



SECRETARY OF THE ARMY
WASHINGTON

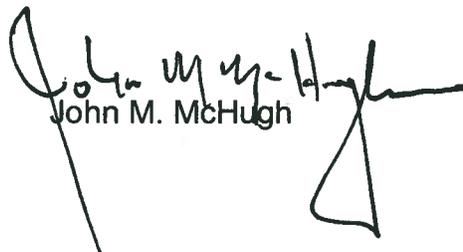
13 JAN 2012

MEMORANDUM FOR SEE DISTRIBUTION

SUBJECT: Army Directive 2012-02 (Supplemental Policy for Operations of Unmanned Aircraft Systems in the National Airspace System)

1. The Army's unmanned aircraft systems (UAS) represent emerging technology that requires access to the National Airspace System. The Army intends to use UAS for warfighter training and directed mission support. To ensure that UAS operations are conducted safely and efficiently, and in accordance with Federal aviation regulations and other governing laws and procedures, the Deputy Chief of Staff (DCS), G-3/5/7 developed the enclosed supplemental policy. This policy applies to the Active Army, the Army National Guard/Army National Guard of the United States, and the United States Army Reserve, unless otherwise stated.
2. As UAS operations evolve and mature, the DCS G-3/5/7 shall ensure this policy is reviewed with Army stakeholders on a biannual basis and updated, as necessary.
3. This policy is effective immediately and supersedes the Interim Guidance for UAS Operations in the National Airspace System that the DCS G-3/5/7 issued on 24 March 2009. This policy will be incorporated in the next revisions of Army Regulation 95-23 (Unmanned Aircraft System Flight Regulations), Army Regulation 95-2 (Airspace, Airfields/Heliports, Flight Activities, Air Traffic Control and Navigation Aids) and the Unified Facilities Criteria 3-260-01 and 3-260-02.

Enclosure


John M. McHugh

SUBJECT: Army Directive 2012-02 (Supplemental Policy for Operations of Unmanned Aircraft Systems in the National Airspace System)

**Principal Officials of Headquarters, Department of the Army
Commander**

**U.S. Army Forces Command
U.S. Army Training and Doctrine Command
U.S. Army Materiel Command
U.S. Army Europe
U.S. Army Central
U.S. Army North
U.S. Army South
U.S. Army Pacific
U.S. Army Africa
U.S. Army Special Operations Command
Military Surface Deployment and Distribution Command
U.S. Army Space and Missile Defense Command/Army Strategic Command
Eighth U.S. Army
U.S. Army Network Enterprise Technology Command/9th Signal Command
U.S. Army Medical Command
U.S. Army Intelligence and Security Command
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U.S. Army Corps of Engineers
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Director, U.S. Army Acquisition Support Center**

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Executive Director, Army National Cemeteries Program
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Director, Office of Business Transformation
Commander, U.S. Army Aviation and Missile Command
Commander, U.S. Army Aviation Center of Excellence
Program Executive Officer, Aviation
Commander, U.S. Army Combat Readiness Center**

**SUPPLEMENTAL POLICY FOR OPERATIONS OF
UNMANNED AIRCRAFT SYSTEMS IN THE
NATIONAL AIRSPACE SYSTEM**

JANUARY 2012

Enclosure

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1. Purpose

a. This enclosure establishes Armywide supplemental policy for the operations of unmanned aircraft systems (UAS) not currently covered in Army regulations (ARs), field manuals, Unified Facilities Criteria, and other regulatory guidance. This supplemental policy is derived in part from recent Department of Defense (DoD) and Federal Aviation Administration (FAA) agreements necessary for expanded UAS access to the National Airspace System.

b. This supplemental policy supersedes all versions of the interim guidance from the Deputy Chief of Staff, G-3/5/7 for UAS in the National Airspace System. The Commander, U.S. Army Aeronautical Services Agency will continue working with regulatory proponents and Army stakeholders to incorporate elements of this policy into existing regulations as UAS guidance matures during normal cycle updates.

2. Request for Federal Aviation Administration Certificate of Authorization

a. UAS operations outside of restricted or warning areas require an FAA-approved certificate of authorization, except for some operations in Class G airspace. (See paragraph 3, Operations of Small Unmanned Aircraft Systems in Class G Airspace Without a Certificate of Authorization, on page 2.)

b. To submit a request for a certificate of authorization:

(1) Complete the checklist application for the certificate of authorization via the FAA Obstruction Evaluation / Airport Airspace Analysis (OE/AAA) Web site (<https://ioeaaa.faa.gov/>). Contact the FAA Service Area Department of the Army Representative (DAR) for Web site access and questions. (Refer to AR 95-2 (Airspace, Airfields/Heliports, Flight Activities, Air Traffic Control, and Navigational Aids), table 3-1, for DAR contact information.)

(2) Requests must be submitted to the DAR by the O-6/civilian equivalent or higher in the unit's chain of command a minimum of 90 days before the requested start of UAS operations. Earlier submission is recommended to streamline processing time for the certificate of authorization.

c. Certificates of authorization normally apply to one type and concept of UAS operations. The DoD/FAA UAS memorandum of agreement (MOA) dated 24 September 2007 (appendix A) allows leadership of an air traffic control (ATC) facility at a non-joint-use airfield to apply for a certificate of authorization to cover all UAS operations in the associated Class D airspace. These requests for a certificate of authorization will be referred to as the UAS MOA Class D certificate of authorization. ATC leadership will develop local procedures to comply with existing local traffic patterns, arrival and departure procedures, noise abatement procedures, and airfield operating rules. Local procedures are supplementary, but cannot waive or replace the procedures for DoD non-joint-use airfields with associated Class D airspace at

appendix B, beginning on page 10. Local procedures must be approved by the ATC facility chief before implementation and will be published and maintained in the ATC facilities. Contact the DAR to determine if you may initiate a UAS MOA Class D certificate of authorization for your facility. Complete the certificate of authorization checklist and provide it to the DAR for submission to the FAA in accordance with paragraph 2b. The DAR will inform the requesting organization that its certificate of authorization is approved or disapproved. Once the certificate of authorization is approved, provide any changes to local procedures, unmanned aircraft systems, and airworthiness release to the DAR. The DAR will notify Headquarters, Army Aeronautical Services Agency (Airspace Branch) of any additional UAS type added to the approved MOA Class D certificate of authorization.

