CJCSI 3255.01
17 July 2009
CH 1, 31 October 2011
Directive Current as of 4 September 2012

JOINT UNMANNED AIRCRAFT SYSTEMS MINIMUM TRAINING STANDARDS

JOINT STAFF
WASHINGTON, D.C. 20318

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CHAIRMAN OF THE JOINT CHIEFS OF STAFF NOTICE

Directive Current as of 4 Sep 2012

J-8 CJCSI 3255.01 CH 1
DISTRIBUTION: A, B, C 31 October 2011

CHANGE 1 TO CJCS INSTRUCTION 3255.01

1. Holders of CJCSI 3255.01, 17 July 2009, "Joint Unmanned Aircraft Systems Minimum Training Standards," are requested to make the following page substitutions:

Remove Page(s)	Add Page(s)
1 through 4	1 through 4
A-1, A-2	A-1, A-2
A-3 to A-8	A-3 to A-8
C-1, C2	C-1, C-2
GL-1, GL-2	GL-1, GL-2

2. Summary of the changes is as follows:

a. Administrative revisions accounting for the disestablishment of USJFCOM.

b. Superseded document references.

c. Modification of the glossary to comply with CJCSI 5705.01D.

3. When the prescribed action has been taken, this transmittal should be filed behind the basic document.

4. This instruction is approved for public release; distribution is unlimited. DOD components (to include the combatant commands), other Federal agencies, and the public may obtain copies of this instruction through the Internet from the CJCS Directives Home Page--

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CRAIG A. FRANKLIN
Major General, USAF
Vice Director, Joint Staff

LIST OF EFFECTIVE PAGES

The following is a list of effective pages for this instruction. Use this list to verify the currency and completeness of the document. An "O" indicates a page in the original document.

PAGE	CHANGE	PAGE	CHANGE
1 through 6	1	C-1 through C-2	1
A-1 through A-10	1	GL-1 through GL-2	1
B-1 through B-6	O		

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CHAIRMAN OF THE JOINT CHIEFS OF STAFF INSTRUCTION

J-8
DISTRIBUTION: A, B, C

CJCSI 3255.01
17 July 2009
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JOINT UNMANNED AIRCRAFT SYSTEMS MINIMUM TRAINING STANDARDS

References: See Enclosure C

1. Purpose. To define Joint Unmanned Aircraft System Minimum Training Standards (JUMTS) and identify the minimum knowledge required for an unmanned aircraft systems (UAS) crewmember (UASC) to support joint force commanders' (JFC) objectives.

2. Cancellation. None.

3. Applicability. This Instruction applies to Joint Staff, combatant commands, the Services, and Defense agencies conducting, contracting, and supporting UAS operations.

4. Policy. This Instruction standardizes the minimum knowledge of basic UAS and joint UAS mission qualifications for UASC. It also addresses a Joint Requirements Oversight Council (JROC) recommendation "…to prepare aircraft crewmembers to perform in a joint environment by standardizing training and certification." The qualification standards meet or exceed existing manned aircraft Federal Aviation Administration (FAA) standards to facilitate UAS access into the National Airspace System (NAS). It reflects findings contained within the Joint UAS Training Qualifications and Standards Architecture Study Report (Enclosure C, reference E). The report describes a modular, capabilities-based approach to UAS training through 2016. It also links UAS training with the Tier 1 joint capability area (JCA) and existing tasks in the current Universal Joint Task List.

5. Definitions. None.

6. JUMTS Concepts

a. JUMTS Skill Sets. There are five critical skill sets required to effectively operate and employ UAS, regardless of operational environment.

(1) Basic UAS Qualification (BUQ). Possess general aviation knowledge and UAS knowledge-based skills to operate UAS safely as required by crew duties or position (i.e. Pilot / Aircraft Operator).

(a) BUQ Level I. BUQ-I is the minimum recommended training level for UASC who perform duties other than pilot (e.g. Aircraft Operator/Sensor Operator). Possess required aviation knowledge and UAS knowledge-based skills to fly under Visual Flight Rules (VFR) in Class E, G, and restricted/ combat airspace <1200' above ground level (AGL).

(b) BUQ Level II. Possess required aviation knowledge and UAS knowledge-based skills to fly under VFR in Class D, E, G, and restricted/combat airspace <18,000' mean sea level (MSL).

(c) BUQ Level III. Possess required aviation knowledge and UAS knowledge-based skills to fly under VFR in all classes of airspace except U.S. and ICAO Class A.

(d) BUQ Level IV. Possess required aviation knowledge and UAS knowledge-based skills to fly in all weather conditions and classes of airspace up to Flight Level (FL) 600.

(2) UAS Flight Crew Skills (UASFCS). Possess practical skills to operate UAS with situational awareness and ability to execute tasks during flight operations. Satisfy practical flight requirements for BUQ Levels I-IV. The Services and USSOCOM will determine/specify UASFCS requirements.

(3) Joint Mission Qualification (JMQ). Provide general knowledge of the UAS mission/objective. This is critical to ensure the crews understand their role in accomplishing a larger military objective. The JMQ Levels (A-C) in Enclosure B correlate to appropriate joint missions.

