***BY ORDER OF THE SECRETARY OF THE AIR FORCE***

***AIR FORCE MANUAL 11-2F-35A, VOLUME 1***

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***Flying Operations***

***F-35A—AIRCREW TRAINING***

**COMPLIANCE WITH THIS PUBLICATION IS MANDATORY**

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This publication implements Air Force Policy Directive (AFPD) 11-2, *Aircrew Operations*, AFPD 11-4, *Aviation Service*, Air Force Instruction (AFI) 11-200, *Aircrew Training, Standardization/Evaluation, and General Operations Structure*, and references Air Force Manual (AFMAN) 11-202, Volume 1, *Aircrew Training.* This publication establishes guidance for the effective and safe operation of the F-35A. This publication applies to all F-35A units in the Regular Air Force, Air National Guard (ANG) and Air Force Reserve (AFR). This publication does not apply to the United States Space Force. Ensure all records generated as a result of processes prescribed in this publication adhere to AFI 33-322, *Records Management and Information Governance Program*, and are disposed in accordance with the Air Force Records Disposition Schedule, which is located in the Air Force Records Information Management System. Refer recommended changes and questions about this publication to the office of primary responsibility (OPR) using the Department of the Air Force (DAF) Form 847, *Recommendation for Change of Publication*; route DAF Forms 847 from the field through the appropriate functional chain of command. The Air Combat Command, Director of Operations (ACC/A3) will coordinate all changes to the basic volume with all major command (MAJCOM)/A3s. This publication may be supplemented at any level, but all supplements that directly implement this publication must be routed to the OPR of this publication for coordination prior to certification and approval (will include the Air Force Director, Aircrew Task Force (AF/ACTF) and the Air Combat Command, Flight Operations Division, (ACC/A3T)). The authorities to waive wing, and unit level requirements in this publication are identified with a Tier ("T-0, T-1, T-2, T-3") number following the compliance statement. See Department of the Air Force Manual (DAFMAN) 90-161, *Publishing Processes and Procedures,* Table A10.1 for a description of the authorities associated

with the Tier numbers. Submit requests for waivers through the chain of command to the appropriate Tier waiver approval authority, or alternately, to the to the publication OPR for non-tiered compliance items (see **paragraph 1.2**). The use of the name or mark of any specific manufacturer, commercial product, commodity, or service in this publication does not imply endorsement by the DAF. Compliance with attachments is mandatory.

***SUMMARY OF CHANGES***

This document has been substantially revised and should be completely reviewed. Major changes include: Updated opening paragraph and other DAFMAN 90-161 changes, removed unnecessary acronyms, numerous AFIs changed to AFMAN, added references throughout to Aggressor coded units, added ACC/A3 directed and flight crew information file items. **Chapter 1**: Reduced experienced pilot sim requirements. Changed waiver wording to allow for Tier 1, 2, and 3 waivers to automatically remain in effect for up to 90 days after the change of command of the approving commander per DAFMAN 90-161. **Chapter 2**: Rewording for clarity; separated instrument and qualification evaluations into separate events. ACC/A3 directed additions to sim emergency section. **Chapter 3**: Removed mission qualification training (MQT) restriction on exercise events; increased MQT and verification grace period to 180 days; reworded ACBRN sim and flight sections. **Chapter 4**: Changed Night Sortie recurrency to Night recurrency; added Night low-altitude (LOWAT) recurrency and requirements; added automatic ground collision avoidance system (AGCAS) recovery and helmet mounted display failure instrument approach to practice emergency procedure profiles. Added Night LOWAT Recurrency; removed joint terminal attack control and functional check flight; combined low altitude air-to-air (A/A) and air-to-surface (A/S) into LOWAT program; added one LOWAT intercept to Note 12 in **Table 4.1** Added Night LOWAT currency and Note 14 to **Table 4.1** Defined multiple qualification between F-35A/B/C and differences training. ACC/A3 directed additions to sim emergency section, removed ability to regain night currency in the sim in **Table 4.1** Added non-special use airspace guidance. **Chapter 5**: Reworded for clarity and rearranged order of the paragraphs. **Chapter 6**: Added that sims count toward the total required; **Paragraph 6.5**, renamed to LOWAT; removed Note from **paragraph 6.5.5**; reworded night vision camera to distributed aperture system/night vision camera (DAS/NVC); added **paragraph 6.6.4** Night LOWAT; removed LOWAT-2 and LOWAT-5 and all wording concerning training to low altitude visual formations; deleted functional check flight, deleted forward air controller (airborne), and deleted sim console operator upgrade programs. **Attachment 1**: Added office symbols, Guidance provided in (GPI) DAFMAN 90-161. **Attachment 2**: Moved Red Air to non-demanding mission list; removed Illumination event; reworded LOWAT for clarity; combined low A/A and A/S into LOWAT currency; removed forward air controller (airborne) section; removed “rearming” from Hot Pit description per the F-35 Joint Program Office (F-35 JPO) Safety.

# Chapter 1

## GENERAL GUIDANCE

**1.1. Roles and Responsibilities.** This manual establishes the minimum Air Force standards for training, qualifying, and certifying personnel performing aircrew duties in the F-35A. Note: For the purposes of this manual, certification denotes a commander's action, whereas qualification denotes a formal evaluation. Reference AFMAN 11-202 Volume 2, *Aircrew Standardization and Evaluation Program*, for an explanation of qualifications versus certifications. ACC/A3 is designated the responsible agency for this volume, guidance provided in (GPI) AFPD 11-2.

1.1.1. ACC/A3 will:

1.1.1.1. Chair annual Combat Air Forces Realistic Training Review Board to review ground and flying training requirements/programs. Focused at the group commander and MAJCOM/A3T (or equivalent) level, board participation includes active and reserve component units/organizations. MAJCOM/A3s with major weapons systems for which Air Combat Command (ACC) is lead command, will be invited to send representatives and/or inputs.

1.1.1.2. Process all publication change requests.

1.1.1.3. Coordinate, publish and distribute the *Ready Aircrew Program (RAP) Tasking Memorandum (RTM)*, which describes annual training requirements for designated combat-coded units. The RTM is published each fiscal year on the Air Combat Command Flight Operations Training Branch (ACC/A3TO) SharePoint® site at **https://usaf.dps.mil/sites/ACC-A3/A3T/A3TO/SitePages/Home.aspx**

1.1.2. MAJCOM/A3s may elect to develop their own training requirements to fulfill designed operational capability (DOC) statement missions and documentation of aircrew certification via supplement or in their own MAJCOM RTM. Comply with applicable supplements to all guidance referenced in this DOC Volume. Develop additional supplements, GPI DAFMAN 90-161.

1.1.3. Direct Reporting Units (DRUs):

1.1.3.1. Provide standard instructional texts to support operational weapons and tactics training. Forward electronic copies to appropriate MAJCOM/A3 and Numbered Air Force, Director of Operations (NAF/A3).

1.1.3.2. Review, update, and distribute changes to instructional texts.

1.1.3.3. Review subordinate unit training programs.

1.1.4. Wings/groups:

1.1.4.1. Develop/approve/implement programs to ensure training objectives are met and assist subordinate units in management of training programs.

1.1.4.2. Attach aircrew position indicator (API)-5/6/8 pilots to a flying squadron and designate the continuation training status for each, except when otherwise mandated. All API 5/6/8 Air Reserve Component (ARC) pilots will have continuation training status designated.

1.1.4.3. Review manning programs and position designations annually.

1.1.4.4. Review training programs and syllabi annually. Forward unit supplements to this publication to MAJCOM/A3T (or equivalent), for coordination prior to certification and approval (ANG to the National Guard Bureau, Combat Air Forces Division (NGB/A3/10O); AFR to the Air Force Reserve Command, Combat Operations (AFRC/A3D).

1.1.5. Squadrons/units:

1.1.5.1. Combat-coded units will publish a letter of pilot qualifications/certifications monthly (example: Letter of X's). The letter provides a list of pilots that have special capabilities or qualifications for that month. The letter also provides utilization of basic mission capable (BMC) pilots (annotate missions/events that maintain qualification/certification).

1.1.5.2. Ensure adequate continuity and supervision of individual training needs, experience, and proficiencies of assigned/attached pilots.

1.1.5.3. Monitor assigned/attached pilot currencies and requirements.

1.1.5.4. Review training and evaluation records of newly assigned pilots and those completing formal training to determine the training required for them to achieve the appropriate qualification, certifications, and training status. After review and evaluation, archive the previous flying assignment training folder.

1.1.5.5. Develop unit training programs using RTM guidance and this volume. Consider attrition and collateral sorties (including associated training requirements) when developing unit training and flying hour programs.

1.1.5.6. Review qualifications and training requirements of non-pilots (flight surgeon, ground liaison officer, etc.) and determine appropriate flight restrictions.

1.1.5.7. Ensure pilots only participate in missions, events, and tasks for which they are being trained or trained, current, and prepared for that purpose.

1.1.5.8. Submit Training Reports as outlined in MAJCOM RTM guidance (see **paragraph 1.8.5**).

1.1.6. Individual pilots:

1.1.6.1. Monitor currencies and requirements established by this manual.

1.1.6.2. Only participate in ground and flying activities for which they are being trained or trained, current, and prepared for that purpose.

**1.2. Waivers.** The Commander Air Force Forces, MAJCOM/A3 (or equivalent) will notify ACC/A3 of waivers within 72 hours of issuance. Wing commanders (WG/CCs) will notify the publication OPR within 72 hours of waiver approval. (T-2) In accordance with DAFMAN 90-161, a copy of the approved waiver must follow within 30 days of issuance. (T-2) An email to the waived publication OPR that includes a completed DAF Form 679, *Department of the Air Force Publication Compliance Item Waiver Request/Approval* or equivalent will suffice. Commanders may waive non-tiered requirements but must send a copy of the approved waiver to the OPR of the higher headquarters publication being waived within 30 days of approval. (T-1) Because

waivers are the expression of a specific commander accepting risk, Tier 1, 2, and 3 waivers automatically expire 90 days after the change of command of the approving commander unless the new commander renews the waiver approval.

