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US ARMY RESEARCH, DEVELOPMENT AND ENGINEERING COMMAND
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REPLY TO
ATTENTION OF

AMSRD-AMR-AE-V

R1: 29 Jun 07
27 Jun 07

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

SUBJECT: Airworthiness Release (AWR) Qualification Level 3 for Operation of MQ-5B
Hunter Unmanned Aircraft System (UAS) (AWR MQ-5B20070627R1) (TN 46043)

1. Scope: This memorandum constitutes a Qualification Level 3 AWR authorizing operation of the MQ-5B Hunter Unmanned Aircraft System within restricted areas R-3005 and Warning Area, W-157, and the approved Federal Aviation Administration (FAA) Certificate of Authorization (COA) area near Ft. Stewart and the corridor between R-3005 and W-157 as identified in appendix D-1 of this AWR. This AWR is to support AMALGAM DART Exercise from 18 through 20 September 2007.
2. Validity: This AWR is new and terminates upon changes in configuration of the subject equipment or upon issuance of a later AWR, whichever occurs first. This AWR is valid only to support operations associated with the efforts as detailed in Appendix D-1.
3. Appendices: This memorandum shall be carried in the logbook, controlling Ground Control Station (GCS), and a complete AWR copy with all appendices kept in the aircraft historical record file.

Appendix A - Restrictions and Operating Information

Appendix B - Configuration and Installation Detail

Appendix C - Inspections, Maintenance, and Logbook Instructions

Appendix D - Reference List

4. The point of contact (POC) is (b) (6), (b) (6), (b) (6), FAX
(b) (6)
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Appendix A: Restrictions and Operating Information

WARNING

The MQ-5B Hunter UAS has not completed full airworthiness qualification. All flight operations shall be conducted in a manner to avoid exposure to manned aircraft and populated ground areas.

WARNING

Accidental operation of the MQ-5B Hunter UAS outside of restricted airspace or the authorized corridor shall be immediately reported to Air Traffic Control (ATC)/Range Control. The operator shall make immediate risk identification and take actions to correct the flight path and/or follow ATC/Range Control direction.

WARNING

The MQ-5B Hunter UAS has not undergone complete Electromagnetic Interference/Electromagnetic Compatibility (EMI/EMC) testing. Flight into high intensity EMI areas may result in erroneous data reports and/or loss of control of aircraft. Operators shall avoid known high intensity EMI areas.

WARNING

The MQ-5B Hunter UAS has 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. The precautions in paragraph 3 of this appendix shall be observed in order to ensure safe flight.

WARNING

The MQ-5B Hunter UAS does 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 maintain appropriate separation distances.

CAUTION

The MQ-5B Hunter UAS (to include GCS and supporting sub-systems) has not been tested for lightning. Flight operations shall be restricted to no less than 25 nautical miles from lightning activity.

1. The aircraft operating instructions, procedures, and limitations shall be in accordance with the reference 2 and this AWR. In the event of conflict between these documents, the information in this AWR shall prevail.
2. Flight of the MQ-5B Hunter UAS is restricted to Visual Flight Rules (VFR) and Visual Meteorological Conditions (VMC).
3. Due to lack of SOF Explosive Atmosphere testing, the following precautions shall be observed in order to ensure safe flight:
 - a. The aircraft shall be un-powered and properly grounded In Accordance With (IAW) reference 1 during refueling operations.
 - b. Ground operations of the aircraft shall be conducted at the greatest distance practical (no less than 50 feet) from all other aircraft and fuel depots.
4. In the event of a single engine failure, the operator shall initiate a Return to Base (RTB) before attempting to restart the engine.
5. Use of data links is limited to approved frequencies for all ground and flight operations. Data link frequencies shall be de-conflicted through the local frequency manager/coordinator prior to conducting operations.
6. The auto return home function shall be set for no more than 15 seconds of lost data link.
7. The Return Home Point shall be over a suitable ditch point and within range of the Omni-antenna.
8. In the event of dual engine failure or other catastrophic failure, ATC will be notified immediately and the aircraft will be ditched over the return home waypoint if possible. If not possible to make the ditch point, every effort shall be made to visually inspect the impact area with the payload prior to parachute deployment.
9. The flight path of the aircraft shall be within a 4:1 glide ratio of a suitable ditching point.
10. The aircraft shall not be flown at altitudes below 2000 feet Above Ground Level (AGL) except for launch and recovery activities.
11. During preflight someone other than the operator shall verify that the return home waypoint is entered correctly.