3. Operation of Small Unmanned Aircraft Systems in Class G Airspace Without a Certificate of Authorization

a. The DoD/FAA UAS MOA authorizes a Class G airspace notification in lieu of a certificate of authorization for UAS weighing 20 pounds or less operating below 1,200 feet above ground level in Class G airspace over military bases, reservations, or land protected by purchase, lease, or other restrictions. This is not applicable to airspace identified in 14 CFR 91.215 (Mode C veil within 30 miles of major airports depicted on Visual Flight Rules sectional charts by a solid magenta line). The UAS must remain more than 5 nautical miles from any civil use (public or private) airport or heliport and within clear visual range of the operator or certified observer in contact with the operator.

b. The UAS unit representative will contact the DAR to determine if this notification applies to proposed small UAS operation. Upon verification, the first O-6/civilian equivalent in the chain of command submits the Class G airspace memorandum, along with the current airworthiness release, to the DAR before conducting planned operations. (A sample memorandum for Class G airspace is in appendix C, beginning on page 17.) The DAR will officially notify the FAA and inform the requesting unit when notification procedures are complete.

c. The UAS commander will ensure that a Notice to Airmen (NOTAM) is issued 24 hours in advance to alert nonparticipating aircraft of the operation. The UAS commander will verify that a NOTAM was issued before beginning operations. Contact your air traffic and airspace officer if you require assistance submitting a NOTAM.

4. Arrival and Departure Criteria. The following arrival and departure criteria apply to UAS operating at Army facilities. UAS operations at joint military-civilian use airfields will also comply with provisions of FAA UAS certificates of authorization and joint use letters of agreement (LOAs) developed with the civil authority operating at the airport.

- a. Minimum approach angle: 3°.
- b. Minimum departure climb rate: 200' per nautical mile.
- c. Approach speed: Treat UAS as CAT A aircraft.

5. Surface and Clearance Criteria for Landings and Takeoffs

a. Landing and takeoff surfaces used only by UAS shall comply with criteria established in Engineer Technical Letter 1110-3-506 (Aviation Complex Planning and Design Criteria for Army Unmanned Aircraft Systems (UAS)). Surfaces used by manned aircraft shall comply with criteria established in Unified Facilities Criteria 3-260-01 and 3-260-02.

b. The first O-6/civilian equivalent in the UAS unit commander's command chain may waive surface length criteria for landings and takeoffs after completing a risk assessment and when lesser criteria is specified in the manufacturer's or appropriate military operations manual.

c. Local commanders are not authorized to waive lateral clearance or clear zone criteria. Requests for waivers shall be processed in accordance with Unified Facilities Criteria 3-260-01 through command channels to Headquarters, Army Aeronautical Services Agency.

6. Air Traffic Control Procedures

a. A comprehensive LOA is required and coordination may include unit commander, airfield commander/manager, and ATC facility chief. A review of the proposed LOA by the appropriate DAR is required before execution. Prepare and maintain LOAs in accordance with AR 95-2; Training Circular 3-04.81(Air Traffic Control Facility Operations, Training, Maintenance, and Standardization); and AR 25-50 (Preparing and Managing Correspondence). LOAs do not waive or modify restrictions listed in the FAA certificates of authorization.

b. UAS operations require a precoordinated missed approach procedure established in the LOA and in accordance with an approved certificate of authorization. The LOA will cover lost link and/or loss of visual contact procedures.

c. Air Traffic Control Separation and Phraseology

(1) U.S. Army radar approach control facilities will apply standard separation criteria to UAS operations outside of FAA-established active restricted areas.

(2) The agency using the restricted area (as identified in FAA Order 7400.8) will establish separation criteria to ensure safe operations within its restricted areas.

(3) U.S. Army ATC facilities will use standard phraseology in accordance with FAA Order 7110.65 (taxi to, cleared for takeoff, cleared to land, etc.) for communications between ATC and UAS operators. Nonstandard phraseology is not authorized.

7. Observers (When Required by Certificate of Authorization)

a. Ground observer duties are in accordance with AR 95-23 (Unmanned Aircraft System Flight Regulations), chapter 4.

b. Chase aircraft pilots are not authorized to perform observer or UAS operator duties while flying the chase aircraft. Observers onboard the chase aircraft will not perform UAS operator duties. The chase aircraft should operate within 1 nautical mile laterally, or according to the certificate of authorization, and no more than 3,000 feet vertically from the UAS. Observers onboard a chase aircraft must keep visual contact with the UAS at all times.

c. Radar observers are rated ATC personnel dedicated to monitoring unmanned aircraft. Radar observers may not simultaneously perform other ATC services. As a minimum, primary radar returns must be enabled. Secondary radar returns may be used in addition to primary radar, but not as a sole source of radar observing.

8. Weather Requirements. Weather requirements will be in accordance with AR 95-23, chapter 5.

9. Facility Requirements

a. The Army Deputy Chief of Staff, G-3/5/7 (DAMO-AV) is the proponent for Army requirements for manned and unmanned aircraft hangars. The G-3/5/7 is supported by the Assistant Chief of Staff for Installation Management with the aircraft maintenance hangar complex facilities design team.

b. Facility standard design can be obtained for the Grey Eagle, Warrior Alpha, and Hunter UAS at U.S. Army Corps of Engineers, Mobile District (Center of Standardization) (POC: Kathy Prochnow / phone (251) 690-3378).

10. Unmanned Aircraft Systems Operator and Observer Qualifications. Unit commanders will establish a standing operating procedure detailing operator and observer training and certification requirements. Training must include the rules and responsibilities in 14 CFR 91.111 (Operating Near other Aircraft) and 14 CFR 91.113 (Right-of-Way Rules).

a. Refer to AR 95-23 for guidance.

b. UAS observers must have vision correctible to 20/20 (both eyes).

c. Medical requirements for UAS operators are addressed in ALARACT 293/2010 – Notification of Changes to the Aeromedical Physical Standards of Unmanned Aviation Systems.

11. Operational Restrictions

a. Manned and unmanned traffic pattern operations will be conducted in accordance with AR 95-2, chapter 5. Manned and unmanned aircraft will not simultaneously operate in a traffic pattern. This includes traffic patterns that share a runway (right and left traffic patterns to same runway, including opposite direction operations). Manned and unmanned aircraft will not simultaneously operate to parallel/overlapping landing surfaces or those that have overlapping patterns. The only exceptions to these criteria are the allowance for the following, when authorized by an LOA:

- manned aircraft established on final (making a straight-in approach) to follow an unmanned aircraft already established on final, and
- manned aircraft established on final (making a straight-in approach) to follow an unmanned aircraft departing straight out from the runway.

Requirements in certificates of authorization, LOAs, or other local operating procedures and agreements may be more restrictive, but may not allow for less restrictive operations.

b. Armed UAS flights outside restricted and warning areas are prohibited unless specifically authorized in the FAA certificate of authorization.

