaneously select and utilize a different transmitter 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. The (aft) ATGS instructor position shall be equipped to utilize the transmit function as selected by the copilot/ATGS. Whenever the copilot/ ATGS selects a radio on which to transmit, the (aft) ATGS instructor's transmit function shall automatically be connected to the same radio. A separate (third) audio control system for the (aft) ATGS instructor position is an acceptable alternative.

B8.15.5.6.2.3 Receiver selection and operation. Separate controls shall be provided for both pilot and copilot/ATGS selection of audio from one or any combination of available receivers. Any ICS-equipped aft passenger positions shall monitor the receiver(s) as selected by the copilot/ATGS. 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.

B8.15.5.6.3 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. All main preset channels shall be capable of being scanned (single VHF-FM aeronautical transceiver installations only).

B8.15.5.6.3.1 The transceiver's operational frequency range shall include the band of 150 to 174 MHz. The transceiver's operational frequency range shall include the band of 150 to 174 MHz. The operator shall be able to program any of a minimum of 15 main preset channels with any usable frequency within that band while in flight. A programmable scan feature shall be provided for main preset channels in aircraft with only a single VHF-FM multi-mode aeronautical transceiver.

B8.15.5.6.3.2 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.

B8.15.5.6.3.3 One CTCSS sub-audible tone encoder (which may be an integral part of the transceiver), with the lowest 32 TIA/EIA-603 tone frequencies 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.

B8.15.5.6.3.4 The encoder/transceiver system shall be capable of encoding a 110.9 Hz tone on all guard (168.625 MHz) transmissions.

B8.15.5.6.3.5 The following models of VHF-FM aeronautical transceivers are known to meet the above requirements:

- Eureka Radio ERS-9600NB 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 (all)
- Technisonics TFM-500 (all)
- Technisonics TDFM-136 (all)
- Wulfsberg RT-5000/C-5000 with Guard option
- Wulfsberg RT-9600N w/C-962A control head

B8.15.5.6.3.5.1 Bendix-King/BK Radio model KFM-985 multi-mode transceivers do not meet the referenced requirements for Interagency Air Tactical.

B8.15.5.6.4 Provisions for auxiliary VHF-FM (AUX-FM) portable radio:

B8.15.5.6.4.1 The Vendor 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 copilot/ATGS, and utilizing the contact assignments as specified by drawing FS/OAS A-17.

B8.15.5.6.4.2 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 copilot/ATGS adjacent to the above 10-pin connector (Comant model CI-177 or equal).

B8.15.5.6.4.3 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 convenient for the copilot/ATGS.

B8.15.5.6.4.4 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).

B8.15.5.6.4.5 In lieu of the AUX-FM requirements above, the Vendor may substitute one VHF-FM aeronautical transceiver (FM-2) which meets the requirements (less guard) for a VHF-FM aeronautical transceiver, as specified in B8.15.4.5.3 above.

B8.15.5.6.5 An Intercommunications System (ICS) shall be provided for the pilot, copilot/ATGS, and two aft cabin (ATGS instructor and one 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. A Contractor-furnished headset with integral volume control for each required aft seat position shall satisfy this requirement. 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 each position above. 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.

#### **B8.15.5.7 Air Tactical Avionics Type I Requirements:**

B8.15.5.7.1 One panel-mounted GPS unit shall be permanently installed in the aircraft. The GPS shall be equipped for manual entry of waypoints in flight, 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, portable, and/or marine type equipment is not acceptable.

B8.15.5.7.2 Two separate audio control systems (which may be combined in a single unit) shall be provided for the pilot and copilot/ATGS. Each system shall provide pilot and copilot/ATGS with separate controls for selection of receiver audio outputs and transmitter microphone/PTT audio inputs for all installed radios. Each system shall also provide pilot and copilot/ATGS with separate controls for adjustment of both ICS and receiver audio output levels. Labeling and marking of controls shall be clear, understandable, legible, and permanent. Electronic label maker marking is acceptable.