12. Verified loss of any aircraft flight critical sub-system or Ground Control Station (GCS) flight critical sub-system shall require Return To Base (RTB).
13. If power is lost to ground station, the aircraft shall RTB to reset control station.
14. Any unexplained anomaly shall initiate RTB or trouble shooting may be performed within the active restricted airspace.
15. There shall be a minimum of one controlling GCS and one back-up GCS for all flight operations.
16. Any procedural deficiencies or flight anomalies detected during operations shall be corrected, annotated, and reported to the POC listed in paragraph 4 of this AWR.
17. Flight over populated areas shall be avoided.
18. In case of loss of communications between the aircraft operator or ATC/Range Control, the aircraft shall be directed to the return home waypoint. The return home waypoint shall be over a suitable ditch point and within range of the Omni- antenna.
19. Local ATC/Range Control personnel shall be notified with a flight plan or flight strip prior to departure, to aid in airspace de-confliction.
20. Commander's Corner:

The MQ-5B Hunter Unmanned Aircraft System (UAS) has not completed full airworthiness qualification testing. Strict adherence to the Operators Manual and this AWR will minimize the hazards of operation.

Appendix B – Configuration and Installation Detail:

1. Configuration- This aircraft is a production configuration MQ-5B Hunter UAS as identified in reference D-2.

Appendix C – Inspections, Maintenance, and Logbook Instructions:

1. In the event any operating limit, or limits established by this release, is exceeded in addition to the normal entry on DA Form 2408-13, appropriate inspections shall be performed prior to next flight.

2. Aircraft Logbook Entries:

a. In accordance with Department of the Army (DA) Pamphlet 738-751, the following entries shall be made on the DA Form 2408-13-1 and shall be perpetuated on each form, until superseded by another AWR, or until reason for limitation is removed.

(1) Place a circled red "X" on the form IAW DA Pamphlet 738-751. In the Fault Information Block, make the following entry: " Operate within limitations and restrictions specified in the enclosed airworthiness release dated, 29 Jun 07."

(2) A weight and balance form DD365 shall be maintained on file in each aircraft's log book and weight and balance book maintained or by the operation unit.

Appendix D - Reference List:

1. AMALGAM DART 07-02 Exercise Palm (ver 1.0) 12, 18, 19, and 20 September 2007. |
2. Technical Manual 9-5895-692-10, Operator's Procedures for the Drone, Aircraft MQ-5B, May 05.

Airworthiness Release (AWR) Qualification Level III for Operation of MQ-5B Hunter
Unmanned Aircraft System (UAS), AWR MQ-5B20070627R1 (TN: 46043)

MEMORANDUM FOR RECORD

SUBJECT: Airworthiness Release (AWR), Qualification Level 3, for Operation of Unmanned Aircraft System MQ-5B (MQ-5B20070627) (TN: 46043).

1. This memorandum is to support a Certificate of Authorization for the use of a standard MQ-5B Hunter UAS to support an exercise between Homeland Security, Air Force, U.S. Coast Guard, and U.S. Army, and the Certificate of Authorization (COA) Request. This is a Qualification Level III authorizing operation of the MQ-5B Hunter UAS in AMAGAM DART 07-02. The Aeromechanics, Mission Equipment, Structures, and Propulsion Divisions are not applicable to this AWR because it is a Level III AWR.
2. This revision is to update the area requested in the COA. Ft. Stewart will not have an approved COA in time to meet this operation; therefore SOCOM has added it to their request.
3. For further information please contact: (b) (6)

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