12. Accident and Incident Reporting. In addition to requirements in AR 95-23, AR 385-10 (The Army Safety Program) and DA Pamphlet 385-40 (Army Accident Investigations and Reporting) provide the initial report of all UAS accidents or incidents to the appropriate DAR within 24 hours.

a. UAS accident reporting applies to all UAS (including small UAS).

b. Small UAS accident reporting is addressed in AR 95-23.

c. DA Form 2397-U (Unmanned Aircraft System Accident Report) is required for all UAS aviation accidents, regardless of the class. Investigation and submission of Form 2397-U will be in accordance with AR 385-10. A copy of Form 2397-U is at Appendix D, beginning on page 19.

**APPENDIX A – MEMORANDUM OF AGREEMENT
FOR UNMANNED AIRCRAFT SYSTEMS, 24 SEP 07**

**Memorandum of Agreement
Concerning the
Operation of Department of Defense Unmanned Aircraft Systems
in the
National Airspace System**

Introduction. On September 28, 2006, the Deputy Secretary of Defense directed the Executive Director, Department of Defense (DoD) Policy Board on Federal Aviation, to pursue an agreement with the Federal Aviation Administration (FAA) to allow ready access to the National Airspace System (NAS) for DoD Unmanned Aircraft Systems (UAS) domestic operations and training. This Memorandum of Agreement (MOA) between the DoD and the FAA sets forth provisions that will allow, in accordance with applicable law, increased access for DoD UAS into the elements of the NAS outside of DoD-managed Restricted Areas or Warning Areas.

To ensure that DoD UAS operations are conducted safely, efficiently, and in accordance with U.S. law, and to ensure DoD UAS assets have NAS access for domestic operations, including the War on Terror (WOT), this agreement assigns the DoD and the FAA specific tasks and responsibilities. This guidance applies to all DoD UAS, whether operated by Active, Reserve, National Guard, or other personnel.

It is the DoD's goal that appropriately equipped UAS will have ready access to the NAS for the conduct of domestic operations, exercises, training, and testing.

It is the FAA's goal that DoD UAS operations are conducted safely and expeditiously, present no threat to the general public, and do no harm to other users of the NAS.

To reach these goals, the DoD and FAA must aggressively collaborate toward an incremental approach in overcoming the technical, regulatory and safety hurdles to reaching these common goals. Both departments jointly agree to the following provisions as the initial steps in their pursuit of ready access to the NAS for DoD UAS operations.

Scope. The policies, procedures and operations prescribed in this MOA apply to the operation of DoD UAS within the NAS. This MOA specifically excludes commercial UAS operation for non-DoD applications and other Government Agencies that operate Public Use UAS.

Authority. Section 106 of Title 49, United States Code provides the authority of the Federal Aviation Administration to set aviation safety standards and regulate aviation operations in the NAS. Title 10 United States Code provides the authority for the Secretary of Defense to set military aviation standards and direct military aviation operations.

UAS Airworthiness Certification. Except where specifically exempted by the FAA, DoD UAS operated outside of Restricted Areas and Warning Areas shall be certified by one of the military departments as airworthy to operate at the appropriate level in accordance with applicable DoD and Military Department standards.

UAS Pilot/Operator¹/Crewmember Qualification. Pilots/operators of DoD UAS shall be qualified by the appropriate Military Department activities to fly in the class of airspace in which operations are to be conducted. DoD UAS pilots/operators in qualification training shall be supervised by a qualified UAS pilot/operator until achieving the appropriate qualification level. DoD UAS ground observers will possess the appropriate medical qualification to perform their duties.

Enhanced DoD UAS Access to the NAS. Where the appropriate qualifications listed above are met, the FAA agrees to provide access to the NAS for DoD UAS outside Restricted Areas and Warning Areas as follows:

- All categories of DoD UAS operations conducted wholly within Class D airspace that has an associated DoD-controlled, non-joint-use airfield, provided²:
 - Operations are not conducted over populated areas or within airspace covered in Section 91.215 (b)(2) of Title 14, Code of Federal Regulations (14 CFR § 91.215(b)(2)).
 - DoD shall develop uniform air traffic control procedures to be applied at all locations. These procedures will be developed in coordination with the FAA prior to implementation and a Certificate of Waiver or Authorization issued to the appropriate DoD Air Traffic facility.

- DoD UAS that weigh 20 pounds or less, under the following conditions:

Operations are conducted within Class G airspace, below 1200' AGL (not applicable to airspace identified by 14 CFR § 91.215 (b)(2)) over military bases, reservations or land protected by purchase, lease or other restriction.

- The UAS remains within clear visual range of the pilot, or a certified observer in ready contact with the pilot, to ensure separation from other aircraft.

¹Note: The term "operator" is a DoD-specific term to describe individuals with the appropriate training and Military Department certification for the type of UAS being operated, and as such, is responsible for the UAS operations & safety. It is used to differentiate from DoD rated pilots of manned weapons systems.

² The DoD, as a service provider for this airspace, does not have the authority to issue waivers to 14 CFR Part 91.

- The DoD will ensure the UAS remains more than 5 miles from any civil use airport or heliport

DoD components operating under this paragraph will notify the FAA of the proposed operation in advance, and publish Notices to Airmen (NOTAMS) as required to alert non-participating aircraft of the operation. For non-recurring operations, notification will be accomplished, and Notices to Airmen (NOTAMS) published, no later than 24 hours in advance. For recurring operations (e.g. training) standing “blanket” notifications/standing NOTAMS should be used.

DoD/FAA Partnering on UAS Initiatives. To the maximum extent practicable, the DoD and the FAA will partner on efforts to further UAS research, development, standards, testing and certification initiatives as follows:

- **NAS Integration.** The DoD and FAA will coordinate the development of near, mid and long-term UAS standards, procedures, and technical solutions.
- **UAS Research and Development (R&D).** The DoD and the FAA agree to share methodologies, information and results of research and development efforts conducted by their respective organizations. Both organizations agree to, wherever practicable, partner in UAS R&D efforts that show promise for enhancing the safety of DoD UAS operations in the NAS.
- **UAS Testing and Certification.** The DoD agrees to invite FAA participation in DoD-conducted development and testing of UAS components intended to enhance the safety of UAS operations, including detect-and-avoid systems. The FAA agrees to participate in DoD development and testing of said components, and provide input to developing acceptable standards of performance that will allow enhanced DoD UAS NAS access.
- **UAS Safety Data.** The DoD, through the Military Department safety organizations, will collect and share data on UAS operations to support FAA UAS safety studies and analyses. The FAA will provide the requested data elements and reporting format for this data. The FAA agrees to release to the DoD all results and findings of studies and analyses conducted using DoD UAS data, and to share UAS safety information gleaned from public and private sources with the DoD.