**1.3. Training Programs, Concepts, and Policies.**

1.3.1. Units will design training programs to achieve the highest degree of mission readiness consistent with each unit's DOC statement, flight safety and resource availability. **(T-2)** Training programs are designed to progress pilots from initial qualification training (IQT) (Basic (B)-course or transition/ requalification training (TX)), then to mission qualification training (MQT), continuation training (CT), and specialized training as required.

1.3.2. The Air Combat Command, Training Support Squadron (ACC/TRSS) will assist operations group (OG)/CCs in development of training programs when/where tasked by the ACC/A3. Other MAJCOMs may submit requests for training program support to the ACC/A3. If validated, these requests will be prioritized and tasked to the ACC/TRSS. **Note:** ACC/ANG/AFR Operational Test-coded units may develop syllabi to upgrade operational test pilots in support of specific test plans. These syllabi will be approved by their test group commander. **(T-2)**

**1.4. Mission Recording.**

1.4.1. Squadron commanders (SQ/CCs) will determine program for supervisory review of mission recording(s). **(T-2)**

1.4.2. Pilots will record from takeoff through landing to the maximum extent possible in order to maximize training value. **(T-3)** Consider recording ground taxi operations if recording space allows.

**1.5. In-flight Supervision.** Unless specifically directed, the SQ/CC determines the level of supervision necessary to accomplish the required training (unaccomplished tasks, new tasks, corrections to previous discrepancies, etc.)

1.5.1. Flight Lead (FL). Instructor Pilots (IP) and FL-certified Squadron (SQ) supervisors may allow any pilot to lead portions of a mission if appropriately briefed. The IP or FL-certified SQ supervisor always retains responsibility for the flight.

1.5.2. Tactical Lead. FLs may pass the tactical lead to their wingman for specific tasks. As the tactical lead, the wingman may make tactical decisions for the flight, but the FL retains overall authority and responsibility for the flight.

**1.6. Experienced Pilot Criteria.** An experienced (Exp) F-35A pilot consistently demonstrates the skills (airmanship, situational awareness and tactical leadership) required to effectively employ fighter aircraft in combat. Designation as an experienced pilot requires SQ/CC approval and one of the following:

1.6.1. Formal training unit (FTU) B-course graduate and all of the following:

1.6.1.1. 4-ship flight lead certification,

1.6.1.2. 250 F-35A/B/C flying sorties, or 100 F-35A/B/C sorties and 150 fighter mission design series (MDS) sorties,

1.6.1.3. 60 simulator (sim) sorties.

1.6.2. FTU TX-course graduate (including the senior officer course) and one of the following:

1.6.2.1. Previous F-35A/B/C pilot:

1.6.2.1.1. If previously Exp, no additional criteria,

1.6.2.1.2. If not previously Exp, follow B-course criteria.

1.6.2.2. Different fighter MDS background (F-16/F-15E/A-10, etc.)

1.6.2.2.1. Previously fighter Exp requires both of the following:

1.6.2.2.1.1. 4-Ship flight lead certification,

1.6.2.2.1.2. 50 F-35A/B/C flying sorties.

1.6.2.2.2. Previously fighter inexperienced (Inexp) requires both of the following:

1.6.2.2.2.1. 4-Ship flight lead certification,

1.6.2.2.2.2. 250 total fighter MDS sorties, 100 of which are in the F-35A/B/C.

**1.7. Ready Aircrew Program Policy and Management.**

1.7.1. RAP defines the minimum training required to maintain the assigned training status.

1.7.2. The RAP training cycle is 12 months, aligned with the fiscal year and executed as outlined in the RTM (**Exception:** Air Education and Training Command (AETC) training cycle is 12 months, determined by the MAJCOM). RAP training is designed to focus on skills needed to accomplish DOC-tasked missions following completion of IQT and MQT.

1.7.3. All combat-coded unit regular Air Force API-1 positions, flying SQ/CC and operations officer (DO) positions are designated combat mission ready (CMR). OG and fighter group (FG)/CCs may designate other API-6 positions not assigned to the flying squadron as CMR. **Exception:** If a unit is over-manned, the SQ/CC will train the unit manning document API-1s to CMR and designate the overage no lower than BMC. **(T-2)** In this case, priority should be given to inexperienced (Inexp) pilots. **Exception:** In the ANG/AFR at the OG or FG/CC discretion any pilot may be designated CMR/BMC.

1.7.4. Active duty API-6 positions above squadron level are normally designated BMC. These BMC pilots are typically assigned to pilot positions whose primary job lies within wing supervision or a staff function that directly supports the flying operation.

1.7.5. All Test/Training/Aggressor-coded unit regular Air Force pilot positions are designated mission ready (MR) (and fly at a BMC rate as a minimum).

1.7.6. An effective RAP training sortie requires accomplishing a complete primary, secondary, or basic skills mission. Effective sorties include a sufficient number of events applicable to that mission type, as determined by the SQ/CC. Pilots are not required to log effective RAP sorties when minimal training occurs. Only one RAP sortie may be logged per sortie (day or night) unless separated by air-to-air refueling (AAR) or hot pit refueling. **(T-2)**

1.7.6.1. Each mission on either side of the AAR/hot pit refueling must stand alone as an effective RAP training sortie. **(T-3)**

1.7.6.2. A maximum of three RAP training sorties will be logged per 24 hour period under these rules. **(T-3)** (**Exception:** This limit does not apply to combat operations). Apply

mission complexity guidance contained in AFMAN 11-2F-35A Volume 3, *F-35 Operations Procedures*, (e.g., prioritize flying upgrade missions and the most complex/demanding events to the first sortie).

1.7.7. Units Converting to the F-35A. Pilots in CMR positions are to fly at the CMR rate (in their legacy aircraft) until CMR sortie rates cannot be supported (e.g., due to lack of trained maintenance personnel or available aircraft). Until the squadron is authorized to declare Conversion status, report in Defense Readiness Reporting System-Strategic the Unit Type Codes that can be supported, use plain text remarks to highlight what capability is available for tasking. **(T-3)**

**1.8. Training Records and Reports.**

1.8.1. SQ/CC maintain pilot records for individual training and flight evaluations as applicable, GPI:

1.8.1.1. AFMAN 11-202 Volume 1, *Aircrew Training*.

1.8.1.2. AFMAN 11-202 Volume 2, *Aircrew Standardization and Evaluation Program*.

1.8.1.3. DAFMAN 11-401, *Aviation Management*.

1.8.2. SQ/CC track the following information for all pilots, as appropriate:

1.8.2.1. Ground Training.

1.8.2.2. Requirements and accomplishment of individual mission types and events cumulatively for the training cycle.

1.8.2.3. RAP lookback as outlined in the RTM.

1.8.2.4. Training requirements and accomplishment of individual currencies.

1.8.2.5. Weapons employment records in sufficient detail to document all employment attempts and hit percentages.

1.8.3. Units update aviation resource management system (ARMS) “No Date” with the last accomplished date of FTU or the United States Air Force Weapons School (USAFWS) qualification evaluation date, or unit mission certification date whichever is earliest.

1.8.4. Units will maintain a training folder (electronic folder is acceptable) for each assigned and attached pilot. **(T-1)** Training folders include information on pilot qualifications/certifications and current assignment training documentation (upgrades, regression, waivers, special qualifications, etc.).

1.8.5. Periodic and End of Cycle (EOC) training reports (Operational Units and FTUs).

1.8.5.1. Operational Units Reporting. Operational squadrons (including those deployed) will submit periodic and EOC RAP training reports as outlined in the RTM. **(T-2)** Squadrons may submit an out of cycle report at any time if higher headquarters assistance is required to prepare for DOC or deployment tasking. Reference current RTM for detailed instructions and report templates.

1.8.5.2. FTU Reporting. FTUs will report on their own training health as directed by their parent MAJCOM. **(T-2)**

**1.9. Pilot Utilization Policy.**

1.9.1. In general, inexperienced API-1 pilots should receive sortie allocation priority over experienced pilots. Priorities for sortie allocation are as follows:

1.9.1.1. Combat-coded Units. CMR API-1, MQT API-1, CMR API-6, MQT API-6, BMC (API- All), API-5 pilot-physicians.

1.9.1.2. Training. Formal syllabus training, MQT, instructor CT, authorized staff personnel not performing instructor or flight examiner duties (to include API-5 pilot-physicians not on instructor orders).

1.9.1.3. Test-coded and Aggressor-coded Units. Requirements directed by MAJCOM, training required to prepare for assigned projects/tasking, BMC training requirements that cannot be accomplished on primary missions, API-5 pilot-physicians.

1.9.2. While API-1 pilots may perform additional duties outside of their flying squadron on a temporary basis, their primary responsibility is with the squadron to fill unit-assigned missions. Commanders will not prioritize workload outside of the squadron over squadron mission requirements for the employment of squadron API-1 pilots. **(T-3)**

1.9.3. Commanders will ensure inexperienced pilots in the first year of their initial operational assignment are given scheduling priority and only perform non-flying duties related to operational/combat activities. **(T-3)**

1.9.4. Units should provide assigned/attached API-6/-8 pilots adequate resources to maintain minimum training requirements; however, support for API-6/-8 pilots should not come at the expense of the flying squadron's primary mission.

**1.10. Unit Manpower.**

1.10.1. Commanders will ensure that pilots only fill authorized API-1/-5/-6 positions, GPI unit manning document. **(T-2)**

1.10.2. Wings with a formal training mission should strive to maximize instructor qualification (T-prefix) for API-6 pilots. At least one of the following pilots will maintain formal IP status: WG/CC or vice, Operations Group Commander (OG/CC) or deputy. **(T-3)**

1.10.3. API-8 pilot authorizations and Test/Aggressor-coded authorizations have GPI AFMAN 11-402, *Aviation and Parachutist Service*, and MAJCOM guidance. If units cannot meet attached flyer requirements, they must request relief, GPI AFMAN 11-402, as supplemented. Units requiring flight hour adjustments for attached API-8 and applicable API-6 pilots must request program changes, GPI MAJCOM directives.