B8.15.5.7.2.1 Earphones, microphones, PTT's, and jacks:

B8.15.5.7.2.1.1 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 CE-100 TR preamplifier, or equivalent).

B8.15.5.7.2.1.2 J-033 and J-034 type connector jacks shall be provided at all required positions in the aircraft to accept the PJ-055B and PJ-068 type connector plugs as utilized with the headset/microphone.

B8.15.5.7.2.1.3 Separate PTT switches shall be provided for radio transmitter and ICS microphone operation at the pilot, copilot/ATGS, and one (aft) ATGS instructor positions. The pilot's PTT switches shall be mounted on the control yoke. **Note:** At the copilot/ATGS position, PTT switches other than those mounted on the flight controls must be furnished. The aft seat passenger (fourth) position shall be provided with an ICS PTT switch, unless a voice-activated (VOX) ICS system is provided.

B8.15.5.7.2.2 Transmitter selection and operation. Separate transmitter selection controls shall be provided for the microphone/PTT inputs of both pilot and copilot/ATGS. The system shall be configured so the pilot and copilot/ ATGS may each simultaneously select and utilize a different transmitter 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. The (aft) ATGS instructor position shall be equipped to utilize the transmit function as selected by the copilot/ATGS. Whenever the copilot/ ATGS selects a radio on which to transmit, the (aft) ATGS instructor's transmit function shall automatically be connected to the same radio. A separate (third) audio control system for the (aft) ATGS instructor position is an acceptable alternative.

B8.15.5.7.2.3 Receiver selection and operation. Separate controls shall be provided for both pilot and copilot/ATGS selection of audio from one or any combination of available receivers. Any ICS-equipped aft cabin positions shall monitor the receiver(s) as selected by the copilot/ATGS. 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.

B8.15.5.7.3 Two VHF-FM multi-mode aeronautical transceivers (FM-1, FM-2), each of which provides selection of both narrowband (12.5 kHz) and wideband (25.0 kHz) bandwidth operation on each channel.

B8.15.5.7.3.1 The transceivers' operational frequency range shall include the band of 150 to 174 MHz. The operator shall be able to program each with any of a minimum of 15 main preset channels with any usable frequency within that band while in flight.

B8.15.5.7.3.2 Carrier output power shall be 10 watts nominal value (original design specification). The transceivers 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 on each transceiver. Single bandwidth guard receivers which operate in the wideband (25.0 kHz) mode are acceptable. Scanning of the guard frequency is not acceptable.

B8.15.5.7.3.3 Two CTCSS sub-audible tone encoders (which may be integral parts of the transceivers), each with the lowest 32 TIA/EIA-603 tone frequencies being selectable, shall be interfaced to the above transceiver. It is desired that the encoders provide a display of the selected tone or tone frequency.

B8.15.5.7.3.4 The encoder/transceiver systems shall be capable of encoding a 110.9 Hz tone on all guard (168.625 MHz) transmissions.

B8.15.5.7.3.5 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 (all)
- Technisonics TFM-500 (all)
- Technisonics TDFM-136 (all)
- Wulfsberg RT-5000/C-5000 with Guard option
- Wulfsberg RT-9600N w/C-962A control head

B8.15.5.7.3.5.1 Bendix-King/BK Radio model KFM-985 multi-mode transceivers do not meet the referenced requirements for Interagency Air Tactical.

B8.15.5.7.4 Provisions for auxiliary VHF-FM (AUX-FM) portable radio:

B8.15.5.7.4.1 The Vendor 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 copilot/ATGS, and utilizing the contact assignments as specified by drawing FS/OAS A-17 (Exhibit 6).

B8.15.5.7.4.2 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 copilot/ATGS adjacent to the above 10-pin connector (Comant model CI-177 or equal).

B8.15.5.7.4.3 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 convenient for the copilot/ATGS.

B8.15.5.7.4.4 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).

