



DEPARTMENT OF THE ARMY
US ARMY RESEARCH, DEVELOPMENT AND ENGINEERING COMMAND
AVIATION AND MISSILE RESEARCH, DEVELOPMENT, AND ENGINEERING CENTER
5400 FOWLER ROAD
REDSTONE ARSENAL, ALABAMA 35898-5000

RDMR-AEV

15 Apr 10 R1
19 Jun 08

AWR RQ-11AB20080623R1

MEMORANDUM FOR Project Manager, Unmanned Aircraft Systems (SFAE-AV-UAS),
Redstone Arsenal, AL 35898-5000

SUBJECT: Airworthiness Release, Qualification Level 3, for Operation of the Unmanned Aircraft Systems RQ-11A and RQ-11B In Accordance With (IAW) the Memorandum of Agreement (MOA) between the Department of Defense (DoD) and the Federal Aviation Administration (FAA) for operation of Unmanned Aircraft Systems in the National Airspace System. (RQ-11AB20080623R1) (TN 82603).

1. Scope: This memorandum constitutes an Airworthiness Release (AWR), Qualification Level 3, authorizing operation of the Unmanned Aircraft Systems RQ-11A and RQ-11B for operations within Class G airspace IAW with the DoD/FAA MOA for UAS Operations in the National Airspace System.
2. Validity: This AWR is a revision to AWR RQ-11AB20080619 and terminates on 15 Apr 12, upon changes in configuration of the subject equipment, or upon issuance of a later Airworthiness Release, whichever occurs first. This AWR is valid only for RQ-11A and RQ-11B operations within the Class G airspace, below 1200 feet above ground level (AGL), over military bases, reservations, or land protected by purchase, lease, or other restriction.
3. List of Appendices:

Appendix A - Restrictions and Operating Information
Appendix B - Configuration and Installation Detail
Appendix C - Inspections, Maintenance, and Logbook Instructions
Appendix D - References List

4. The point of contact (POC) is (b) (6) commercial (256) 876-2864, or e-mail: (b) (6) commercial (256) 313-5306, or e-mail: (b) (6)

(b) (6)

SUBJECT: Airworthiness Release, Qualification Level 3, for Operation of the Unmanned Aircraft System RQ-11B In Accordance With (IAW) the Memorandum of Agreement (MOA) between the DoD and the FAA for operation of Unmanned Aircraft Systems in the National Airspace System (RQ-11AB20080623R1) (TN 82603)

Appendix A – Restrictions and Operating Information:

WARNING

These air vehicles are susceptible to radiated emissions. Loss of link, loss of GPS, loss of video, and possible loss of vehicle control are likely in proximity to emitters. Operators shall avoid known high intensity Electromagnetic Interference (EMI) areas.

WARNING

The RQ-11A and RQ-11B Raven UASs do not have a sense and avoid system. Mid-air collision is a risk. All flight operations shall be conducted to ensure that manned and unmanned aircraft shall maintain proper separation.

WARNING

The RQ-11A and RQ-11B Raven UASs have not completed full airworthiness qualification. All flight operations shall be conducted in a manner to minimize exposure to manned aircraft and populated ground areas.

WARNING

The RQ-11A and RQ-11B Raven UASs have not undergone SOF Explosive Atmosphere testing. A serious fire or explosion may result if the aircraft is powered while flammable vapors are present during ground or flight operations. Do not operate the system in the presence of flammable vapors.

WARNING

The operator must coordinate frequencies with any other Raven operators in the area IAW the operator's manual and Local Spectrum Manager procedures. Failure to coordinate frequencies with other users could result in loss of vehicle control and possible loss of the air vehicle.

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CAUTION

Noise characterization testing has not been completed on this system. Prolonged exposure to engine noise at close proximity may contribute to hearing loss. It is recommended that ear plugs be worn while launching the air vehicle.

1. The operating unit must notify the FAA of intended operations. This shall be accomplished through your regional United States Army Aeronautical Services Agency (USAASA) representative prior to any flight operations.
2. Operate the RQ-11A and RQ-11B IAW the Operator's Manual (reference D-1), Technical Manuals (references D-2 and D-3), except as modified by this AWR.
 - a. Flights shall be conducted IAW local regulations and the FAA MOA (reference D-4).
 - b. Flights shall avoid other Raven (RQ-11A and RQ-11B) transmitters by at least 200 meters. Ground control stations shall be located at least 400 meters apart.
3. Emergency procedures: IAW the operator's manual.
4. The Rally waypoint shall be inside the allowed Class G airspace over an approved Autoland point.
5. Flight of the RQ-11A and RQ-11B Raven UASs are restricted to Visual Meteorological Conditions (VMC).
6. Flight over populated areas shall be avoided.
7. All flight operations shall be conducted IAW the approved DoD/FAA MOA guidelines.
8. All flights shall be conducted within clear visual range of the pilot, or a certified observer in ready contact with the pilot.
9. Operations shall be conducted over military bases, reservations or land protected by purchase, lease or other restriction.
10. All operations shall be conducted by a certified Raven operator.

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11. The aircraft shall not be operated at altitudes above 1200 feet Above Ground Level (AGL).

12. All flights shall be conducted at a minimum of 5 miles from any civil use airport or heliport.

13. Commander's Corner:

a. The RQ-11A and RQ-11B Raven Unmanned Aircraft Systems (UASs) have not completed the airworthiness qualification process. An AWR has been granted through a Level 3 Airworthiness evaluation. A Level 3 AWR establishes a minimum level of safety for UAS operations. Strict adherence to the Operator's Manual, local Standard Operating Procedures for UASs, and this AWR is required to reduce the risk of loss of the aircraft, property damage and personal injury.

b. The referenced MOA (D-4) allows for the operation of small unmanned aircraft systems (any UAS under 20 pounds) to operate within the National Airspace System (NAS) outside of Restricted and Warning Areas. An equivalent or elevated level of situational awareness should be employed when operating the RQ-11A or RQ-11B outside a Restricted or Warning Area. It is the user's responsibility to be familiar with the referenced MOA (D-4) before conducting any operations. All flight operations must be conducted within clear visual range of the operator or a certified observer.

c. Coordination of channel selection with other systems operating in the area is critical to reducing accident rates.

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Appendix B – Configuration and Installation Detail:

1. Configuration details, other specific equipment, and drawings: The basic RQ-11A Unmanned Aircraft System is defined in reference D-1. The basic RQ-11B Unmanned Aircraft System is defined in reference D-2.
2. Special installation instructions: NONE.
3. Installation verification and quality checks: NONE.

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Appendix C – Inspections, Maintenance, and Logbook Instructions:

1. Conduct inspections and maintenance on the RQ-11A as specified in reference D-1. Conduct inspections and maintenance on the RQ-11B as specified in reference D-2.

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Appendix D – References:

1. Raven RQ-11A Small Unmanned Aerial Vehicle Operator's Manual Version 2.7, dated July 2005.
2. Technical Manual 1-1550-695-13&P, Operator and Field Maintenance Manual Including Repair Parts and Special Tools List for Small Unmanned Aircraft System (SUAS) RQ-11 B, dated 9 January, 2007, with latest updates.
3. Technical Manual 1-1550-695-CL, Operator's and Crewmember's Checklist, RQ-11B SUAS, dated 9 January, 2007, with latest updates.
4. "Memorandum of Agreement for Operation of Unmanned Aircraft Systems in the National Airspace System," dated 24 September 2007