## Chapter 2

## INITIAL QUALIFICATION TRAINING (IQT)

**2.1. General.** This chapter outlines IQT requirements for all pilots. IQT provides the training necessary to qualify pilots in a basic position and flying duties without regard to a unit's mission. Upon completion of IQT, the pilots attain basic aircraft qualification (BAQ) status. BAQ is a prerequisite for MQT. Except for general officers above wing level, BAQ is not a long term qualification status. Waiver authority for pilots, other than general officers above the wing level, to remain BAQ is MAJCOM/A3 (ANG to NGB/A3/10O; AFR to AFRC/A3D).

2.1.1. Formal Training. IQT includes B-course, TX, and senior officer course training normally conducted during formal syllabus courses at FTU squadrons. Formal course graduates are proficient in mission tasks as indicated by the course training standards and required proficiency levels of the FTU syllabi.

2.1.2. Local Training. In exceptional circumstances when FTU training is not available within a reasonable time period, or unaccomplished tasks exist upon graduation from FTU, local training will be conducted, GPI the provisions in this chapter. When local training is approved, the gaining MAJCOM assumes responsibility for the burden of providing this training. Local training will be developed and conducted using the appropriate formal course syllabi.

**2.2. Approval and Waiver for Local Initial Qualification Training.**

2.2.1. Gaining MAJCOM/A3 (ANG to NGB/A3/10O; AFR to AFRC/A3D) is the approval authority to conduct local IQT and is the waiver authority to change the requirements of the formal course syllabus. Info ACC/A3T.

2.2.2. Gaining MAJCOM/CC (ANG to NGB/A3/10O; AFR to AFRC/A3D) is the approval authority for local IQT for colonel-selects and above to be conducted at the unit to which the officer is assigned. Info ACC/A3T.

2.2.3. Requests to conduct local IQT includes the following:

2.2.3.1. Justification for the local training in lieu of FTU training.

2.2.3.2. Summary of individual's flying experience to include last centrifuge date.

2.2.3.3. Date training will begin and expected completion date.

2.2.3.4. Requested exceptions to formal course syllabus, with rationale.

**2.3. Prerequisites.** Guidance for course prerequisites is provided in the appropriate formal course syllabus and USAF Education and Training Course Announcements.

**2.4. Ground Training.** OG/FG/CCs may tailor ground training to the individual's background and experience or peculiar local conditions.

**2.5. Flying Training.**

2.5.1. Training should be completed within the time specified by the syllabus or expected completion date for local IQT. Failure to complete within the specified time limit requires notification per GPI the syllabus or, in the case of local IQT, the gaining MAJCOM/A3 (ANG to NGB/A3/10O; AFR to AFRC/A3D) with pilot's name, rank, reason for delay, planned actions, and estimated completion date. **(T-2)**

2.5.2. Successful completion of IQT requires the upgrading pilot (UP) to complete, at a minimum, instrument (INSTM) and qualification (QUAL) evaluations, GPI AFMAN 11-202V2 and AFMAN 11-2F-35A Volume 2, *Aircrew Evaluation Criteria*.

2.5.3. UPs fly under IP supervision until completing the INSTM and QUAL evaluations.

2.5.4. Formal course syllabus mission objectives and tasks are minimum requirements. The SQ/CC may authorize additional training events based on UP proficiency and background. Additional training due to UP non-progression is incorporated within the constraints of the formal course syllabus.

**2.6. Senior Officer Course.**

2.6.1. All formal training courses for senior officers (colonel-selects and above) will be conducted at FTUs unless waived, GPI paragraph 2.2.2.

2.6.2. Senior officers must meet course entry prerequisites outlined in the AETC F-35A syllabus and complete all requirements unless waived in accordance with syllabus directives or **paragraph 2.2.1**.

2.6.3. If a senior officer must be trained at the base to which assigned, the officer will be in formal training status. **(T-2)** Unit duties will be turned over to appropriate deputies or vice commanders until training is completed. **(T-2)** Exceptions to this policy must be approved by the gaining MAJCOM/CC submitted through MAJCOM/A3.

# Chapter 3

## MISSION QUALIFICATION TRAINING

**3.1. General.** MQT is an OG/CC approved, unit-developed, training program that upgrades IQT-complete (BAQ) pilots to accomplish the unit specific missions. Gaining units will review graduate AETC Form 904, *Training Summary*, AF Form 475, *Education/Training Report* and Aviation Training Jacket records (or electronic equivalent) prior to developing individual student MQT syllabus. **(T-2)** The SQ/CC will develop and maintain responsibility for the local MQT programs. **(T-3)** Guidance in this chapter, which represents the minimum, is provided to assist SQ/CCs in developing their MQT program. Units are expected to further tailor programs based on an individual's current qualifications, experience, currency, documented performance, and formal training. Applicable portions of MQT may be used to create a requalification program for pilots who have regressed from BMC/CMR to specifically address deficiencies which caused the regression. For Test/Training/Aggressor-coded units, see **paragraph 3.3**.

**3.2. Combat-coded Unit Mission Qualification Training.** The SQ/CC will ensure a pilot completes MQT within 90 calendar days (ARC: 120 calendar days). **(T-3)** Timing starts at the pilot's first duty day at the gaining operational unit. If a pilot elects to take leave prior to entering MQT, the timing begins after the termination of the pilot's leave. MQT is considered complete with the SQ/CC certifying the pilot as CMR/BMC. Notify MAJCOM/A3T (or equivalent) (ANG to NGB/A3/10O; AFR to AFRC/A3D) if there is a delay beginning MQT that exceeds 30 days or training exceeds the 90-day time period (ARC: 120 calendar days).

3.2.1. MQT Syllabus Minimum Requirements. At a minimum, SQ/CCs will include the following events within the individualized MQT program:

3.2.1.1. Ground training (see **paragraph 3.2.3**). **(T-2)**

3.2.1.2. Local area orientation (LAO) sim (sim) (if not previously accomplished within 24 months). **(T-2)**

3.2.1.3. LAO sortie (if not previously accomplished within 24 months). **(T-2)**

3.2.1.4. Tactical sortie (may be combined with LAO sortie). **(T-2)**

3.2.1.5. Air combat training (ACBT) (see **paragraph 3.2.6**). **(T-2)**

3.2.1.6. Initial weapons employment certification, GPI Chapter 5 and as outlined in the RTM. **(T-2)**

3.2.1.7. Current INSTM/QUAL and mission (MSN) evaluation, GPI AFMAN 11-202V2 and AFMAN 11-2F-35AV2.

3.2.2. Restrictions.

3.2.2.1. MQT pilots will not participate in FLAG or weapon system evaluation exercises. **(T-2)**

3.2.2.2. There is a 180 day grace period granted for completion of the following training items after the SQ/CC certification to CMR/BMC: AAR; night training; aircrew chemical, biological, radiological, nuclear (ACBRN) flight (see **paragraph 3.2.7**); initial verification and/or initial nuclear certification (not required for BMC). SQ/CCs will regress pilots who

fail to accomplish these tasks within the grace period to Non-Combat Mission Ready (N-CMR)/Non-Basic Mission Qualified (N-BMC). **(T-3)**

3.2.2.3. Proficiency and currency in day events will be demonstrated prior to training in similar events at night. **(T-2)**

3.2.3. Ground Training. Units develop blocks of instruction covering areas pertinent to the unit's mission as determined by the SQ/CC. Training accomplished during IQT may be credited towards this requirement.

3.2.3.1. Newly assigned pilots require theater indoctrination academics with the GPI AFMAN 11-202V1 prior to SQ/CC certification as CMR/BMC.

3.2.3.2. Initial Verification. Verification is a formal process where pilots demonstrate to a formal board satisfactory knowledge of the squadron's assigned mission(s). The SQ/CC establishes the board composition. Desired composition is SQ/CC or SQ/DO, weapons, electronic combat, intelligence, and plans representatives. Initial verification will be completed within 180 days after completing MQT. **(T-3)** As part of the verification process, a sim mission may be included at the SQ/CC discretion. Experienced pilots who accomplished initial verification or nuclear certification in a previous assignment may, at SQ/CC discretion, complete either an initial or a continuation verification to meet the requirements of this section.

3.2.3.3. Nuclear Certification. See **paragraph 6.9**.

3.2.4. Sim Training. In addition to the LAO sim (GPI **paragraph** 3.2.1), MQT may include: day/night tactical SIMs. SQ/CCs will include the following events in sim training. **(T-2)**:

3.2.4.1. Various emergency procedures (EPs) for each phase of flight.

3.2.4.1.1. Include EPs during which pilots make ejection decisions and, if a decision to eject is determined, physically pull the sim ejection handle. **(T-2)**

3.2.4.1.2. The full mission sim incorrectly replicates flight control laws if attempting to land at lower angle of attack than Flight Series Data (FSD) Chapter 37 Prohibited Maneuvers limitations. Pilots will not attempt landings in the sim at Angle of Attack (AOA) less than 9 degrees. Discontinue the landing and debrief the flight control law issues which preclude safe recovery of the F-35A when attempting to land too fast. **(T-2)**

3.2.4.2. Pilots will fly at least one helmet mounted display failure/standby instrument approach and execute AGCAS and unusual attitude recovery practice. **(T-2)**

3.2.4.3. Inadvertent weather entry procedures.

3.2.4.4. Lost wingman.

3.2.4.5. Emergency divert.

3.2.4.6. Local procedures and approaches.

3.2.5. Flying Training. MQT progression and performance are documented within unit developed gradebooks. The MQT program culminates with an AF Form 8, *Certificate of Aircrew Qualification*, checkride if required.

3.2.5.1. Supervision. All formal course graduates in MQT require an IP. All other MQT/upgrade pilots require an IP or FL-certified SQ supervisor.