B8.15.5.7.4.5 In lieu of the AUX-FM requirements above, the Vendor may substitute a third VHF-FM aeronautical transceiver (FM-3) which meets the requirements (less guard) for a VHF-FM aeronautical transceiver, as specified in B8.15.3.7.3 above.

B8.15.5.7.5 An Intercommunications System (ICS) shall be provided for the pilot, copilot/ATGS, and two aft cabin (ATGS instructor and one 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. A Contractor-furnished headset with integral volume control for each required aft seat position shall satisfy this requirement. 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 each position above. 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.

B8.15.5.7.6 Although not a requirement, any aircraft meeting the requirements specified above for Air Tactical Type One (ATT-I), which is additionally equipped with a traffic awareness and avoidance system meeting the requirements for such specified below, shall be designated as Air Tactical Type One Plus TCAS/TCAD.

B8.15.5.7.6.1 The aircraft shall be equipped with a TSO'd traffic awareness and avoidance system featuring active interrogation of threat aircraft. The system shall be equipped with antennas mounted on both the top and bottom of the aircraft to minimize airframe shadowing and provide 360-degree coverage. The system shall also incorporate visual alerts for both pilot and co-pilot and an aural alerting feature which announces an alert of threat aircraft whenever such aircraft enter a zone of a programmable size with range selections from no more than two nautical miles to at least ten nautical miles around the aircraft. The aural alert output shall be interconnected to the aircraft's audio system in such a manner that all ICS-equipped positions shall receive the alert. The aircraft shall be equipped with a Multi-Function Display (MFD), GPS, or other system capable of displaying threat aircraft output data, and the system shall be interfaced to such.

B8.15.5.7.6.2 The system shall be installed in accordance with an STC or FAA Field Approval based upon an existing STC and the manufacturer's installation manual. Installation of the system shall be accomplished by a certified avionics repair station which has been approved for such by the system's manufacturer. The system shall be maintained for continued airworthiness, but may be listed in an approved Minimum Equipment List (MEL), provided the MEL does not permit the system to be inoperable for a period exceeding 15 days.

B8.15.5.7.6.3 The following systems are known to meet the above requirements:

B8.15.5.7.6.3.1 TCAS: Any TSO'd system which provides a range selection of 2 nautical miles or less.

B8.15.5.7.6.3.2 TAS: Bendix-King KTA 870, Goodrich Skywatch HP

B8.15.5.7.6.3.3 TCAD: Ryan International TCAD 9900BX – only when a separate, approved Multi-Function Display (MFD) is used to display threat aircraft data.

#### **B8.15.5.8 Avionics installation and maintenance standards - all aircraft:**

B8.15.5.8.1 All avionics systems used in or on the aircraft for this contract and their installation and maintenance shall comply with all manufacturer's specifications and applicable Federal Aviation Regulations contained within 14 CFR regardless of any exclusions for public aircraft allowed in 14 CFR.

B8.15.5.8.2 Strict adherence to the recommendations in FAA AC 43.13-1B Chapter 11, "Aircraft Electrical Systems", and Chapter 12, "Aircraft Avionics Systems," as well as AC 43.13-2A Chapter 1, "Structural Data", Chapter 2, "Radio Installation," and Chapter 3, "Antenna Installation," is required.

B8.15.5.8.3 All avionics systems requiring an antenna shall be installed with a properly matched, aircraft-certified antenna unless otherwise specified. Antennas shall be polarized as required by the avionics system, and have a VSWR of 2.5 to 1 or better.

B8.15.5.8.4 Avionics equipment mounting location and installation shall not interfere with passenger safety, space, and comfort. Avionics equipment shall not be mounted under seats designed for deformation during energy attenuation. In all instances, the designated areas for collapse shall be protected. Avionics equipment normally operated by both pilot and copilot/ATGS (FM-1, AUX-FM, audio control system, etc.) shall be mounted in the optimum location for the make, model, and series of aircraft offered. Mounting(s) which offer full and unrestricted movement of each control to both operators, when seated, without interference from clothing, cockpit structure, or flight controls shall be a goal in the selection of location.