(a) JMQ-A. These qualifications support unit-level ISR and Fires tasks in support of the JFC. Mission support with capabilities defined in the Joint Mission Task Lists (JMTL).

(b) JMQ-B. These qualifications support theater-level advanced Intelligence, Surveillance, and Reconnaissance/Incident Awareness and Assessment (ISR/IAA) mission support with defined capabilities in the JMTL of the JFC.

(c) JMQ-C. These qualifications support strategic-level Fires and CSAR/PR tasks in support of the JFC as defined in the JMTLs.

(4) UAS Mission Crew Skills (UASMCS). A group of skills required to ensure accomplishment of the assigned task. Mission skills to execute joint tactics, techniques, and procedures to meet UAS employment mission objectives. UASMCS satisfies practical mission requirements for JMQ Levels A-C. The Services/USSOCOM will determine/specify UASMCS requirements.

(5) Unique Service Skills. Provide the UASC with the knowledge and understanding of Service specific missions and associated requirements. Examples include maritime environment for naval UAS and pre-strike reconnaissance for air interdiction. The Services/USSOCOM will determine/specify UASMCS requirements.

b. JUMTS Certified. A qualified UASC who has maintained currency by achieving the established minimum recurring training and assessment requirements in a specific UAS type/model/series as designated by their respective Service/USSOCOM.

c. JUMTS Event. An event with at least one aircraft prosecuting a target or conducting its assigned mission. The event begins with a mission brief from a UASC, and ends with an actual or simulated payload on target (this includes non-Electro-Optical/Infra-Red sensors as well).

d. JUMTS Qualified. An individual who satisfactorily completes appropriate BUQ- and JMQ-level academics and practical training requirements: 1) core UASC training curriculum; 2) achieves and maintains appropriate flight medical evaluation standards; and 3) completes a comprehensive assessment by their respective Service/USSOCOM may be granted joint UASC qualification

7. Responsibilities. The Services/USSOCOM shall ensure both current and future UAS programs comply with the requirements outlined in this Instruction. This CJCSI will be reviewed annually by Joint Staff J-8, and updated as required. Current Service/USSOCOM UAS training programs shall be compliant with this Instruction NLT 1 October 2011.

8. Summary of Changes. None.

9. Tailoring BUQ Requirements to Individual UAS Pilot/Aircraft Operators

a. The recommended BUQ-level aviation knowledge and UAS knowledge-based skills are the required minimum level of knowledge by each UAS group, as defined in the Joint Concept of Operations for Unmanned Aircraft Systems, Edition 2 (JUAS CONOPS, ed. 2). The Services and USSOCOM have

authorization to exceed the knowledge requirements detailed in this Instruction, in accordance with their Title 10 responsibilities. The Services/ USSOCOM will ensure that their UAS programs meet or exceed these minimums while fulfilling their responsibility of paragraph 6 of this Instruction. Additional BUQ level information is included in Enclosure A.

*Note: Both the BUQ and JMQ Levels are cumulative. Therefore, to meet BUQ II or JMQ B requirements, a UASC must complete all BUQ I or JMQ A tasks as well.

(1) Group 1 UA. Typically weighs less than 20 pounds. It normally operates VFR in Class E, G, and Restricted or Uncontrolled airspace below 1200' AGL at speeds less than 100 knots under a JMQ A mission. The JUMTS for Group 1 UAS is BUQ I and JMQ A.

(2) Group 2 UA. Typically weighs 21-55 pounds. It normally operates VFR in Class D, E, G, and Restricted airspace below 3500' AGL at speeds less than 250 knots under a JMQ A mission. The JUMTS for Group 2 UAS is BUQ II and JMQ A.

(3) Group 3 UA. Typically weighs more than 55 pounds, but less than 1320 pounds, and normally operates VFR in Class D, E, G, and Restricted airspace below 18,000' MSL at speeds less than 250 knots prosecuting J-ISR and JMQ A/B mission targets. The JUMTS for Group 3 UAS is BUQ II and JMQ B.

(4) Group 4 UA. Typically weighs more than 1320 pounds. It normally operates under VFR in all classes of airspace below 18,000' MSL (except U.S. and ICAO Class A) at any speed prosecuting J-ISR and JMQ A/B mission targets. The JUMTS for Group 4 UAS is BUQ III and JMQ B.

(5) Group 5 UA. Typically weighs more than 1320 pounds. It normally operates at altitudes higher than 18,000' MSL at any speed prosecuting J-ISR and JMQ A/B mission targets. The JUMTS for Group 5 UAS is BUQ IV and JMQ B.

b. General aviation knowledge and academic content. UASC must complete ground instruction equivalent to aircrew comparable to civil or military aircraft operating in similar airspace. BUQ knowledge elements include weather, aerodynamics, human factors, operational risk management, and flight regulations for the types of airspace in which the UAS will operate (both combat and non-combat). These are defined in Enclosure A.

c. Flight Training. UASC will complete a Service-/USSOCOM-approved training program that includes flight and/or simulator training. Flight/ simulator training will enable UAS crewmembers to demonstrate control of a specific UAS throughout its performance parameters and potential operating conditions, including responding to an emergency or system malfunction during a mission.

d. Proficiency/Currency Requirements. UASCs shall maintain proficiency/ currency to comply with minimum Service/USSOCOM currency requirements and will be subject to periodic examinations as designated by Military Service regulations and instructions. Services/USSOCOM shall define JMOAs for reciprocity addressing joint platform-specific standards for proficiency and currency for UAS used by multiple components or services.