3.2.5.2. Breaks-in-Training. If more than 14 calendar days elapse between sorties, the UP requires an additional review sortie before continuing in the program. The SQ/CC may substitute a full mission sim (FMS) mission (with an IP) for a required review sortie.

3.2.5.3. Practice EPs. Accomplish practice airborne EP training during at least one MQT sortie. As a minimum, the training consists of briefing, flying, and debriefing a simulated EP scenario.

3.2.6. ACBT Program. The following sorties (in sequence) are used for initial ACBT certification or to regain ACBT certification. SQ/CCs may modify this program to achieve desired proficiency or capability based on demonstrated proficiency in the aircraft.

3.2.6.1. Advanced Handling Characteristics (AHC). Demonstrate proficiency with aircraft maneuvering capabilities and limitations, by practicing advanced handling maneuvers (GPI Air Force Tactics, Techniques and Procedures (AFTTP) 3-3.F-35, *Combat Aircraft Fundamentals—F-35*).

3.2.6.2. Basic Fighter Maneuvers (BFM) (1v1). Demonstrate proficiency in defensive, offensive or high aspect BFM skills.

3.2.6.3. Air Combat Maneuvering (ACM). Demonstrate proficiency in element air-to-air (A/A) maneuvering and employment.

3.2.6.4. Air Combat Tactics (ACT). Demonstrate proficiency in element A/A employment primarily in the beyond visual range arena.

3.2.7. Initial Aircrew Chemical, Biological, Radiological, Nuclear (ACBRN) Training. ACBRN training integrates pilot training with other functional areas (maintenance, intelligence, security, etc.) required to conduct combat operations in a chemical environment and applies to all CMR/BMC pilots. Pilots demonstrate a basic proficiency of flight and mission tasks while wearing the ACBRN equipment. Accomplish ACBRN training, GPI AFI 11-301 Volume 1, *Aircrew Flight Equipment (AFE) Program*, AFI 16-1301, *Survival, Evasion, Resistance, and Escape (SERE) Program*, and the RTM. Pilots who accomplished initial ACBRN training in previous fighter MDS are not required to reaccomplish the ACBRN flight.

3.2.7.1. ACBRN Ground Training. Ground training is accomplished with GPI AFI 11-301V1 and AFI 16-1301.

3.2.7.2. ACBRN FMS Event. Introduce operations with full ACBRN ensemble. Wear all above and below-the-neck joint service aircrew mask (JSAM) components. **(T-2)**

3.2.7.2.1. Use a chemical/biological pilot interface connector (CB PIC) and wear the H-manifold assembly in order to practice ground/flight modes and simulated on-board oxygen generating system failure requiring use of ground mode to breathe. A CB PIC ground adapter is required to have mask demist/defog airflow. If a ground adapter is not available, connect the JSAM mask to a Y-hose to retain ground blower for mask defogging. Familiarization with H-manifold valve operations will need to be conducted separately.

3.2.7.2.2. Because the FMS does not provide oxygen through the sim seat portion assembly, nor an ejection seat mounted blower, the ground adapter must remain attached to the CB PIC and ground blower for mask defogging. To enable communications (comm) for the sim, an adapter cord is required to connect the JSAM mask to the sim comm system.

3.2.7.2.3. An ACBRN FMS event should use existing mission profiles and count toward FMS training cycle requirements. Units use FMS (primary) or actual aircraft cockpit (secondary) for ACBRN FMS event training. The ACBRN FMS event is accomplished once in a career (per MDS), and should be conducted as close as possible (but not more than 30 days prior) to the ACBRN flight.

3.2.7.3. ACBRN Flight Training. Adhere to the following ACBRN flight restrictions:

3.2.7.3.1. Wear above-the-neck JSAM components: hood, filter pack, H-manifold, CB PIC and gloves. Other below-the-neck components are not required. **(T-2) Note:** filtered air supply blower must be installed on aircraft ejection seat by egress personnel prior to CB flight.

3.2.7.3.2. Use a CB PIC ground adapter, conversational communications unit and ground blower for mask demist/defog airflow. Stepping to the aircraft without a CB PIC ground adapter and blower will most likely result in mask fogging prior to arriving at the aircraft. If a ground adapter is not available, connect the JSAM mask to a Y-hose and blower to provide defog capability for walkout and preflight (ground comm is not available). Once in the cockpit, disconnect Y-hose and connect H-manifold/CB PIC to mask. Ejection seat mounted filtered air supply defog air and H-manifold valve operations will be available once the CB PIC is connected to the seat portion assembly. Assistance will be required to switch from the Y-hose to the H-manifold/CB PIC. Recommend coordinating for a B-stand or equivalent for aircraft ingress/egress.

3.2.7.3.3. Only one pilot in the element wears ACBRN equipment, supervised by an ACBRN -certified FL. **(T-2)** Formations larger than a 2-ship require SQ/CC approval. **(T-3)**

3.2.7.3.4. Accomplish events in which the pilot is current and certified on a non-demanding mission (per **paragraph A2.1.34**). **(T-2)**

3.2.7.3.5. Only conduct preflight operations in Fighter Index of Thermal Stress "Normal" (refer to Department of the Air Force Instruction (DAFI) 48-151, *Thermal Stress Program*) conditions. **(T-2)** Include full walk around, ingress, cockpit interior check and egress. If other than condition "Normal," another qualified pilot may conduct the walk around.

3.2.7.3.6. Minimum planned formation spacing is "Route." "Close" formation is allowed only if required for safe mission accomplishment. Refer to AFTTP 3-3.F-35 for descriptions of formation spacing.

3.2.7.3.7. Minimum altitude is 5,000 feet above ground level (AGL) except takeoffs, approaches and landings. **(T-2)**

3.2.7.3.8. Minimum weather is 1,500 feet ceiling and 3 statute miles visibility. **(T-2)**

3.2.7.3.9. The ACBRNE sortie will not be accomplished at night. **(T-2)**

3.2.7.3.10. AAR requires an IP. **(T-2)**

**3.3. Test/Training/Aggressor-coded Unit Mission Qualification Training.**

3.3.1. MQT is a unit-developed training program that upgrades pilots to MR status in order to accomplish the unit's specific missions. The FTU instructor course is equivalent to a unit MQT program. If applicable, training accomplished during IQT may be credited towards this requirement. MQT is considered complete with the SQ/CC certifying the pilot as MR.

3.3.2. MQT Syllabus Minimum Requirements. At a minimum, SQ/CCs will include the following events within the individualized MQT program. **(T-2)**:

3.3.2.1. LAO sortie (if not previously accomplished within 24 months).

3.3.2.2. Unit mission sortie (may be combined with LAO sortie).

**3.4. Flight Surgeon and US Army Ground Liaison Officer Ground Training.** F-35A units provide training and documentation for their assigned flight surgeons and ground liaison officers. For flying activities with another unit equipped with aircraft having 2 or more seats, refer to host unit-equipped procedures for their specific aircraft ground and flight training.

# Chapter 4

# CONTINUATION TRAINING

**4.1. General.** This chapter and the current F-35A RTM outline ground and flying training requirements for BAQ, BMC/CMR, and MR pilots in Operations/Test/Training/Aggressor-coded units. Pilots must be qualified with GPI DAFMAN 11-401, AFMAN 11-202V1, AFMAN 11-202V2, and AFMAN 11-2F-35AV2. SQ/CCs will ensure assigned pilots complete an IQT to fly in a BAQ status and a MQT or FTU IP upgrade to fly in a BMC/CMR or MR status. **(T-2)** For Test/Training/Aggressor-coded units, see **paragraph 4.5**.

**4.2. Continuation Training.** Continuation training (CT) consists of two aspects. The first involves training in the basic flight skills necessary to ensure the safe operation of the aircraft. The second consists of specific mission-related training required to accomplish the unit's assigned missions.

**4.3. Currencies, Recurrency and Recurrency/Requalification Programs.**

4.3.1. Currencies. **Table 4.1**, as supplemented by the most current RTM, defines currency requirements for all pilots. If a pilot loses a particular currency, that sortie/event may not be performed except for the purpose of regaining currency as noted.

4.3.2. Recurrency. Pilots accomplish overdue training requirements as specified by the SQ/CC before they are considered recertified to perform the task. Pilots overdue on training annotated in **Table 4.1** as affecting CMR/BMC status requires regression to N-CMR/N-BMC. Unless otherwise specified, supervisory requirements pertaining to recurrency may be satisfied in the cockpit or flight position that offers the best control of the mission, as determined by the SQ/CC.

4.3.3. Noncurrent Versus Unqualified.

4.3.3.1. Noncurrent. A pilot becomes noncurrent in a particular currency if they exceed the specified timeframe listed in **Table 4.1** (e.g., an inexperienced pilot becomes noncurrent for landing after 30 days from last landing).

4.3.3.2. Unqualified. For criteria specified in **paragraph 4.3.4**, a pilot can become "unqualified" for landing and instructor currencies.

4.3.4. Currencies Requiring Recurrency/Requalification Program.

4.3.4.1. Landing Recurrency/Requalification. Pilots become unqualified after loss of landing currency plus 180 days (e.g., an inexperienced pilot who has not landed for 211 days). Loss of landing currency requires the following action (timing starts from date of last landing):

4.3.4.1.1. 31/46 (Inexp/Exp) to 90 days (e.g., an inexperienced pilot who has not landed for 31 to 90 days). Regain landing currency with GPI Table 4.1.

4.3.4.1.2. 91 to 135 days. Requirements in **paragraph 4.3.4.1.1**, plus IP-supervised EP sim.

4.3.4.1.3. 136 to 210/225 days (Inexp/Exp) (e.g., an inexperienced pilot who has not landed for 136 to 210 days). Requirements in **paragraph 4.3.4.1.2**, plus open and closed book instrument examinations.

4.3.4.1.4. 211/226 days (Inexp/Exp) to 12 months. (e.g., an inexperienced pilot who has not landed for 211 to 365 days). Requalification program with GPI AFMAN 11-202V1. The OG or the FG/CC is the approval authority to conduct this training locally.