B8.15.5.8.5 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.

B8.15.5.9 Drawings: FS/OAS A-17: wiring diagram for AUX-FM connector. (Exhibit 6)

#### **C8.15 GUARANTEE, MEASUREMENT AND PAYMENT. (Lower 48 States Only)**

**C8.15.1 Guarantee.**

C8.15.1.1 The Government does not guarantee any minimum number of flight hours.

C8.15.1.2 The Government shall pay a daily guarantee for fixed costs when operating under this supplement at the rates specified on the Air Tactical OAS-10, block 2.(2). It is the Vendor's responsibility to submit a line item entry for any daily guarantee due. Notate in the Remarks section "Air Tactical Missions."

**C8.15.2 Measurement.**

C8.15.2.1 **Airplanes.** Flight time shall be measured from the time the aircraft commences its takeoff roll until it returns to the blocks. Elapsed time shall be recorded in hours and tenth/hundredths of hours. A table is contained within the OAS-23 booklet.

C8.15.2.2 **Extended Standby.** Extended standby shall be measured and recorded in full hours, rounded up to the next whole hour, not to exceed each crewmember's duty limitations specified under section B.3.3.

C8.15.2.3 **Guarantee.** Services terminating before 1200 hours or beginning at or after 1200 hours shall be measured as one-half the guarantee rate set forth on the Air Tactical OAS-10.

C8.15.2.3.1 The daily guarantee rate shall include all fixed costs incurred exclusive of those costs directly attributable to actual flight. During the hired period, the Contractor shall be available and capable of providing service up to 14 hours each day as scheduled by the Government. Personnel shall be available a minimum of nine hours each day or as scheduled by the Government. Routine maintenance shall be performed before or after the scheduled 14 hour period. Record on the OAS-23 as 1.0

C8.15.2.3.2 Whenever ordered service is unavailable, the daily guarantee shall be reduced at the rate of one fourteenth for every hour or portion thereof service is unavailable. Record unavailability in the remarks section. Reference Conversion Chart – Unavailability page 17 of OAS-23 User Guide.

C8.15.2.3.3 Daily guarantee shall not accrue after the aircraft is released, regardless of the location and the circumstances at the time of release (i.e., adverse weather conditions, etc.). Daily guarantee shall not be paid if the aircraft has been released for other use.

**C8.15.3 Payment.**

C8.15.3.1 **Payment for Flight Time.** Payment shall be made for all flights ordered by the Contracting Officer or authorized representative and flown by the Vendor or Government pilot at the rates set forth on the Air Tactical OAS-10.

C8.15.3.2 **Flights for Vendor's Benefit.** Payment shall not be made for flights for the benefit of the Vendor such as maintenance test flights, flights to and from maintenance facilities, training or familiarization flights, flights required following an engine change, or transportation of Vendor's support personnel.