10. Certification. The Services/USSOCOM will certify UAS crewmembers who demonstrate satisfactory knowledge of ground and flight/simulator operations via examinations and flight checks in accordance with military service regulations and instructions.

11. JUMTS Documentation

a. To properly document accomplishment of UASC certification and qualification standards, a method for retaining UASC training and certification documentation will be maintained by the UASC's operational unit IAW their respective Service/USSOCOM instructions. Through established Service/USSOCOM tracking systems, Services/USSOCOM will be prepared to present the JFC appropriate documentation that verifies individual UASC's certification, qualification, and currency. IAW reference g, contractors will provide documentation to their Government Flight Representative, to verify compliance prior to authorizing the contracted UASC for flight duties.

b. Minimum equivalent documentation includes:

(1) Commander's Designation Letters. Maintain a copy of the UAS programs' current designation letter and copies of any other previous military aviation designation letters.

(2) JUMTS Log. A record of all UASC evaluated events performed since initial certification. As defined by each Service/USSOCOM, a JUMTS log will exist in a legible format and follow Service/USSOCOM guidance to track a UASCs' accomplished events, currency related issues, or training data. In lieu of Service/USSOCOM guidance, examples of a JUMTS log include DA Form 7122, NAVFLIR, and MAJCOM ARMS products.

c. Documentation of Assessments. Documentation of all assessments received since initial military aviation rating or UAS certification shall be maintained within the JUMTS documentation training jacket.

12. Waiver Authority. Waiver authority not specifically addressed within this Instruction will be in accordance with Service/USSOCOM directives. However, waiver authority will be no lower than general/flag officer.

13. Releasability. This instruction is approved for public release; distribution is unlimited. DOD components (to include the combatant commands), other federal agencies, and the public may obtain copies of this instruction through the Internet from the CJCS Directives Home Page--http://www.dtic.mil/cjcs_directives.

14. Effective Date. This instruction is effective upon receipt.

B. E. GROOMS
RDML, USN
Vice Director, Joint Staff

Enclosures:

A – BASIC UAS QUALIFICATION LEVEL I-IV TASK LISTS
B – JOINT MISSION QUALIFICATION LEVEL A-C TASK LISTS
C – REFERENCES
GL – GLOSSARY

ENCLOSURE A

BASIC UAS QUALIFICATION LEVEL I-IV TASK LISTS

1. UAS Crewmember Definitions

a. UASC. A specifically trained and qualified aviation professional who exercises direct control of unmanned aircraft systems, aircraft, and/or payload.

b. Pilot/Aircraft Operator. A UASC who demonstrates the knowledge, skills, and abilities (KSAs) and exercises the privileges and responsibilities described below as BUQ Level I-IV. This individual may or may not be a rated Service member who has completed a Service/USSOCOM UAS training program. This definition complies with reference f.

c. Sensor/Payload Operator. A UASC who demonstrates the KSAs of Service/USSOCOM-determined BUQ tasks and exercises these privileges and responsibilities in support of the pilot/aircraft operator.

2. Basic UAS Qualification

a. The diversity of UAS design, mission, and vehicle technology architecture make it difficult to prescribe a standard set of universally applicable training certification requirements for the crewmember. For example, highly automated systems may not include manual controls and will limit the UASC from controlling keyboard or "point and click" entry methods. In such cases, training certification requirements for manual controls should not be imposed. Conversely, many UAS are limited to global positioning system (GPS) navigation and are not capable of using legacy radio aids for navigation and approaches. As a result, training certification requirements for navigation should reflect the use of GPS skills. Therefore, not all KSAs or training tasks listed in the BUQ Levels will be applicable to all UASC or UAS.

b. Regardless of the type of controls, the UASC must be capable of safely conducting UAS missions, to include the precise and efficient response to emergency situations. These unique skills are especially critical when operating in conjunction with other manned and unmanned airborne systems. UAS training criteria must consider Crew Resource Management (CRM) techniques. CRM is essential for UAS operations and the UASC must be able to communicate effectively to ensure safety. UASC must understand how to coordinate with Air Traffic Service Providers when required. The BUQ levels must provide a thorough understanding of applicable national and international controlling authorities' flight regulations as well as integration with overall military operations.

c. General Aviation Knowledge and Academic Content. Just as pilots of manned aircraft operating in Class G airspace are not required to meet the qualifications required to operate in Class A airspace, the depth of knowledge required of the BUQ levels will depend on the complexity of the UAS, mission, and the operating environment. The following topics, which are not exhaustive, reflect general knowledge included later in this Instruction:

(1) Airspace design and operating requirements.

(2) Air Traffic Control (ATC) procedures, rules, and regulations.