4.3.4.1.5. Greater than 12 months. Accomplish applicable formal TX course. Reference **paragraph 2.2** for local IQT waivers.

4.3.4.2. Instructor Recurrency/Requalification. Pilots become unqualified after loss of instructor currency plus 180 days (e.g., an IP who has not instructed for 271 days).

4.3.4.2.1. Timing for loss of instructor currency starts from the last instructor event and requires the following action:

4.3.4.2.1.1. 91 to 180 Days. Regain instructor currency with an IP.

4.3.4.2.1.2. 181 to 270 Days. Regain IP currency, GPI SQ/CC directed program that may result in a flight evaluation.

4.3.4.2.1.3. Greater than 270 Days. Accomplish an AF Form 8 requalification checkride with the GPI AFMAN 11-202V2 and AFMAN 11-2F-35AV2.

4.3.4.2.2. IPs instruct airborne events in which they are current and qualified. IPs who become N-CMR/N-BMC may still instruct in events they are current and qualified in at SQ/CC discretion.

4.3.4.3. ACBT Recurrency. Loss of ACBT currency requires the following action (timing starts from date of last event):

4.3.4.3.1. 61/91 (Inexp/Exp) to 180 Days. Dedicated sortie(s) including AHC and BFM.

4.3.4.3.2. Greater than 180 Days. SQ/CC tailored ACBT program, GPI paragraph 3.2.6 and documented in gradebook.

4.3.4.4. Night Recurrency. Pilots losing night currency accomplish the following events (using the night vision camera (NVC) or Distributed Aperture System (DAS)) while complying with AFI 11-214, *Air Operations Rules and Procedures* Restricted maneuvering category:

4.3.4.4.1. Pilots who have had more than 120/180 (Inexp/Exp) days elapse since logging last night sortie require a night vision device academic review prior to the recurrency sortie (see **paragraph 4.4.4.6**).

4.3.4.4.2. Sufficient formation work / light drills to comply with unit specific mission elements.

4.3.4.4.3. Sufficient tactical turns and maneuvers to comply with unit specific mission elements.

4.3.4.4.4. Minimum of one of the following night profiles/sorties:

4.3.4.4.4.1. Tactical intercepts (TI) profile not to exceed 2v2, above 5,000 feet

AGL or minimum safe altitude (MSA) whichever is higher, or

4.3.4.4.4.2. 2-ship basic surface attack (OG/CC waiverable up to 4-ship) above 5,000 feet AGL or MSA whichever is higher, or:

4.3.4.4.4.3. 2-ship unopposed surface attack tactics/suppression of enemy air defenses (SEAD) (OG/CC waiverable up to 4-ship) above 5,000 feet AGL or MSA whichever is higher.

4.3.4.4.4.4. Close air support (CAS) above 5,000 feet AGL or MSA whichever is higher.

4.3.4.5. Night Low Altitude (LOWAT) Recurrency.

4.3.4.5.1. Pilots must be night current. **(T-2)**

4.3.4.5.2. Accomplish the following profile:

4.3.4.5.2.1. DAS tuning,

4.3.4.5.2.2. Horizon check and hard turn above the MSA,

4.3.4.5.2.3. Single-ship LOWAT tactical navigation (IP chase) to include level hard turns, and

4.3.4.5.2.4. Threat reactions.

4.3.5. ACC Air Operations Squadron (ACC/AOS) Currency Requirements. Units will comply with AFI 11-207, *Fighter Aircraft Delivery*, for additional currencies required for the flight delivery of aircraft coordinated through the ACC/AOS. **(T-2)**

**Table 4.1. F-35A Currencies.**

| Event | To update currency: | Days Inexp | Days Exp | Affects CMR/BMC | To regain currency: | Notes |
|---|---|---|---|---|---|---|
| Demanding mission | Any sortie (flight) | 21 | 30 | No | Non-demanding day sortie | 1 |
| Night | Any night sortie or night sim | 120 | 180 | No | Night sortie | 2, 3 |
| Landing | Day or night landing | 30 | 45 | No | Day landing | 2, 4 |
| Precautionary flame out (PFO) | Event or sim event | 60 | 90 | No | Event or sim event | 2, 5 |
| Precision approach | Event or sim event | 30 | 45 | No | Event or sim event | 6 |

| | | | | | | |
|---|---|---|---|---|---|---|
| Formation approach | Event | 120 | 180 | No | Event | 2, 7 |
| Instructor | Event or sim event | Not applicable | 90 | No | Event or sim event | 8 |
| AAR | Event | 180 | 180 | Yes | Event | 2 |
| ACBT | Event | 60 | 90 | Yes | Event | 2, 9, 10 |
| ACT | Event | 60 | 90 | No | Event | 2, 10, 11 |
| Weapons delivery | Event (actual or simulated) | 60 | 90 | Yes | Event (actual or simulated) | 2 |
| LOWAT | LOWAT event | 60 | 90 | No | LOWAT event | 2, 10, 12, 13 |
| Night LOWAT | Night sortie LOWAT event | 120 | 180 | No | Night sortie LOWAT event | 14 |

**Notes:**

(For all, days denotes the number of days between events after which the pilot goes non-current)

1 – Recurrency is one of the dedicated non-demanding sorties described in **Attachment 2**. In addition, BAQ pilots fly in a supervised status (FL-certified SQ supervisor or IP) any time a non-demanding sortie is required.

2 – Recurrency supervision is an IP or FL-certified SQ supervisor, current in the event.

3 – Recurrency, GPI **paragraph 4.3.4.4**.

4 – Loss of landing currency and recurrency/requalification, GPI **paragraph 4.3.4.1**.

5 – This currency may be updated in the sim as part of a tactical/EP sim profile. For PFOs in the sim, a suitable visual system is required to see the runway from the entire pattern.

6 – Pilots require currency in order to fly an approach through actual weather down to pilot weather category minimums. **(T-3)** Loss of currency results in regression to the next higher category. Recurrency supervision during day visual flight rules conditions may be any pilot in chase or from the wingman position, current in the event (or sim IP if accomplishing recurrency in the sim). All other times regain currency, GPI AFMAN 11-202V1, as supplemented.

7 – FLs may update currency from either lead or wing position. Wingmen may only update currency from the wing position.

8 – Loss of Instructor currency and recurrency/requalification, GPI **paragraph 4.3.4.2**, USAFWS upgrade missions count as instructor missions for currency. Updating or regaining currency in the sim requires IPs to instruct while flying the sim.

9 – Recurrency, GPI **paragraph 4.3.4.3**.

10 – For formal course IPs (weapons instructor course and FTU), CT and exercise participation require the above currencies; formal syllabus training missions require 180 days currency.

11 – Currency is updated by accomplishing an A/A event as an element. ACT currency is required for ACT engagements greater than 2v2. Opposed A/S missions that constitute ACT (2v2 min) update this currency.

12 – LOWAT day currency is required to perform the event at or below 1,000 feet AGL in the pilot's LOWAT category (see **Chapter 6**). Loss of currency requires regression to the next higher category. Operations in a lower altitude category will update the higher altitude categories. Recurrency requires satisfactory performance in the following events: vertical awareness training, hard turns, offensive/defensive maneuvering and one LOWAT A/A intercept.

13 – See AFMAN 11-2F-35AV3 Night Procedures for additional information and night minimum altitudes.

14 – Must be Night Current to accomplish this event. **(T-2)**

**4.4. Combat-coded Units.**

4.4.1. BAQ. Pilots achieve BAQ status after successfully completing IQT and remain in BAQ status until the completion of MQT, GPI Chapter 3. BAQ is not a permanent status except for general officers above the wing level (reference AFMAN 11-202V1 for restrictions), and any other pilots specifically authorized by MAJCOM/A3 (ANG to NGB/A3/10O; AFR to AFRC/A3D). SQ/CCs will ground pilots in BAQ status for more than six months unless enrolled in a program to achieve CMR/BMC. **(T-2)** BAQ requirements:

4.4.1.1. INSTM and QUAL evaluations, GPI AFMAN 11-202V2 and AFMAN 11-2F-35AV2.

4.4.1.2. Currencies (as applicable), GPI paragraph 4.3.

4.4.1.3. Fly a supervised sortie with an IP or FL-certified SQ supervisor at least once every 60 calendar days. If a BAQ pilot does not fly for 21 days (inexperienced) or 30 days (experienced), the next sortie must be flown with an IP or FL-certified SQ supervisor. **(T-3)**

4.4.2. BMC. BMC establishes the minimum training required for pilots to be familiar with all (and may be certified, current, and proficient in some) of the primary DOC statement mission requirements of their assigned or attached unit and weapon system. Designate and maintain BMC pilots, GPI paragraph 1.7.4.

4.4.2.1. BMC pilots at a minimum maintain familiarization with all unit primary missions. BMC pilots accomplish all mission-related ground training designated by their attached SQ/CC, and may deploy and participate in any mission as determined by the SQ/CC. Failure to complete required training with the GPI this volume and as outlined in the RTM (both flying and ground) results in regression to N-BMC status. While N-BMC, the SQ/CC determines which missions the pilots may perform and the supervision required.

4.4.2.2. BMC Requirements.

4.4.2.2.1. INSTM, QUAL, and MSN evaluations; GPI AFMAN 11-202V2 and AFMAN 11-2F-35AV2.

4.4.2.2.2. Flying and ground events with the GPI this volume and the RTM. API-8 (e.g., Numbered Air Force/MAJCOM inspector general) pilots should fly the BMC mission rate; however, they are not required to complete BMC-specific missions/events or meet RTM lookback requirements. API-8 pilots (see **paragraph 4.6.2**) should strive to accomplish basic skills requirements with allotted BMC sorties.

4.4.2.2.3. Currencies (as applicable), GPI Table 4.1.

4.4.2.2.4. LOWAT Category (CAT) I certification.

4.4.3. CMR. CMR establishes the minimum training required to remain proficient in all of the primary DOC statement missions tasked to their assigned or attached unit and weapon system. Designate and maintain CMR pilots, GPI paragraph 1.7.3.