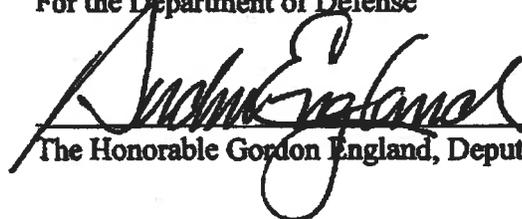
Waiver Process. In those cases where meeting all of the certification provisions of this agreement is not possible, or is cost or mission prohibitive, the FAA will review the specific conditions of DoD requests for UAS operations outside of Restricted, Warning, or other areas outside the scope of this document to determine if a Certificate of Waiver or Authorization (CoA) may be issued.

The FAA will strive to process properly-completed DoD COA applications within 60 days of receipt. In the case of urgent and compelling need (such as “non-training” national security

missions or "active" natural disaster support), the DoD will notify the FAA of the need and reason for priority action, and the FAA will process DoD COA requests as quickly as possible, but not later than 24 hours from receipt of complete mission requirements.

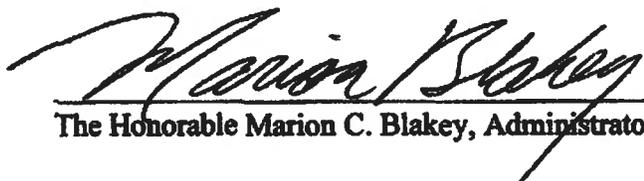
Implementation Plan. The Chairman, DoD Policy Board on Federal Aviation, and the Administrator, Federal Aviation Administration, are charged with formulating policy for their respective organizations to ensure compliance with the provisions of this agreement. The FAA's office of primary responsibility is the Unmanned Aircraft Program Office. This MOA will be reviewed annually or as needed by request of either party and is effective upon the last signature of the Parties.

For the Department of Defense


The Honorable Gordon England, Deputy Secretary

9/24/07
Date

For the Federal Aviation Administration


The Honorable Marion C. Blakey, Administrator

June 12, 2007
Date

**APPENDIX B – AIR TRAFFIC CONTROL PROCEDURES FOR DOD NON-JOINT-
USE AIRFIELDS WITH ASSOCIATED CLASS D AIRSPACE, 23 JAN 09**



**DOD
POLICY BOARD
ON FEDERAL AVIATION**

**OFFICE OF THE SECRETARY OF DEFENSE
1480 DEFENSE PENTAGON
WASHINGTON DC 20301-1480**

JAN 23 2009

**MEMORANDUM FOR ASD(NII) (MR GRIMES)
OUSD(P) (MR VERGA)
OUSD(AT&L) (MR KISTLER)
OSD/DGC A&L (MR LARSEN)
JCS/J-5 (BGEN DISALVO)
DCS/G-3/5/7 (LT GEN THURMAN)
N88 (RADM MYERS)
DCS/A3/5 (LT GEN DARNELL)
USMC/AVIATION (LT GEN TRAUTMAN)**

**SUBJECT: ATC Procedures for Department of Defense (DOD) Non-Joint-Use Airfields with
Associated Class D Airspace**

I have enclosed revised ATC Procedures for DOD Non-Joint-Use Airfields with Associated Class D Airspace to operate DOD Unmanned Aircraft Systems for Service use effective on 21 January, 2009. The procedures were developed pursuant to DEPSECDEF memorandum, Subject: Memorandum of Agreement for Operation of Unmanned Aircraft Systems in the National Airspace System dated 24 September 2007. They meet the requirements of the "DOD-FAA MOA Concerning the Operation of DOD UAS in the NAS" entered into by the FAA Administrator and the Deputy Secretary of Defense effective 24 September 2007. The procedures when employed properly will simplify and expedite UAS COA approvals at DOD airfields.

These procedures were developed by Service operations and air traffic control subject matter experts and have been coordinated with the FAA. The procedures replace DOD Operations and ATC Procedures for Non-Joint-Use Airfields with Associated Class D Airspace released May 20 2008. They should be considered an integral part of DOD airfield operations and attached to all applicable UAS COA requests.

Please feel free to contact me at (703) 697-8489, or COL Robert Hess, who chaired the DOD UAS ATC procedures working group, at (703) 806-4862, with any questions.

Sincerely,

**GERALD F. PEASE, Jr., SES
Executive Director**

**1 Attachment
DOD Procedures**

ATC Procedures for DOD Non-Joint-Use Airfields with Associated Class D Airspace

1. Purpose. To meet requirements for uniform air traffic control procedures as specified in the DOD/FAA Memorandum of Agreement (MOA) Concerning the Operation of Department of Defense Unmanned Aircraft Systems (UAS) in the National Airspace System (NAS) dated 24 September 2007.

2. Scope.

a. The procedures in this document outline standards for ATC procedures at DOD non-joint-use airfields with associated Class D airspace conducting UAS operations.

b. This document cannot be amended without prior coordination with the Service's representative to the DOD Policy Board on Federal Aviation, who will in turn coordinate proposals within DOD and with the FAA.

NOTE: For list of DOD Military-Civilian Joint-Use Airfields see Appendix 1

3. Provisions. All personnel subject to the requirements of this document shall comply with the following provisions:

a. Applicable Federal, State, and local laws, Service Regulations, applicable Code of Federal Regulations (CFRs), FAA Orders and the DOD/FAA Memorandum of Agreement Concerning the Operation of Unmanned Aircraft Systems in the National Airspace System (DOD/FAA MOA).

b. Operation of UAS in Class D airspace at non-joint-use airfields is limited to DOD UAS operations and contract operations conducted solely under the direction of Department of Defense or one of its entities.

c. Prior to commencing and at the conclusion of operations, DOD ATC shall advise ATC facilities providing approach control service to the applicable airfield that Unmanned Aircraft (UA) operations are being conducted. Local coordination will be effected with impacted ATC facilities to include normal, emergency and contingency operations.

4. Definitions.

a. **NORDO aircraft:** Any aircraft operating within the Class D airspace without two way radio communication with the ATC facility per 14 CFR Part 91.

b. **UA Zones:** Marshalling areas, defined by geographic, visual or GPS reference, used by UA and ATC as departure/arrival points to/from airfield, as depicted in the Certificate of Authorization (COA). UA Zones are also used for lost link and emergency orbit points for UA.

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c. Lost link: UAS pilot/operator has lost the ability to provide real-time control of the UAS. Loss may be permanent or temporary.

5. Procedures. The following procedures will be applied at all non-joint-use DOD-controlled airfields with approved COA.

a. General Procedures.

(1) If equipped, UAs shall be operated at all times with full lighting and transponders.

(2) Procedures for deconfliction of UA and transient aircraft traffic will be specified in the COA. Possible methods of use: altitude restrictions for UA, visual holding points with specific lateral and vertical limits, use of ground observers.

(3) The UA mission commander shall advise ATC of initiation and completion of flight operations.

(4) Radio check between UA pilot/operator and ATC will be conducted prior to operations.