(3) Aerodynamics, including effects of controls.

(4) Aircraft systems and emergency procedures.

(5) Performance.

(6) Navigation.

(7) Meteorology.

(8) Communication procedures (Aeronautical English competency).

(9) Mission preparation.

3. BUQ Levels (I-IV). Each BUQ level correlates to the appropriate portion of the NAS/ICAO airspace used for UAS employment. Waivers will be requested IAW the basic Instruction, paragraph 10. Some training tasks will not apply to specific UAS because of operating characteristics and equipment capabilities.

a. BUQ Level-I. Knowledge and knowledge-based skills required to fly VFR in Class E, G, and Restricted/combat airspace <1200' AGL.

b. BUQ Level-II. Knowledge and knowledge-based skills required to fly under VFR in Class D, E, G, and Restricted/combat airspace <18,000' MSL.

c. BUQ Level III. Knowledge and knowledge-based skills required to fly under VFR in all classes of airspace except U.S. and ICAO Class A.

d. BUQ Level IV. Knowledge and knowledge-based skills required to fly VFR/IFR in all weather conditions and classes of airspace up to FL600.

4. BUQ Levels I-IV Training. Each training level is inclusive of the previous levels (e.g., BUQ IV includes BUQ-I, II, and III tasks).

a. BUQ Level I. Knowledge and knowledge-based skills required to fly in VFR conditions in Class E, G, and Restricted/combat airspace <1200' AGL. The 14 Code of Federal Regulation (CFR) requirements do not currently exist for this group of aircraft. BUQ-I is the minimum recommended training level for UASC who perform duties other than pilot/aircraft operator. Table 1 contains the required areas of knowledge for BUQ Level I.

BUQ Level I	
MISSION PREPARATION	
Aviation Weather	Aircraft Performance Data and Limitations
Crew Resource Management and Communications	Publications
Emergency Equip/In Flight Emergency Procedures	Departure and Arrival Planning
Flight Checklists and Use	Computerized Flight Planning Systems
Charts – Sectional, Tactical, and Global	Mission Route Selection & Analysis
International Civil Aviation Organization (ICAO)/Flight Information Publications Procedures	
COMMUNICATIONS	
Communications planning and management	Data Links
Knowledge of Airborne Communication Systems	
AIRCRAFT OPERATIONS	
Weather Hazards	Basic Manual Navigation
General Flight Rules	Low Level Flying
Fuel Planning	Aircraft Systems and Directives
Integrated Navigation Systems	Emergency Procedures
Aviation Principles	Manual Flight Control Skills
Time & Course Control	Air Tasking Order (ATO)
(1) BEFORE FLIGHT CATEGORY	
VFR Mission planning	Exterior inspection checks
Weather data for mission planning	Appropriate communications procedures
Operational data for mission planning	Starting engines checks
Mission briefing	Verbal communication/radio procedures
Map preparation for use during flight	GPS position checks

BUQ Level I	
Route planning to destination & alternates	Pre-flight clearances
(1) BEFORE FLIGHT CATEGORY (continued)	
En route altitudes as required	Ground Control Station (GCS) instrument checks
Pre-flight checks	Before launch/takeoff checks
Maintenance logs	
(2) CONTACT CATEGORY	
Recognize departure and recovery procedures	Controlling Rate of Descent
Appropriate climb airspeed	Use of local area map for orientation
Establishing and maintaining alt.	
Applicable in-flight checks	
Turns, climbs, descents, as required	Approach to field checks
Level off/routine checks	Basic aero maneuvers
Basic area orientation	Before descent checks
Current wind conditions	Automatic approach & landing
	Approach to landing/recovery
Go-around/wave-off on final approach turn	Landing/recovery and applicable rollout procedures
Airspeed change, straight-and-level as required	Go-around/missed approach checks
Go-around from final approach/flare	Post landing checks & procedures
GCS safety procedures	Flight line and air discipline
Normal traffic pattern	Final approach procedures
Traffic pattern deconfliction	Launch/Takeoff, initial climb & assoc. checks
Clearing airspace in direction of turn	Maneuvering within assigned airspace
Aircraft configuration: Pre-landing checks	Airmanship, judgment, & decision-making in aircraft (CS-situational awareness)
	Stalls and recovery procedures
	Altitude/attitude control throughout flight
(3) INSTRUMENT CATEGORY – NO TASKS	
(4) NAVIGATION CATEGORY	
Visual navigation	Correlation of aircraft position with map
Map reading	Calculation of actual fuel consumption

BUQ Level I	
Using visual landmarks in flight planning	In-flight navigation planning
(4) NAVIGATION CATEGORY (continued)	
Calculation/compensation for in flight winds	Time and fuel management
Calculation of new Estimated Time of Arrival (ETA)	Lost communication/Command and Control (C2) link procedures
(5) EMERGENCY CATEGORY	
Emergency conditions	Analyzing current situation, including systems for possible emergency
Aircraft control during emergency conditions	Recognition of applicable emergency procedures
Communication/declaration of an emergency (if required)	Recognition and proper response to unplanned lost C2 link events
Land as soon as conditions permit	Unusual attitudes and recovery techniques
(6) AFTER FLIGHT CATEGORY	
After landing checks	Completion of flight time logs
Engine shutdown checks	Completion of maintenance logs
All safety procedures for securing aircraft	Post landing procedures