4.4.3.1. CMR pilots maintain proficiency in all primary missions of the flying unit to which they are assigned or attached. SQ/CCs will regress pilots who fail to complete required training to N-CMR status. **(T-3)** While N-CMR, pilots may participate in missions, including exercises and contingency operations, in which they are proficient at the discretion of the SQ/CC.

4.4.3.2. CMR Requirements.

4.4.3.2.1. INSTM, QUAL, and MSN evaluations, GPI AFMAN 11-202V2 and AFMAN 11-2F-35AV2.

4.4.3.2.2. Flying and ground events with the GPI this volume and the RTM.

4.4.3.2.3. Currencies (as applicable), GPI paragraph 4.3.

4.4.3.2.4. LOWAT CAT I certification.

4.4.3.2.5. Initial Verification, GPI paragraph 3.2.3.2.

4.4.4. Ground Training. Accomplish ground training with the GPI the parent directives and as outlined in the RTM tables. Units may credit ground training accomplished during IQT/MQT toward CT requirements for the training cycle in which it was accomplished. Ensure ground training is tracked in ARMS to the maximum extent possible.

4.4.4.1. Weapons and Tactics Academic Training. Establish a weapons and tactics academic training program to satisfy MQT and CT requirements. FL upgrade (FLUG) and IP upgrade (IPUG) flows include weapons and tactics academic training commensurate with the level of upgrade being accomplished. SQ/CCs will provide guidance to the unit weapons shops on an annual CT weapons and tactics academics program that ensures pilots are trained on F-35A weapons, systems, and mission-specific tactics techniques and procedures. **(T-3)** Academic instructors should be USAFWS graduates to the maximum extent practical.

4.4.4.2. Intelligence Training. SQ/CCs will develop the unit external intelligence training for pilots, GPI AFI 14-1020, *Intelligence Mission Qualification and Readiness*, MAJCOM and local unit instructions. **(T-3)**

4.4.4.3. Aircraft Servicing. SQ/CCs will ensure pilots are trained and prepared to accomplish all aircraft servicing actions necessary to beddown/turn aircraft when off-station without maintenance support. **(T-3)**

4.4.4.4. CT Verification. CMR pilots participate in a verification as a briefer, board member, or seminar participant at the frequency referenced in the RTM. BMC pilots should participate in a verification to facilitate future upgrade to CMR status; at the discretion of the SQ/CC. Pilots who participate in a unit deployment to a tasked area of responsibility may receive credit for CT verification.

4.4.4.5. Cockpit/Crew Resource Management (CRM). Pilots participate in CT CRM training at the frequency referenced in the RTM (reference AFMAN 11-290, *Cockpit/Crew Resource Management Program and Threat & Error Management Program*). Briefs and debriefs include the core curriculum of CRM training, GPI AFMAN 11-290 and the appropriate MAJCOM supplements. The instructor CRM course may be used to satisfy the periodic requirement.

4.4.4.6. Night Vision Device Refresher Academics. Conduct refresher training with the GPI AFMAN 11-202V1 and as outlined in the RTM.

4.4.5. Sim Training. Conduct RTM sim in the best available sim. SQ/CCs determine the required supervision for CT FMS missions based on sim capabilities and mission training objectives. Units develop scenarios that cover RAP-event FMS missions based on unit tasking and emergency procedure/general systems knowledge requirements. Emphasis should be placed on skill-set training not attainable during live fly. SQ/CCs will review scenarios each training cycle. **(T-3)** Pilots may receive credit for training accomplished in other sims (e.g., industry sims) if approved by the SQ/CC.

4.4.5.1. Tactical Sim RAP training should emphasize the following areas: DOC-relevant simulated combat employment, threat recognition, threat reactions and counter tactics, weapons malfunctions, contested degraded and operationally limited operations (CDO), battle damage and wounded bird procedures, controllability and structural damage checklists.

4.4.5.2. EP sim RAP training in the following areas will be accomplished at least once each training cycle: unusual attitude recoveries, spatial disorientation (emphasis on instrument crosschecks to prevent and/or recover from SD), inadvertent weather entry, controlled flight departure recognition and recovery procedures, controlled and uncontrolled ejection parameters, aircraft subsystem failure checklist procedures, relevant EPs (i.e., integrated power pack fail and engine hot start with a tailwind), minimum fuel and emergency divert profiles, and precision instrument procedures. **(T-3)**

4.4.5.2.1. In addition to the above guidance all pilots will fly at least one helmet mounted display failure/standby instrument approach and execute AGCAS and unusual attitude recovery practice. **(T-2)**

4.4.5.2.2. Include EPs during which pilots make ejection decisions and, if a decision to eject is determined, physically pull the sim ejection handle. **(T-2)**

4.4.5.2.3. The full mission sim incorrectly replicates flight control laws if attempting to land at lower angle of attack than FSD Chapter 37 Prohibited Maneuvers limitations. Pilots will not attempt landings in the sim at AOA less than 9 degrees. Discontinue the landing and debrief the flight control law issues which preclude safe recovery of the F-35A when attempting to land too fast. **(T-2)**

4.4.5.3. Situational Emergency Procedure Trainer (SEPT). This training is not an evaluation, but a review of EPs and aircraft systems operations/limitations during realistic scenarios. Units produce monthly SEPT scenarios, topics, and higher headquarters special interest items using actual mishaps and incidents as baseline cases. Pilots take actions necessary to cope with the malfunction and carry it to a logical conclusion.

4.4.5.3.1. Units will incorporate the following elements into SEPT programs:

4.4.5.3.1.1. Emphasize EPs and special interest items to include any MAJCOM, OG, and SQ special interest items related to aircraft employment.

4.4.5.3.1.1.1. Accomplish No-Helmet Mounted Display and/or standby instrument training in other phases of flight outside instrument approaches. **(T-2)**

4.4.5.3.1.1.2. Discuss unusual attitude recovery utilizing the standby attitude indicator as the only flight instrument. **(T-2)**

4.4.5.3.1.2. Include two EPs per phase of flight and/or major aircraft subsystem (e.g., hydraulic, electric, fuel, onboard oxygen generation system, engine, mission systems) during each session.

4.4.5.3.2. Pilots accomplish a SEPT in each calendar month. Currency expires at the end of the calendar month following the month in which the SEPT was credited, regardless of which date the SEPT was completed (e.g., if a SEPT is accomplished on 1 May, the currency is good through 30 June). SQ/CCs will ground pilots for failure to maintain currency until subsequently completed. **(T-3)** SQ/CCs may waive unaccomplished SEPTs from previous months due to non-flying temporary duty (TDY) or special circumstances.

4.4.5.3.3. Pilots may satisfy their monthly SEPT requirement by accomplishing or administering an EP sim, an EP evaluation, or formal course EP training.

4.4.5.3.4. Accomplish two SEPTs each training cycle with an IP or FL-certified SQ supervisor.

4.4.5.3.5. Accomplish SEPTs in the best available device. If no device is available, SEPTs may be accomplished in a table-top one-on-one or in small flight-sized groups, as long as all members participate fully and share equal time responding to emergency situations.

4.4.6. Flight Training. Flying requirements are outlined in the current RTM.

4.4.7. Regression. See the RTM for live fly and sim lookback requirements. Reference **Figure 4.1** for necessary decisions/actions to maintain/regain CMR/BMC status. If a pilot does not meet lookback requirements throughout the training cycle, the SQ/CC can either regress the pilot to N-CMR/N-BMC, remove the pilot from a CMR/BMC manning position, or initiate action to remove the pilot from active flying status.

4.4.7.1. MQT Completion. Lookback computation begins following completion of MQT. 1-month lookback starts the first full month of CMR/BMC status. RAP events accomplished during the month of MQT completion may be used at the SQ/CC discretion for 3-month lookback.

4.4.7.2. Pilots regressed to N-CMR/N-BMC accomplish the following events (documented in gradebook) in order to regain CMR/BMC status:

4.4.7.2.1. Up to 3 Months. The pilot completes a SQ/CC approved recertification program. Additionally, regain all expired currencies affecting CMR/BMC, and meet lookback requirements.