(5) All communications between ATC and UAS pilot/operator will be accomplished on designated primary and/or alternate ATC frequencies. Secondary/backup communications and/or telephone connectivity will be precoordinated.

(6) All UAS operations will be conducted under Visual Flight Rules (VFR) in accordance with applicable Service Regulations and FARs. Increased ceiling and visibility requirements can be applied.

b. ATC Procedures.

(1) Description of aircraft types. Describe UAS to other aircraft by stating "unmanned aircraft."

(2) ATIS Procedures. Make a new recording when UAS operations are in effect or have terminated for the day.

(3) Sequencing and Spacing Application. UAS pilots cannot be instructed to follow another aircraft.

(4) Simultaneous Same Direction, all UAS will be treated as "other" aircraft.

(5) Same Runway Separation, all UAS will be treated as Category III aircraft.

(6) Use of Visual Separation between UAS and manned aircraft or UAS and UAS is not authorized.

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(7) SVFR is not authorized with UAS.

(8) Preventive Control. May only be applied in accordance with FAAO JO 7110.65.

(9) Transient Aircraft Procedures. ATC will keep the UA pilot/operator apprised of any known transient aircraft operations that may impact operations. UA pilot/operator will take all necessary actions to maintain lateral and vertical separation. ATC should provide UA pilot/operator recommended altitudes or direct to predetermined points (UA Zones) to ensure deconfliction.

(10) For the purpose of applying wake turbulence rules see FAAO JO 7110.65 PCG A-6 and Appendix 2, (list of DOD UAS). In addition to the requirements of FAAO 7110.65, ATC will apply the following procedures:

(a) Issue cautionary wake turbulence advisories, and the position, altitude and direction of flight to the pilot/operator of UAS landing behind all manned aircraft regardless of weight class.

(b) Wake turbulence rules cannot be waived by the UAS pilot/operator.

c. NORDO Aircraft Procedures.

(1) ATC will notify UA pilot/operators of any known NORDO aircraft.

(2) ATC will broadcast on emergency frequencies when an NORDO aircraft is present to expeditiously establish two-way radio communications with NORDO aircraft.

(3) UAS pilot/operator, assisted by ATC, will determine best method to separate UAS and NORDO aircraft. Examples of separation methods:

(a) UA may proceed to a UA Zone to hold

(b) Cease operations and land if it will not aggravate the situation

(c) Altitude deconfliction

NOTE: All aircraft who do not establish two-way radio communication as per CFR prior to entering Class D airspace will be reported to the FAA.

d. Emergency Procedures.

(1) ATC will apply the procedures listed in Chapter 10, Section 1 of FAAO JO 7110.65. Minimum required information for in-flight emergencies:

(a) Aircraft identification and type

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(b) Nature of the emergency (lost link, equipment failure)

(c) Intentions of the UA pilot/operator

(d) Aircraft altitude / position

(e) Fuel remaining in time

(2) The safety of manned aircraft will take precedence over unmanned aircraft in an emergency situation.

(3) If primary radio communications between UA pilot/operator and ATC are lost, UA pilot/operator or ATC will be notified immediately via designated alternate communications method. Failure to establish or maintain radio communication between UA pilot/operator and ATC will require termination of UA operations.

(4) If lost link occurs, UAS pilot/operator will immediately notify ATC with the following information:

(a) Time of lost link

(b) Last known position

(c) Altitude

(d) Direction of flight

(e) Confirm execution of lost link procedures

(f) Confirm pilot/observer have visual contact with UA

NOTE: UA lost link is an emergency, but may not require crash-rescue services

(5) In the event of lost link, lost communication between UAS pilot/operator and ATC or lost communication between UAS pilot/operator and observer, ATC will do the following:

(a) Cease aircraft launches until status of affected UAS is determined

(b) Recover other UA as appropriate

(c) Issue advisories and ATC instructions as appropriate to insure the safe operation of all aircraft

8 Jan 09
set, (703) 806-4863

4

APPENDIX 1

DOD Military-Civilian Joint Use Airfields

Army
Blackstone AAF, Fort Pickett, VA
Guemsey AAF, Camp Guemsey, WY
Dillingham AAF, Waialua, HI
Forney AAF, Fort Leonard Wood, MO
Robert Gray AAF, Fort Hood, TX
Grayling AAF, Camp Grayling, MI
Libby AAF, Fort Huachuca, AZ
Sherman AAF, Fort Leavenworth, KS
McCoy AAF, Fort McCoy, WI
Wright AAF, Fort Stewart, GA
Air Force
Air Force Plant 42, Palmdale, CA
Charleston AFB, Charleston, SC
Dover AFB, DE
Eglin AFB, Valparaiso, FL
Grissom ARB, Kokomo, IN
Kelly AFB, San Antonio, TX
March ARB, Riverside, CA
Scott AFB, Belleville, IL
Sheppard AFB, Wichita Falls, TX
Westover ARB, Springfield, MA
Navy
None
Marines
MCAS Yuma AZ

8 Jan 09
set, (703) 806-4863



DEPARTMENT OF THE ARMY

ORGANIZATIONAL NAME/TITLE
STREET ADDRESS
CITY, STATE, AND ZIP +4 CODE

APPENDIX C – SAMPLE MEMORANDUM FOR CLASS G AIRSPACE

MEMORANDUM FOR Department of the Army Representative (DAR), Federal Aviation Administration Eastern Service Area (ASO 920), P.O. Box 20636, Atlanta, GA 30320-0631

SUBJECT: Notification of UAS Operations (20 Pounds or Less) in Class G Airspace

1. This memorandum constitutes notification of intent to operate DoD unmanned aircraft systems (UAS) that weigh 20 pounds or less flown below 1,200 feet above ground level within Class G airspace as specified in the memorandum of agreement for operation of UAS in the National Airspace System. The following required information is provided:

- a. Unit or organization name.
- b. Types of UAS (list each type if more than one UAS).
- c. Total weight of each UAS with all additional payloads.
- d. Geographical area of operations (attachment: map and coordinates depicting UAS operations area, launch and recovery sites, and lost link orbit area/point).
- e. Start and end date (not to exceed 1 year).
- f. Times of operations (examples: Daily, 1100 hours to 2200 hours (use Zulu times); Intermittent from sunrise to sunset; 2-3 flights a week, intermittent 24 hours a day).
- g. Altitude

2. Operations are conducted over military bases or land protected by purchase, lease, or other restriction. No airspace as described in 14 CFR 91.215 (b)(2) is involved.

3. The Aviation Engineering Directorate issued an airworthiness certificate for this UAS. All operators are qualified to operate UAS in accordance with AR 95-23.

4. All operators will ensure that the UAS remains within clear visual range of the operator, or a certified observer in ready contact with the operator, to ensure separation from other aircraft.