Table 1. BUQ Level I

b. BUQ Level II. Aviation knowledge and UAS knowledge-based skills required to fly in VFR conditions in Class D, E, G, and Restricted/combat airspace <18,000' MSL. BUQ Level-II meets or exceeds the knowledge requirements of 14 CFR Sub-part J 61.309 and 61.311 for a FAA sport pilot license. Table 2 contains the required areas of knowledge for BUQ Level II. As noted in paragraph 7 of the basic Instruction, the BUQ levels are cumulative in nature.

BUQ Level II	
ALL BUQ LEVEL I TASKS	
MISSION PREP – NO NEW TASKS	
COMMUNICATIONS – NO NEW TASKS	
AIRCRAFT OPERATIONS	
Radio Aid Navigation	Radar Navigation/Fixing
(1) BEFORE FLIGHT CATEGORY	
Compute takeoff and landing data	Clearance to taxi
Local VFR flight clearance	Clearance for takeoff
ground speed	Taxiing to runway
(1) BEFORE FLIGHT CATEGORY (continued)	
Filing DD 175/ICAO 1801 (Flight Plan)	Taxiing into takeoff position
Interior inspection check	Line up checks, Engine start checks
Before taxi check	Operation of navigation systems
(2) CONTACT CATEGORY	
Appropriate climb per manuals	Requesting and receiving landing clearance
Basic departure procedures	Local breakout procedures
Leveling off from climb	Closed pattern
(3) INSTRUMENT CATEGORY – NO TASKS	
(4) NAVIGATION CATEGORY	
Position reporting	Usage of Pilot to Metro Service (PMSV) and Air Traffic Information Service (ATIS), and Pilot Report (PIREP)
In-flight clearances	Interpretation of radio weather condition report
Dead reckoning navigation	Navigation Diversions based on weather reports
Actual and planned rate of fuel consumption	Comparing actual and planned groundspeeds
(5) EMERGENCY CATEGORY – NO NEW TASKS	
(6) AFTER FLIGHT CATEGORY	
Taxiing clear of runway	Closing a flight plan with ATC
Taxiing to parking	

Table 2. BUQ Level II

c. BUQ Level III. Knowledge and knowledge-based skills required to fly in VFR conditions in airspace below 18,000' MSL. BUQ Level-III meets or exceeds the knowledge requirements of 14 CFR Sub-part E 61.105 and 61.107 for a FAA private pilot license. Table 3 contains the required areas of knowledge for BUQ Level III. As noted in paragraph 7 of the basic Instruction, the BUQ levels are cumulative in nature.

BUQ Level III	
ALL BUQ LEVEL I AND II TASKS	
MISSION PREP – NO NEW TASKS	
COMMUNICATIONS – NO NEW TASKS	
AIRCRAFT OPERATIONS	
Basic Instrument Flight	ic Instrument Flight Procedures
(1) BEFORE FLIGHT CATEGORY	
Basic Instrument Flight Rules (IFR) mission planning	
Operation of Air Traffic Surveillance Equipment (Identification, Friend or Foe (IFF)/Selective Identification Feature (SIF)/Traffic Collision Avoidance System (TCAS)/Sense and Avoid Sensors)	
(2) CONTACT CATEGORY	
Normal overhead patterns	
(3) INSTRUMENT CATEGORY	
Partial panel instrument flight	Aircraft maneuvers under instrument conditions
Recognition of improper nose low condition	Course intercept
Rate of intercept	Angle of intercept
Recognition and recovery from unusual attitudes under instrument conditions	Operation of aircraft instruments and navigation equipment
Hazardous/adverse weather conditions in flight	Weather phenomena which affect flight
Establishing and maintaining constant altitude, airspeed, and heading during instrument flight	
(4) NAVIGATION CATEGORY	
Unfamiliar field departure procedures	Low level navigation
Unfamiliar field visual and basic instrument approach procedures	
(5) EMERGENCY CATEGORY – NO NEW TASKS	
(6) AFTER FLIGHT CATEGORY – NO NEW TASKS	

Table 3. BUQ Level III

d. BUQ Level IV. Knowledge and knowledge-based skills required to fly VFR/IFR in all weather conditions in airspace up to FL600. BUQ Level-IV meets or exceeds the knowledge requirements of 14 CFR Sub-part F 61.125 and 61.127 for an FAA private pilot license with instrument rating. Table 4 contains the required areas of knowledge for BUQ Level IV. As noted in paragraph 7 of the basic Instruction, the BUQ levels are cumulative in nature.