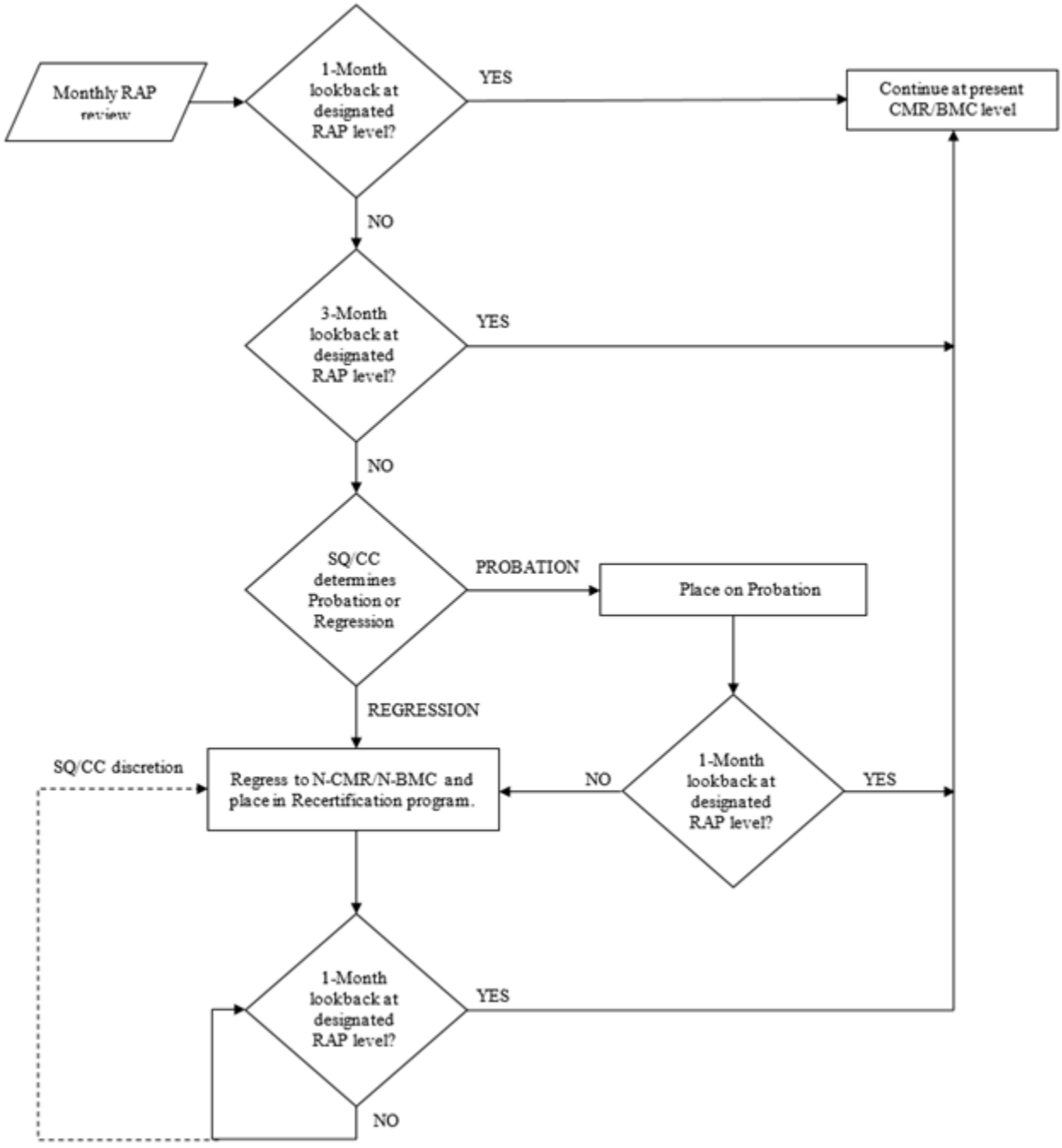
4.4.7.2.2. Three to 6 Months. Requirements in **paragraph 4.4.7.2.1**, plus standardization and evaluation office generated open and closed book written examinations.

4.4.7.2.3. Over 6 Months. Re-accomplish MQT program with the GPI Chapter 3.

4.4.7.3. Failure to Maintain Weapons Proficiency. Pilots who fail to maintain weapons RAP requirements at the end of the training cycle are required to regain proficiency in the deficient weapons event with the GPI Chapter 5. Events accomplished for regaining proficiency may count toward the cumulative CT event proficiency required at the end of the training cycle.

4.4.7.4. Flight Evaluation Failure. Pilots who fail a flight evaluation are handled with the GPI AFMAN 11-202V2 and AFMAN 11-2F-35AV2 and regress to N-CMR/N-BMC as applicable, until requalification is complete and recertified by the SQ/CC.

**Figure 4.1. Regression Flow Chart.**




4.4.8. EOC Requirements. Pilots who fail to complete RAP mission or event requirements by the end of training cycle may require additional training depending on the type and magnitude of the deficiency. Refer to **paragraph 4.4.9** for proration guidance. In all cases, report training shortfalls as outlined in the RTM instructions.

4.4.8.1. Pilots who fail to meet EOC mission and/or event requirements may continue CT as CMR/BMC as determined by lookback. The SQ/CC determines if additional training is required.

4.4.8.2. Failure to accomplish missions/events required for special capabilities or certifications/qualifications, GPI Chapter 6 and as outlined in the RTM may result in the loss of that certification or qualification as determined by the SQ/CC. The SQ/CC determines if any additional training is required to address shortfalls.

4.4.9. Proration of EOC Requirements.

4.4.9.1. The SQ/CC may prorate training requirements with the GPI guidance in AFMAN 11-202V1. SQ/CCs may consider proration due to poor weather that precludes the unit from flying for more than one-half of the monthly scheduled flying days. For ARC units, proration is allowed for mandatory training required by civilian employment. EOC proration is permitted for documented attrition, such as higher headquarters or weather cancels, maintenance non-delivery, ground aborts, in monthly increments when the total number of occurrences ranges from one-half to one times the pilot's normal monthly rate of flying.

4.4.9.2. SQ/CCs only prorate requirements to adjust for genuine circumstances of training non-availability, not to mask training or planning deficiencies.

4.4.9.3. Proration is based on cumulative days of non-availability for flying during the training cycle. Use **Table 4.2** to determine the number of months to prorate based on cumulative calendar days of non-availability.

4.4.9.4. Training requirements for newly assigned pilots achieving CMR/BMC after the 15th of the month start on the first day of the following month.

4.4.9.5. If MQT is re-accomplished, a pilot's training cycle starts over at a prorated share following completion of that training with the GPI paragraph 4.4.9.4.

4.4.9.6. Do not prorate any requirement below one. Prorated numbers resulting in fractions of less than 0.5 will be rounded to the next lower whole number (one or greater).

4.4.9.7. Night and AAR requirements accomplished during MQT may be credited toward prorated CT requirements if accomplished during the cycle in which the pilot was declared CMR/BMC.

4.4.9.8. A pilot's last month on station prior to departure for permanent change of station may be prorated provided 1-month's proration is not exceeded. Individuals scheduled to depart may be considered CMR for reporting purposes during a period of 60 days from date of last flight, or until loss of CMR currency, port call date, or sign in at new duty station, whichever occurs first.

4.4.9.9. CMR pilots who attend USAFWS in TDY-and-return status may be reported throughout the TDY as CMR. Upon return, those pilots accomplish a prorated share of mission and event requirements.

4.4.9.10. Contingency Operations. Commanders follow proration guidance as outlined in the RTM. For ARC units, individuals deployed for more than a seven-day period may be prorated a 1-month portion of RAP missions and events.

4.4.9.11. SQ/CCs may prorate unit training requirements when a pilot is assigned to the unit following completion of a formal course (IQT, TX, or senior officer course) with the GPI paragraph 4.4.9.4 and halfway or more through the training cycle. The intent is to

provide a realistic assessment of unit training requirements for the remainder of the training cycle and a prediction of potential RAP training shortfalls. SQ/CCs also prorate unit training requirements at the end of the training cycle to accurately report EOC training shortfalls and assign additional training if required.

4.4.9.12. Proration Example. A pilot was granted 17 days of emergency leave in January and attended professional military education in residence from March through April for 56 consecutive calendar days. The SQ/CC authorized a total of two months proration from his training cycle (17 days of emergency leave plus 56 days for non-flying TDY = 73 cumulative days of non-availability for flying).

**Table 4.2. Proration Allowance.**

| Cumulative days of non-flying | Months of proration allowed |
|---|---|
| 0 - 15 | 0 |
| 16 - 45 | 1 |
| 46 - 75 | 2 |
| 76 - 105 | 3 |
| 106 - 135 | 4 |
| 136 - 165 | 5 |
| 166 - 195 | 6 |
| 196 - 225 | 7 |
| 226 - 255 | 8 |
| 266 - 285 | 9 |
| 286 - 315 | 10 |
| 316 - 345 | 11 |
| 346 - 365 | 12 |

## 4.5. Test/Training/Aggressor-coded Units.

4.5.1. Pilots assigned or attached to Test/Training/Aggressor-coded units will fly at least the BMC rate (see RTM) and should meet monthly lookback. **(T-3)** Sorties should be per the unit's mission as determined by the SQ/CC, but also fulfill RTM AHC/instrument requirements, which are applied towards lookback. Any RAP mission listed in the RTM also counts towards lookback. Apply regression decisions/actions as described in **paragraph 4.4.7** and **Figure 4.1**

SQ/CCs will ensure IPs are current and qualified in all events they instruct. **(T-3)** Failure to maintain an individual currency does not affect IP status, but requires additional training as determined by the SQ/CC prior to instructing that event. For test-coded units, SQ/CCs may designate IPs as initial cadre to instruct new events under an approved test plan.

4.5.2. Ground Training. SQ/CCs may reference the RTM Ground Training table to develop their ground training plan.

4.5.3. Sim Training. AETC should establish annual sim requirements that apply to the training mission. ACC Operational Test and Aggressor units should strive to accomplish RTM annual BMC sim totals in **Table 5a**. **Exception:** each pilot must accomplish one graded or evaluated (GPI AFMAN 11-202V2 and AFMAN 11-2F-35AV2) EP sim per year. **(T-2)** Part task training devices and cockpit mock-ups are not acceptable. All pilots accomplish EP training per the GPI **paragraph 4.4.5.2** and SEPTs per the GPI paragraph 4.4.5.3.

4.5.4. Flight Training. SQ/CC directed.

4.5.5. Weapons Events. Maintain appropriate weapons delivery proficiency as outlined in the RTM Flight Training - Weapons Delivery Requirements table.

4.5.6. INSTM, QUAL, and MSN (initial and requalification) evaluations are conducted as applicable, GPI AFMAN 11-202V2 and AFMAN 11-2F-35AV2.

4.5.7. 83d and 86th Fighter Weapon Squadron pilots will maintain ACBT currency. **(T-2)**

4.5.8. Visits/Deployments. Only qualified USAFWS instructors are sent on weapons school visits/deployments. During visits, USAFWS instructors may perform FL and instructor duties during tactical missions.

## 4.6. Special Categories.

4.6.1. Flight Surgeon. Flight surgeon flight rates and requirements are per the GPI AFMAN 11-202V1 and AFMAN 11-202V2.

4.6.2. API-8 Pilots. API-8 pilots designated as BMC strive to fly at the BMC rate; however, they are exempt from non-grounding academic ground training, night AAR, combat survival training, and ACBRN training. Additionally, API-8 pilots designated as BMC are not required to complete BMC-specific missions/events or meet RTM lookback requirements. Submit qualification and/or authorization documentation to the supporting SQ/CC or authorized representative prior to flying with that squadron. IPs may perform instructor duties with the concurrence of the OG/FG/CC, if current and qualified in the applicable mission and events.