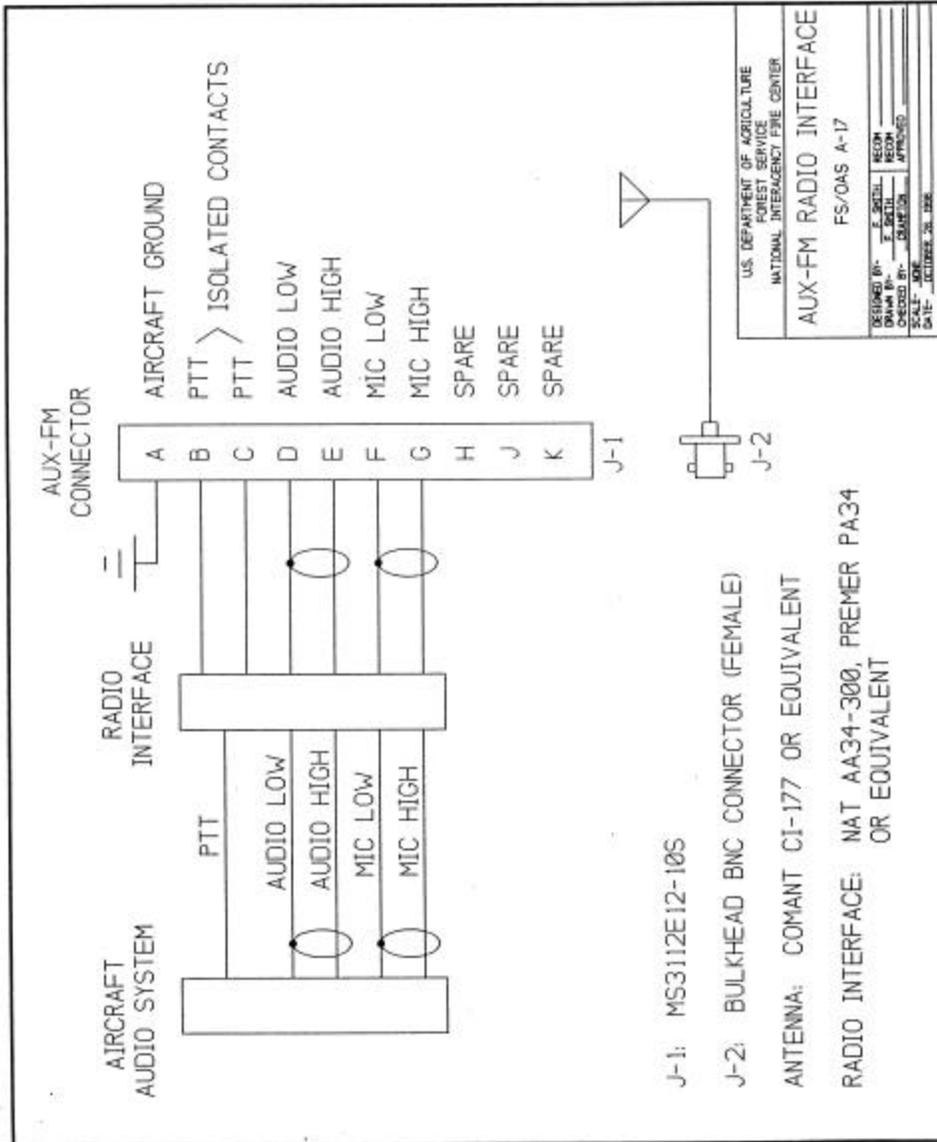
C8.15.3.3 **Extended Standby** Extended Standby shall be paid for all services ordered by the Government and performed by the Vendor which extend beyond a nine hour period. Extended standby is applicable only to those crewmembers ordered by the Government and furnished by the Vendor and shall not exceed the applicable crew duty day. Extended standby is not intended to compensate the Vendor on a one-to-one basis for all hours necessary to service and maintain the aircraft, but is intended to provide the Vendor compensation for employee time which is specifically ordered by the Government and provided by the crewmember(s).

**C8.15.3.4 Guarantee.**

C8.15.3.4.1 When documented on a properly completed invoice, payment shall be made for (1) the actual flight time including required ferry, and (2) the total daily guarantee determined by multiplying the number of days of ordered service by the daily guarantee set forth on the Air Tactical OAS-10.

C8.15.3.4.2 Payment of daily guarantee shall be computed at the guaranteed rate as set forth on the Air Tactical OAS-10, block 2.(2).

C8.15.4.5 **Co-pilot.** When a co-pilot is requested for service under this agreement, the co-pilot shall be paid at the hourly rate set forth on the Air Tactical OAS-10 for actual flight time performed.



**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**

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<b>W</b>	<b>Y</b>	<b>W</b>	<b>Y</b>	<b>W</b>		<b>W</b>	<b>Y</b>	<b>W</b>	<b>Y</b>	<b>W</b>
<b>1/6</b>	<b>1/6</b>	<b>1/6</b>	<b>1/3</b>	<b>1/6</b>		<b>1/6</b>	<b>1/3</b>	<b>1/6</b>	<b>1/6</b>	<b>1/6</b>

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