BUQ Level IV	
ALL BUQ LEVEL I, II AND III TASKS	
MISSION PREPARATION	
Global Flight Ops Knowledge	
COMMUNICATIONS	
Satellite Communications (SATCOM)	
AIRCRAFT OPERATIONS	
Global Navigation Procedures	
AIR OPERATIONS	
Search and Rescue (SAR)	
(1) BEFORE FLIGHT CATEGORY – NO NEW TASKS	
(2) CONTACT CATEGORY – NO NEW TASKS	
(3) INSTRUMENT CATEGORY	
Auto/instrument takeoff, climb, & departure procedures	Departing a holding pattern
Instrument cross check	Procedure turns
Intercepting a heading at a predetermined angle	Transitioning from Minimum Descent Altitude (MDA) to runway
Establishing and maintaining appropriate heading	ATC/approach control clearances
Determination of lead point	Standard instrument approach plate procedures
Course interception	Procedure turn airspace
IFR navigation	En route descents
Fix-to-fix navigation	Appropriate Landing configuration
Maintaining selected course with wind correction	Descent gradients
Knowledge of establishing arc	Instrument Meteorological Condition(s) (IMC) penetration
Arc interception	ATC clearances
Arc maintenance	ATC procedures
Radial interception from arc	Remaining within cleared airspace
Holding/loitering	Controlling Rate of Descent
Understanding holding instructions	Instrument approach procedures
Holding pattern entry	Radar patterns

BUQ Level IV	
Maintaining position within holding pattern airspace	Following Ground Controlled Approach (GCA) controller's directions
Wind analysis in holding pattern airspace	Turning to directed headings
Maintaining directed altitudes	Glide slope control
(3) INSTRUMENT CATEGORY (continued)	
Maintaining proper airspace	Course control
Establishing proper holding configuration	Transitioning from instruments to visual references
Precision radar approach	Visual Descent Point (VDP)
Non-precision radar approach	Circling approach procedures
Gyro-out instrument pattern	Missed approach procedures
Half-standard rate turns on final	ATC missed approach clearances
Gyro-out precision radar approach	Missed approach checks
Corrections to aircraft heading	Transitioning from glide path to runway
In-flight IFR clearance	
(4) NAVIGATION CATEGORY – NO NEW TASKS	
(5) EMERGENCY CATEGORY – NO NEW TASKS	
(6) AFTER FLIGHT CATEGORY – NO NEW TASKS	

Table 4. BUQ Level IV

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ENCLOSURE B

JOINT MISSION QUALIFICATION LEVEL A-C TASK LISTS

1. Joint Mission Qualification. Provides the general mission knowledge of the objective the UAS is expected to accomplish. This skill set is critical to ensure the crews understand their role in accomplishing a larger military objective. The three JMQ Levels (A-C) correlate to the appropriate Joint Missions.

a. JMQ-A. These qualifications support unit-level ISR and Fires tasks in support of the JFC. Mission support with capabilities defined in the JMTL.

b. JMQ-B. These qualifications support theater-level advanced ISR/IAA mission support with defined capabilities in the JMTL of the JFC.

c. JMQ-C. These qualifications support strategic level Fires and CSAR/PR tasks in support of the JFC as defined in the JMTLs.

2. JMQ Levels A-C

a. JMQ-A. These qualifications support the common missions of the JFC. UASCs are required to support the mission with capabilities defined in the JMTL. UASC must have knowledge on the following tasks.

(1) Perform mission route selection & analysis (IAW MTTP-UAS Ch. 4, "Employment," and appropriate Service training standards).

(2) Understand and apply the appropriate grid reference system(s) specified for the area of operations and/or area of operational responsibility (IAW MTTP-JFIRE Appendix D, "Fire Support Coordination Measures and Airspace Coordinating Measures," and appropriate Service training standards).

(3) Understand and apply fire support and airspace coordination measures (IAW JP 3-09 Ch. 3, "Joint Fire Support Planning and Execution," and appropriate Service training standards).

(4) Perform map analysis of the mission operations area (IAW MTTP-UAS Ch. 2, "Planning Considerations," and appropriate Service training standards).

(5) Submit target nomination (IAW JP 3-60, "Joint Targeting," Ch. 2, and appropriate Service training standards).

(6) Execute target planning checklist/mission card (IAW JP 3-60, "Joint Targeting," Ch. 2, and appropriate Service training standards).

(7) Call for and adjust indirect fire (IAW JP 3-09 Ch. 3, "Joint Fire Support Planning and Execution" and appropriate Service training standards). **Note**: Task (7) is recommended, but not directed until JMQ-C.

(8) Transmit a tactical report (IAW MTTP-UAS Ch. 4, "Employment," and appropriate Service training standards).

(9) Understand and apply ATO (IAW JP 3-30 Ch. 3, "Planning for Joint Air Operations," and appropriate Service training standards).

(10) Understand and apply training rules/rules of agreement/ engagement (IAW JP 3-33 Ch. 4, "Joint Task Force Command and Control," and appropriate Service training standards).

(11) Perform aerial observation (IAW MTTP-UAS Ch. 4, "Employment," and appropriate Service training standards).

b. JMQ-B. These qualifications coincide with missions in support of multi-component objectives. UASCs conducting joint ISR are required to support the mission with capabilities defined in the JMTL. UASC must be knowledgeable on the following tasks:

(1) Perform route reconnaissance (IAW MTTP-UAS Ch. 4, "Employment," and appropriate Service training standards).