OFFICE SYMBOL

SUBJECT: Notification of UAS Operations (20 Pounds or Less) in Class G Airspace

5. All operators will ensure that the UAS remains more than 5 miles from any civil use (public or private) airport or heliport.

6. A Notice to Airmen (NOTAM) will be published to alert nonparticipating aircraft of UAS operations. For nonrecurring operations, NOTAMs will be published no later than 24 hours in advance. For recurring operations (e.g., training), a standing "blanket" NOTAM will be issued.

7. In accordance with AR 95-23, chapter 2, unmanned aircraft anticollision lights will be on when UAS engines are operating, except when there may be other hazards to safety. Position lights will be on between official sunset and sunrise, unless a waiver has been obtained from HQDA (DAMO-AV) in accordance with AR 95-23. A copy of the waiver is enclosed.

8. All operators and observers will be medically qualified in accordance with Interim Guidance for Unmanned Aircraft Systems (UAS) Operations in the National Airspace System (NAS) and ALARACT 293/2010 (Notification of Change to the Aeromedical Physical Standards of Unmanned Aerial System Operators (UASO)).

9. I understand all accidents and incidents must be reported promptly to the DAR FAA Eastern Service Area.

10. My point of contact is XXX, Office Symbol, DSN XXX-XXX, commercial (XXX) XXX-XXXX, or email address:

Encl

SIGNATURE BLOCK

APPENDIX D – DA FORM 2397-U UNMANNED AIRCRAFT SYSTEM ACCIDENT REPORT (UASAR))

UNMANNED AIRCRAFT SYSTEM ACCIDENT REPORT (UASAR) Use for all UAS Aviation Accidents <small>For use of this form, see DA Pamphlet 385-40; the proponent agency is OCSA.</small>						REQUIREMENTS CONTROL SYMBOL CSOCS-309	
1. ACCIDENT CASE INFORMATION		a. Date (YYYYMMDD)		b. Time (Local)		c. UA Tail Number	
2. ACCIDENT CLASS/ CATEGORY		a. Classification <input type="checkbox"/> A <input type="checkbox"/> B <input type="checkbox"/> C <input type="checkbox"/> D <input type="checkbox"/> E <input type="checkbox"/> F			b. Category <input type="checkbox"/> Flight <input type="checkbox"/> Flight Related <input type="checkbox"/> Aircraft Ground		3. UAS MTDS
4. PERIOD OF DAY <input type="checkbox"/> Dawn <input type="checkbox"/> Day <input type="checkbox"/> Dusk <input type="checkbox"/> Night		5. AIRCRAFT INVOLVED		a. Number of Aircraft Involved		b. In Flight/Mtd-Air Collision <input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Unknown	
6. NEAREST MILITARY INSTALLATION		7. ACCIDENT LOCATION		a. <input type="checkbox"/> On-Post <input type="checkbox"/> Off-Post		b. <input type="checkbox"/> On Airfield <input type="checkbox"/> Not on Airfield	
		c. City		d. State		e. Country	
						f. Grid and/or Lat/Long	
8. ORGANIZATION INVOLVED							
a. Unit Designation		b. Unit Identification Code (UIC)		c. Home Station		d. Army Headquarters	
9. ACCOUNTABLE ORGANIZATION (If same as block 8 leave blank)							
a. Unit Designation		b. Unit Identification Code (UIC)		c. Home Station		d. Army Headquarters	
10. ACCIDENT COST DATA		a. UA Total Loss <input type="checkbox"/> Yes <input type="checkbox"/> No		b. UA Damage or replacement Cost (Excluding Man-hours) \$		c. Number of Man-Hours	
		d. Man-Hours Cost \$		e. Other UAS Sub-System Cost \$			
f. Other Damage Cost-Military \$		g. Other Damage Cost-Civilian \$		h. Injury/Occupational illness \$		i. Total Cost (This UAS) \$	
						j. Total Cost (All Aircraft) \$	
11. GENERAL DATA		a. Mission		a(1). Type Mission		a(2). Aircraft Mode	
						<input type="checkbox"/> Single-ship <input type="checkbox"/> Multi-ship <input type="checkbox"/> Manned/Unmanned Teaming	
						a(3). Level of Interoperability (LOI) <input type="checkbox"/> 1 <input type="checkbox"/> 2 <input type="checkbox"/> 3 <input type="checkbox"/> 4 <input type="checkbox"/> 5 <input type="checkbox"/> NA	
		a(4). Simultaneous UA Operation? (If Yes, specify number & MTDS) <input type="checkbox"/> Yes <input type="checkbox"/> No		b. Flight Plan <input type="checkbox"/> Military <input type="checkbox"/> Civil <input type="checkbox"/> Operation's Log		c. Flight Rules <input type="checkbox"/> VFR <input type="checkbox"/> IFR	
d. Mission/ Training		d(1). At what level was mission/training conducted? <input type="checkbox"/> Bde <input type="checkbox"/> Bn <input type="checkbox"/> Co <input type="checkbox"/> Plt <input type="checkbox"/> Sqd <input type="checkbox"/> Team <input type="checkbox"/> Crew				d(2). Who approved the mission/training? Rank & Position:	
d(3). Was a mission brief completed? <input type="checkbox"/> Yes <input type="checkbox"/> No		d(4). Who was in charge during the mission? Rank & Position:				d(5). Who was the senior leader present during the mission/training? Rank & Position:	
e. Risk Management (RM)		e(1). RM Performed? <input type="checkbox"/> Yes <input type="checkbox"/> No		e(2). Who performed the RM? Rank & Position:		e(3). RM Approved? <input type="checkbox"/> Yes <input type="checkbox"/> No	
		e(4). Who accepted risks? Rank & Position:		e(5). What was the level of the risk after controls applied? <input type="checkbox"/> Low <input type="checkbox"/> Moderate <input type="checkbox"/> High <input type="checkbox"/> Extremely High		e(6). How was the RM process communicated? (Check all that apply.) <input type="checkbox"/> Worksheet <input type="checkbox"/> Verbal Brief <input type="checkbox"/> Order <input type="checkbox"/> Not Communicated	
		e(7). Accident event identified/considered during RM process? (If yes, complete blocks 11a(7)a thru 11e(7)d) <input type="checkbox"/> Yes <input type="checkbox"/> No		e(7)a. What was the level of the identified risk? <input type="checkbox"/> Low <input type="checkbox"/> Moderate <input type="checkbox"/> High <input type="checkbox"/> Extremely High			
e(7)b. Was the control measure(s) applied? <input type="checkbox"/> Yes <input type="checkbox"/> No		e(7)c. Who was responsible for implementing the controls? Rank & Position:				e(7)d. Was the potential for accident event accepted as residual risk? <input type="checkbox"/> Yes <input type="checkbox"/> No	
f. Digital Source Collector (DSC)		f(1). DSC installed? (If yes, enter type of DSC) <input type="checkbox"/> Yes <input type="checkbox"/> No				f(2). Data captured and preserved? (If yes, specify storage location) <input type="checkbox"/> Yes <input type="checkbox"/> No	
g. Fire <input type="checkbox"/> None <input type="checkbox"/> Inflight <input type="checkbox"/> Postcrash <input type="checkbox"/> Other (Specify)		h. Hazardous Material Spillage If yes & a Class A, B or C accident, attach DA Form 2397-6 <input type="checkbox"/> Yes <input type="checkbox"/> No				i. Did accident occur while on an exercise or at a training facility/center? (If yes, enter the name) <input type="checkbox"/> Yes <input type="checkbox"/> No	
12. SUMMARY (Attach a continuation sheet(s) as needed)							