(2) Perform zone reconnaissance (IAW MTTP-UAS Ch. 4, "Employment," and appropriate Service training standards).

(3) Perform area reconnaissance (IAW MTTP-UAS Ch. 4, "Employment," and appropriate Service training standards).

(4) Apply collection requirements (IAW MTTP-UAS Ch. 4, "Employment," and appropriate Service training standards).

(5) Utilize all-sensor system capabilities (IAW MTTP-UAS Ch. 4, "Employment," and appropriate Service training standards).

(6) Conduct mission planning/briefing (IAW JP 3-33 Ch. 4, "Joint Task Force Command and Control," and appropriate Service training standards).

(7) Perform target surveillance (IAW MTTP-UAS Ch. 4, "Employment," and appropriate Service training standards).

(8) Track a static target (IAW MTTP-UAS Ch. 4, "Employment," and appropriate Service training standards).

(9) Track a moving target (IAW MTTP-UAS Ch. 4, "Employment," and appropriate Service training standards).

(10) Communicate battle damage assessment (BDA) Report (IAW JP 2-0 Ch. 4, "Intelligence Support to Planning, Executing, and Assessing Joint Operations," and appropriate Service training standards).

(11) Be familiar with total sensor timeline and target location error analysis (IAW MTTP-UAS Ch. 4, "Employment," and appropriate Service training standards).

c. JMQ-C. These qualifications coincide with missions in support of the JFC. UASCs are required to support the JFC with capabilities defined in the JMTL and be trained in accordance with the law of armed conflict and CJCS standing rules of engagement. Joint Fires (J-Fires) & Joint Combat Search and Rescue/Personnel Recovery (JCSAR/PR) tasks are based on Service mission requirements as defined by each Service. UASCs conducting J-Fires and JCSAR/PR will be knowledgeable on the following tasks:

(1) Joint Fires

(a) Know communications for employing close air support (CAS) (IAW JP 3-09 Ch. 1, "Joint Fire Support Planning and Execution," and appropriate Service training standards).

(b) Theater air control system coordination (TACS) (IAW MTTP-JFIRE Ch. 2&5, "C4ISR and Execution," and appropriate Service training standards).

(c) Understand CAS/close combat attack (CCA) planning process (IAW JP 3-09, Ch. 3; MTTP-JFIRE Ch. 2-4 and Appendix C, and appropriate Service training standards).

(d) Understand joint air attack team briefing and provide necessary elements of information (IAW MTTP-JFIRE Ch. 2, "Joint Air Attack Team, Close Combat Attack," and appropriate Service training standards).

(e) Understand NATO fighter check-in procedures (IAW MTTP-JFIRE Ch. 4, "Close Air Support Execution," and appropriate Service training standards).

(f) Target marking (IAW JP 3-60, "Joint Targeting," Ch. 2, and appropriate Service training standards).

(g) Real-time battlespace coordination (IAW MTTP-JFIRE Ch. 3&4, "Joint Air Attack Team, Close Combat Attack and Close Air Support Execution," and appropriate Service training standards).

(h) Perform weapons employment (IAW JP 3-09.3, Ch. 5; JP 3-09.1, Ch. 3; and MTTP-JFIRE Ch. 2-4 and Appendix C, and appropriate Service training standards).

(i) Communicate a BDA report (IAW JP 2-0 Ch. 4, "Intelligence Support to Planning, Executing and Assessing Joint Operations," and appropriate Service training standards).

(j) Aircraft positioning (IAW JP3-09.3 Ch. 4, "Preparation," and appropriate Service training standards).

(k) Understand target weather information and pass to others (IAW JP 3-60, "Joint Targeting," Ch. 2, and appropriate Service training standards).

(l) Perform target hand-over to another aircraft IAW J-FIRE (IAW MTTP-JFIRE Ch.3, "Joint Air Attack Team, Close Combat Attack," and appropriate Service training standards).

(m) Rendezvous (IAW MTTP-JFIRE Ch. 3&4, "Joint Air Attack Team, Close Combat Attack, and Close Air Support Execution," and appropriate Service training standards).

(n) Understand USMC and USA fire support request nets (IAW JP 3-09, Ch. 3; MTTP-JFIRE, Ch. 2; and appropriate Service training standards).

(o) Perform firing techniques (IAW MTTP-JFIRE Ch. 2-4 and Appendix C, and appropriate Service training standards).

(p) Understand and correctly employ laser designation capability (IAW JP 3-09.1, Ch. 2, and appropriate Service training standards).

(q) Weapons delivery procedures (IAW JP 3-09.3, Ch. 5; JP 3-09.1, Ch. 3; and MTTP-JFIRE Ch. 2-4 and Appendix C, and appropriate Service training standards).

(r) Targeting of time-sensitive target decentralized to the shooter (IAW MTTP-TST Ch. 3, "Commander's Objectives and Guidance," and appropriate Service training standards).

(s) Know capabilities and limitations of strike (surface and air) assets (IAW JP 3-09 Ch. 1, "Joint Fire Support Planning and Execution," and appropriate Service training standards).

(t) Conduct joint force targeting (IAW JP 3-60, "Joint Targeting," Ch. 2, and appropriate Service training standards).

(2) Joint CSAR/PR

(a) JCSAR/PR (IAW JP 3-50 Ch. 4, "Personnel Recovery Joint Procedures and Techniques;" JP 3-50.2 Ch. 2, "Joint Combat Search and Rescue Procedures;" and appropriate Service training standards).

(b) Support JCSAR/PR tasks: report, locate, support, and recover (IAW JP 3-50 Ch. 4, "Personnel Recovery Joint Procedures and Techniques," JP 3-50.2 Ch. 2, "Joint Combat Search and Rescue Procedures," and appropriate Service training standards).

(c) Determine and maintain location of isolated personnel (IAW JP 3-50 Ch. 4, "Personnel Recovery Joint Procedures and Techniques;" JP 3-50.2 Ch. 2, "Joint Combat Search and Rescue Procedures;" and appropriate Service training standards).

(d) Perform authentication of isolated personnel (IAW JP 3-50.2 Ch. 2, "Joint Combat Search and Rescue Procedures," and appropriate Service training standards).

(e) Perform communication relay (IAW MTTP-UAS Ch. 3, "Communications," and appropriate Service training standards).

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ENCLOSURE C

REFERENCES

a. JROC memorandum (JROCM) 222-08, 18 November 2008, "Joint Unmanned Aircraft Systems Training, Manning, and Access to the National Airspace System"

b. JROCM 044-08, 15 February 2008, "Training and Manning Approaches for Unmanned Aircraft Systems (UAS)"

c. JROCM 124-08, 5 June 2008, "Minutes of the JROC Meeting"

d. VCJCS memorandum, 17 March 2008, "Operation of Unmanned Aircraft Systems (UAS) in the National Airspace System (NAS)"

e. JUAS COE, USJFCOM study report, 25 September 2008, "Joint UAS Training Qualifications and Standards Architecture"

f. STANAG 4670, December 2006, "STANAG on Recommended Guidance for the Training of Designated Unmanned Aerial Vehicle Operator (DUO) Training," Edition 1

g. Defense Contract Management Agency Instruction 8210.1, "Contractors Flight and Ground Operations"

h. JP 2-0, 22 June 2007, "Joint Intelligence"

i. JP 3-09, 30 June 2010, "Joint Fire Support"

j. JP 3-09.1, 28 May 1999, "Joint Tactics, Techniques, and Procedures for Laser Designation Operations"

k. JP 3-30, 12 January 2010, "Command and Control for Joint Air Operations"

l. JP 3-33, 16 February 2007, "Joint Task Force Headquarters"

m. JP 3-50, 5 January 2007, "Personnel Recovery"

n. JP 3-50.2, 26 January 1996, "Doctrine for Joint Combat Search and Rescue"

o. JP 3-60, 13 April 2007, "Joint Targeting"

p. MTTP-TST, April 2004, "Multi-Service Tactics, Techniques, and Procedures for Targeting Time-Sensitive Targets"

q. MTTP-UAS, August 2006, "Multi-Service Tactics, Techniques, and Procedures for the Tactical Employment of Unmanned Aircraft Systems"

r. MTTP-JFIRE, December 2007, "Multi-Service Tactics, Techniques, and Procedures for the Joint Application of Firepower"

GLOSSARY

Unless otherwise stated, the terms and definitions contained in this glossary are for the purposes of this instruction only

AGL	See Joint Publication 1-02
ATC	See Joint Publication 1-02
BDA	See Joint Publication 1-02Battle Damage Assessment
BUQ	Basic UAS Qualification
CAS	See Joint Publication 1-02
CFR	Code of Federal Regulations
CRM	See Joint Publication 1-02
CSAR	See Joint Publication 1-02
DUO	Designated Unmanned Aerial Vehicle Operator
FAA	See Joint Publication 1-02
FAC	See Joint Publication 1-02
FL	Flight Level
IAA	Incident Awareness and Assessment
ICAO	See Joint Publication 1-02
IMC	See Joint Publication 1-02
ISR	See Joint Publication 1-02
J-Fires	Joint Fires
JAAT	See Joint Publication 1-02
JCA	See Joint Publication 1-02
JCAS	Joint Close Air Support
JFC	See Joint Publication 1-02
JMOA	Joint Memorandum of Agreement
JMQ	Joint Mission Qualification
JMTL	Joint Mission Task Lists
JROCM	Joint Requirements Oversight Council Memorandum
JUMTS	Joint Unmanned Aircraft System Minimum Training Standards
KSA	Knowledge, Skill, and Ability
MSL	Mean Sea Level
NAS	National Airspace System
TACS	See Joint Publication 1-02
TST	See Joint Publication 1-02
UAS	See Joint Publication 1-02
UASC	Unmanned Aircraft System Crewmember
UASFCS	Unmanned Aircraft System Flight Crew Skills
UASMCS	Unmanned Aircraft System Mission Crew Skills
USSOCOM	See Joint Publication 1-02
VFR	See Joint Publication 1-02
VMC	See Joint Publication 1-02

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