13. FLIGHT DATA		Flight Duration	Phase of Operation <i>(Enter max of 3 codes from Table 3-4 of DA Pam 385-40 or specify the phase if there is no code for it in the table)</i>	Altitude MSL	Altitude AGL	Airspeed KIAS	UA Weight	UA Overgross Weight for Conditions Yes No	14. TYPE EVENTS <i>(Enter max of 3 codes from Appendix F table F-3 of DA Pam 385-40 or specify the type event which best describes the accident/incident event if there is no code for it in the table.)</i>		
a. At Emergency/ Onset	Hours Tenths							<input type="checkbox"/> <input type="checkbox"/>			
b. At Impact/Acdt or Termination	Hours Tenths							<input type="checkbox"/> <input type="checkbox"/>			
c. Flight Ctrl Malfunction	Check all that apply: <input type="checkbox"/> Human <input type="checkbox"/> Environmental <input type="checkbox"/> Materiel <input type="checkbox"/> Hardware <input type="checkbox"/> Software <input type="checkbox"/> Component/Part <input type="checkbox"/> Not Applicable										
15. ACCIDENT CAUSE FACTORS <i>(For blocks 15a-c, D=definite, S=Suspected, U=Undetermined and N=No/None)</i>								a. Human Factors <i>(Check box D, S, U or N. If D or S, complete blocks 15a(1)(a)-(e))</i>			
a(1). System Inadequacies <i>(Enter max of 3 codes in each block below from table B-5 (Additional codes in table B-1) DA Pam 385-40 or if there is no code in the table, write in that which best describes the failure)</i>								<input type="checkbox"/> D <input type="checkbox"/> S <input type="checkbox"/> U <input type="checkbox"/> N			
a(1)a. Support Failure			a(1)b. Standards Failure			a(1)c. Training Failure			a(1)d. Leader Failure		
a(1)e. Individual Failure			b. Materiel Factors <i>(Check box D, S, U or N. If D or S, complete blocks 15b(1)-(2))</i>				b(1). Type <i>(Check all that apply.)</i>				
			<input type="checkbox"/> D <input type="checkbox"/> S <input type="checkbox"/> U <input type="checkbox"/> N				<input type="checkbox"/> Component/Part <input type="checkbox"/> Hardware <input type="checkbox"/> Software				
b(2). Component and Part <i>(Part that initiated failure/malfunction)</i>											
	UAS Subsystem <i>(UA, GCS, GDT, TALS, etc.)</i>			Major Component				Part			
a. Nomenclature											
b. Type, Design, and Series											
c. Part Number											
d. NSN/ Manufacturer's Number											
e. Manufacturer's Code											
f. Serial Number											
g. Cause of Failure/ Malfunction				<input type="checkbox"/> Materiel <input type="checkbox"/> Maintenance		<input type="checkbox"/> Design <input type="checkbox"/> Manufacture		<i>(Enter the applicable Failure Codes (max 2) using table 1-2, DA Pam 738-751 (TAMMS-Aviation))</i>			
c. Environmental Factors <i>(Check box D, S, U or N, as appropriate.)</i>				c(1). General <i>(Check all that apply.)</i>				c(2). Weather Conditions <i>(Enter max of 3 codes from Appendix F table 3-26 of DA Pam 385-40 or specify the weather condition if there is no code for it in the table.)</i>			
<input type="checkbox"/> D <input type="checkbox"/> S <input type="checkbox"/> U <input type="checkbox"/> N				<input type="checkbox"/> VMC <input type="checkbox"/> IMC <input type="checkbox"/> Icing <input type="checkbox"/> Turbulence							
c(3). Environmental Signal Factors				c(4). Other Environmental Factors							
<input type="checkbox"/> Uplink <input type="checkbox"/> Downlink <input type="checkbox"/> Interference <input type="checkbox"/> E ³ <input type="checkbox"/> NA <input type="checkbox"/> Other <i>(Specify)</i>				<i>(Enter max of 3 codes from Appendix F table 3-27 of DA Pam 385-40 or specify the weather condition if there is no code for it in the table.)</i>							
16. LOSS OF LINK <i>(Check box D, S, U or N. If D or S, complete blocks 16 a-d)</i>						a. Type of Link Lost			b. Type of Link		
<input type="checkbox"/> D <input type="checkbox"/> S <input type="checkbox"/> U <input type="checkbox"/> N						<input type="checkbox"/> Uplink <input type="checkbox"/> Downlink <input type="checkbox"/> Unknown			<input type="checkbox"/> LOS <input type="checkbox"/> BLOS <input type="checkbox"/> C-Band <input type="checkbox"/> Ku-Band		
						<input type="checkbox"/> Other <i>(Specify)</i>					
c. UA distance from the GCS at time of LOL						d. LOL Factors <i>(Check all that apply.)</i>					
						<input type="checkbox"/> Human <input type="checkbox"/> Environment <input type="checkbox"/> Materiel <input type="checkbox"/> Hardware <input type="checkbox"/> Software <input type="checkbox"/> Component/Part					
17. TAKE OFF/LANDING DATA <i>(Complete block 17a if accident occurred during take-off phase and block 17b if during landing phase.)</i>											
a. Take-Off (T/O) Phase		a(1). T/O Method				a(2). T/O Accident Factors <i>(Check all that apply.)</i>					
		<input type="checkbox"/> ATLS <input type="checkbox"/> Launcher <input type="checkbox"/> Manual				<input type="checkbox"/> Human <input type="checkbox"/> Environment <input type="checkbox"/> Materiel <input type="checkbox"/> Hardware <input type="checkbox"/> Software <input type="checkbox"/> Component/Part					
b. Landing Phase		b(1). Landing Method				b(2). Landing Accident Factors <i>(Check all that apply.)</i>					
		<input type="checkbox"/> ATLS <input type="checkbox"/> TALS <input type="checkbox"/> FTS <input type="checkbox"/> Manual				<input type="checkbox"/> Human <input type="checkbox"/> Environment <input type="checkbox"/> Materiel <input type="checkbox"/> Hardware <input type="checkbox"/> Software <input type="checkbox"/> Component/Part					

18. TYPE OF STRIKE																								
<input type="checkbox"/> Wire <input type="checkbox"/> Bird <input type="checkbox"/> Tree <input type="checkbox"/> Object <input type="checkbox"/> Lighting <input type="checkbox"/> Antenna <input type="checkbox"/> N/A <input type="checkbox"/> Other (Specify)																								
19. PERSONNEL DATA (Complete for each crew member with access to flight controls, personnel injured/occupational illness, personnel having a contributing role in the accident; use additional forms if needed.)																								
a. Name (Last, First, MI)		(1) SSN	(2) Grade	(3) Gender <input type="checkbox"/> Male <input type="checkbox"/> Female	(4) Duty	(5) SVC	(6) UIC (Assigned)	(7) Contributing Role <input type="checkbox"/> D <input type="checkbox"/> S <input type="checkbox"/> U <input type="checkbox"/> N	(8) On Fit Ctrls <input type="checkbox"/> Yes <input type="checkbox"/> No	(9) Lab Test <input type="checkbox"/> Pos <input type="checkbox"/> Neg <input type="checkbox"/> Not Required														
(10) Activity	(a) Hrs Slept	(11) Individual Status (a) RL <input type="checkbox"/> 1 <input type="checkbox"/> 2 <input type="checkbox"/> 3 <input type="checkbox"/> Msn Prep <input type="checkbox"/> Msn Qual			(12) Injury/Occupational Illness (If "yes" complete and attach DA Form 2397-9) <input type="checkbox"/> Yes <input type="checkbox"/> No			(13) MTDS Fit Hrs	(14) Total Fit Hrs															
	(b) Hrs Worked	(b) FAC <input type="checkbox"/> 1 <input type="checkbox"/> 2 <input type="checkbox"/> 3 <input type="checkbox"/> NA (SUAS Operators)																						
	(c) Hrs Flown	(c) Redeployed Date (YYYYMMDD)																						
b. Name (Last, First, MI)		(1) SSN	(2) Grade	(3) Gender <input type="checkbox"/> Male <input type="checkbox"/> Female	(4) Duty	(5) SVC	(6) UIC (Assigned)	(7) Contributing Role <input type="checkbox"/> D <input type="checkbox"/> S <input type="checkbox"/> U <input type="checkbox"/> N	(8) On Fit Ctrls <input type="checkbox"/> Yes <input type="checkbox"/> No	(9) Lab Test <input type="checkbox"/> Pos <input type="checkbox"/> Neg <input type="checkbox"/> Not Required														
(10) Activity	(a) Hrs Slept	(11) Individual Status (a) RL <input type="checkbox"/> 1 <input type="checkbox"/> 2 <input type="checkbox"/> 3 <input type="checkbox"/> Msn Prep <input type="checkbox"/> Msn Qual			(12) Injury/Occupational Illness (If "yes" complete and attach DA Form 2397-9) <input type="checkbox"/> Yes <input type="checkbox"/> No			(13) MTDS Fit Hrs	(14) Total Fit Hrs															
	(b) Hrs Worked	(b) FAC <input type="checkbox"/> 1 <input type="checkbox"/> 2 <input type="checkbox"/> 3 <input type="checkbox"/> NA (SUAS Operators)																						
	(c) Hrs Flown	(c) Redeployed Date (YYYYMMDD)																						
c. Name (Last, First, MI)		(1) SSN	(2) Grade	(3) Gender <input type="checkbox"/> Male <input type="checkbox"/> Female	(4) Duty	(5) SVC	(6) UIC (Assigned)	(7) Contributing Role <input type="checkbox"/> D <input type="checkbox"/> S <input type="checkbox"/> U <input type="checkbox"/> N	(8) On Fit Ctrls <input type="checkbox"/> Yes <input type="checkbox"/> No	(9) Lab Test <input type="checkbox"/> Pos <input type="checkbox"/> Neg <input type="checkbox"/> Not Required														
(10) Activity	(a) Hrs Slept	(11) Individual Status (a) RL <input type="checkbox"/> 1 <input type="checkbox"/> 2 <input type="checkbox"/> 3 <input type="checkbox"/> Msn Prep <input type="checkbox"/> Msn Qual			(12) Injury/Occupational Illness (If "yes" complete and attach DA Form 2397-9) <input type="checkbox"/> Yes <input type="checkbox"/> No			(13) MTDS Fit Hrs	(14) Total Fit Hrs															
	(b) Hrs Worked	(b) FAC <input type="checkbox"/> 1 <input type="checkbox"/> 2 <input type="checkbox"/> 3 <input type="checkbox"/> NA (SUAS Operators)																						
	(c) Hrs Flown	(c) Redeployed Date (YYYYMMDD)																						
20. FINDINGS AND RECOMMENDATIONS (See instructions in DA Pam 385-40, para 2-24, for writing findings and recommendations. Use additional sheets if needed)																								
<table border="1"> <tr> <td rowspan="2">USACRC use only</td> <td>Duty</td> <td>Role</td> <td>Failure/error Code</td> <td>SI 1</td> <td>RM 1</td> <td>RM 2</td> <td>RM 3</td> </tr> <tr> <td>Phase of OP</td> <td>Task/part no.</td> <td></td> <td>SI 2</td> <td>RM 1</td> <td>RM 2</td> <td>RM 3</td> </tr> </table>										USACRC use only	Duty	Role	Failure/error Code	SI 1	RM 1	RM 2	RM 3	Phase of OP	Task/part no.		SI 2	RM 1	RM 2	RM 3
USACRC use only	Duty	Role	Failure/error Code	SI 1	RM 1	RM 2	RM 3																	
	Phase of OP	Task/part no.		SI 2	RM 1	RM 2	RM 3																	
21. LIST OF ATTACHMENTS (ECOD/ACOD, CCAD, PQDR, DA Forms 2397-series, etc.)																								
22. BOARD PRESIDENT/ASO/POC (Name, Signature, and Date)																								
a. Grade			b. Branch			Address and Tel No. (DSN and Com)																		
E-Mail																								
23. COMMAND REVIEW (Only required for class A, B & C)																								
Reviewer	Organization	Name (Last, First, MI)	Rank	Comments		Signature																		
a. Unit Commander				<input type="checkbox"/> Concur <input type="checkbox"/> Non-concur																				
b. Reviewing Official				<input type="checkbox"/> Concur <input type="checkbox"/> Non-concur																				
c. Approving Authority				<input type="checkbox"/> Concur <input type="checkbox"/> Non-concur																				
d. DA Review	USACR/SC			Approved for entry into ASMIS (YYYYMMDD)																				