## 4.7. Multiple Qualification/Currency.

4.7.1. Multiple Qualification between F-35A/B/C. For ACC pilots and other MAJCOM pilots flying aircraft under ACC control:

4.7.1.1. Differences between F-35A, F-35B and F-35C series aircraft require formal conversion course versus local differences training and are considered different MDS. **(T-1)**

4.7.1.2. F-35A aircraft having different technical refresh (TR) versions (TR-2, TR-3) and/or operational flight program software (30Pxx, 40Pxx) are considered the same MDS

and only require local differences academics. A sim may be required as directed by the OG/CC. **(T-3)**

4.7.2. See AFMAN 11-202V1 and AFMAN 11-202V2 for guidance on authorization to obtain multiple qualification. Submit multiple qualification requests through command channels to MAJCOM/A3 (ANG to NGB/A3/10O; AFR to AFRC/A3D). All requests must contain full justification. **(T-2)** Approval for multiple qualification requests must be provided to the appropriate host aviation resource management office; flights are not authorized until aircraft assignment is updated in ARMS. **(T-2)** Individually authorized multiple qualifications are valid as long as the individual is assigned to the specific position and aircraft requested, or rescinded by MAJCOM/A3 (ANG to NGB/A3/10O; AFR to AFRC/A3D).

4.7.3. Multiple qualifications are not appropriate for senior wing supervisors of units with different types of aircraft. WG/CCs will qualify in only one of their wing's aircraft. **(T-2)** Either the WG/vice-commander or OG/CC should qualify in another of the wing's aircraft (not the same aircraft selected by the WG/CC).

4.7.4. Multiple Requirements. Pilots will satisfy at least 50 percent of the sortie requirements in their primary aircraft. **(T-2)** If CMR, they will meet all RAP mission and event requirements of the primary aircraft. **(T-3)** In addition, pilots will fly an equitable distribution of emergency patterns, instrument sorties, penetrations, non-precision approaches, and precision approaches in each MDS to fulfill their basic skills requirements. **(T-2)**

4.7.5. Multiple Currencies. Pilots will comply with currency requirements for each MDS. **(T-2)**

**4.8. Instruments.** Instrument proficiency training includes but is not limited to: lost wingman training, briefings on how to recognize and deal with spatial disorientation (emphasis on instrument crosschecks to prevent and/or recover from SD), helmet mounted display-off unusual attitude recoveries, and transition from visual to instrument conditions. It will also stress the use of primary flight reference and standby flight instruments during instrument recovery from unusual attitudes or spatial disorientation. **(T-3)**

4.8.1. Units which seldom encounter bad weather and/or night recoveries should exercise pilots and approach facilities by periodically simulating "weather day" recovery operations, as determined by the SQ/CC.

4.8.2. Pilots transferring from another MAJCOM require the theater-specific portions of the instrument refresher course before flying without a theater-experienced pilot in the formation. MQT academics and the LAO mission may satisfy this requirement.

4.8.3. RAP events may be accomplished on an instrument mission provided accomplishment does not interfere with the primary goal of instrument training. The transition from instruments to visual references should be practiced on all instrument approaches. An instrument sortie is a basic skills requirement and may be credited toward RAP lookback as outlined in the RTM.

**4.9. Gravitational Load Factor-Awareness.** Units will develop a CT program that provides feedback to pilots and engrains a proper anti-gravitational load factor (G) straining maneuver (AGSM) so that it becomes an integral part of high-G flight. **(T-2)** This program’s intent is to make assessment of the AGSM a normal debrief item after every flight. The assessment should be done as a normal part of mission recording review while debriefing other tactical portions of the mission.

4.9.1. Use the following minimum guidance to implement the unit's program:

4.9.1.1. Develop a program to ensure at least one tactical mission recording for each pilot is reviewed and documented each training cycle by a flight surgeon, aerospace operational physiologist, and/or pilot-physician for AGSM and human factors required, GPI AFMAN 11-403, *Aerospace Physiological Training Program*, and AFPAM 11-419, *G Awareness for Aircrew*. **(T-3)** Only as a last resort, SQ/CC or SQ/DO may accomplish the review.

4.9.1.2. Academics will include a discussion of the limitations imposed on aircraft performance as a result of an ineffective AGSM and emphasize the importance of proper body position during high-g maneuvers and provide instruction on neck and back strengthening and mobility exercises.

4.9.1.3. Include "AGSM effectiveness" on MQT and "AGSM assessment" on FLUG and IPUG grade sheets. **(T-3)** IPs should evaluate these areas on upgrade missions that involve tactical maneuvering.

4.9.1.4. FLs emphasize G-awareness during appropriate portions of the flight brief. FLs will also assess the AGSM effectiveness of flight members during mission debriefings. **(T-3)** This assessment should not be limited to the G-awareness exercise. Evaluate the AGSM after the pilot has had the time to fatigue to get an accurate assessment of a pilot's AGSM during a tactically and G-demanding portion of flight. AGSM will also be evaluated under relatively low intensity G such as A/S sorties. **(T-3)**

4.9.2. During the mission recording review, FLs assess and debrief the pilot’s AGSM. Identify pilots having poor AGSM technique or low G-tolerance to the flight commander or appropriate operations supervisor. The SQ/DO or appropriate supervisor determines what action is required to improve the pilot's G-tolerance. **(T-3)** The SQ/CC determines if commander-directed acceleration training is required per GPI AFMAN 11-404, *Fighter Aircrew Acceleration Training Program*. **(T-3)**

**4.10. Contested, Degraded, Operationally Limited Training (CDO).** CDO scenario development will be included in daily training (aircraft, academics and sims), and also be incorporated into MSN evaluations and EP evaluations. **(T-3)** Daily CT flights and sim missions should discuss the following CDO areas in relationship to the mission’s profile:

4.10.1. Contested. Electromagnetic spectrum degradation caused by enemy action (jamming).

4.10.2. Degraded. Electromagnetic spectrum and battlespace degradation caused by failed systems (global positioning system (GPS) degradation/denial, datalink, simple failure).

4.10.3. Operationally Limited. Reduced mission effectiveness caused by the physical or operational environment (system, force structure, rules of engagement/special instructions, etc.).

4.10.4. Non-Special Use Airspace Use. Missions flown against EW Aggressor or mobile threat emitters placed in non-special use airspace is acceptable. ACC units utilizing non-special use airspace for EW range activities, require ACC/A3 approval per DAFMAN 13-201_ACCSUP, *Airspace Management*. **(T-2)**

# Chapter 5

## WEAPONS DELIVERY/EMPLOYMENT CERTIFICATION

**5.1. General.** This chapter outlines guidance for attaining initial weapons certification, and maintaining CT proficiency in "Weapons Delivery Requirements" listed in the RTM. Refer to **Attachment 2** for further guidance on weapons events.

**5.2. Initial Weapon Certification.** Initial weapon certification, usually accomplished at FTU, can be achieved in IQT, MQT, or a combination of each. Weapons certification carries over for consecutive tours in the MDS. In order to be designated CMR, accomplish initial certification in RTM directed "proficient" munitions.

5.2.1. Initial certification in a weapon is satisfied when a pilot has achieved a minimum of 3 hits out of 6 consecutive record deliveries (see **Attachment 2**). To count as a hit, the delivery must be valid and assessable per GPI AFTTP 3-1.*Shot Kill* criteria.

5.2.2. 25 millimeter (mm) Gun. Certification is achieved by meeting the qualification criteria for A/A and/or A/S employment per GPI AFMAN 11-2F-35AV2 and may be verified through mission recording assessment of an engagement/strafe pass or via live fire.

5.2.3. Conventional Munitions. Certification is achieved by meeting the qualification criteria for A/S weapons employment per GPI AFMAN 11-2F-35V2. There is no limit to the number of hot passes utilized to achieve initial certification.

5.2.4. A/A Missile. Certification is achieved by meeting the qualification criteria for missile employment per GPI AFMAN 11-2F-35AV2.

**5.3. Mission Evaluation Versus Employment Certification.** A successful AF Form 8 mission evaluation qualifies a pilot to employ the member's assigned weapon system in accomplishing the unit's operational or DOC statement mission. SQ/CCs will certify pilots (i.e., when certified CMR on the Letter of Xs) in employing weapons before employing without instructor supervision. **(T-3)**

**5.4. Continuation Training Proficiency.**

5.4.1. Each pilot's weapons employment is assessed for validity per GPI AFTTP 3-3.IPE, *Combat Aircraft Fundamentals Integrated Planning and Employment (IPE)*. The results in each category (i.e., air intercept missile (AIM)-120) are recorded for the current training period (RAP required tasks) per the squadron weapons and tactics program (refer to AFMAN 11-415, *Weapons and Tactics Programs*).

5.4.2. Proficiency in A/A weapons employment is maintained by achieving a 75 percent valid at weapons release rate for AIM-120/9 and 75 percent valid attempt at trigger squeeze for gun. Proficiency in A/S weapons employment is maintained by achieving a 50 percent dry-pass hit criteria pre GPI AFTTP 3-1.*Shot Kill* validation (where applicable), or per the hot-pass hit criteria.

5.4.3. Failure to meet annual RTM weapon proficiency requirements results in the individual losing certification in that weapon. The SQ/CC may consider regressing pilots to N-CMR/N-BMC until proficiency/familiarization is regained (see **paragraph 4.4.7**).

**5.5. Weapons Delivery Parameters.** All deliveries conform to the limits established for each specific event. Pattern descriptions, procedures, training rules, and foul criteria are contained in A/S range manuals, AFMAN 11-2F-35AV3 and AFI 11-214. Events performed at night may require higher minimum recovery altitudes based on AFI 11-214 minimum altitude restrictions.

5.5.1. Strafe Events.

5.5.1.1. Tactical Strafe. Tactical strafe is a combined event. Any combination of low angle strafe and/or high angle strafe hits satisfies this training requirement. Each pass is a standalone event for weapons employment qualification with no maximum number of passes. Hit criteria: acoustically scored or independently observed impacts on a point target, or bullet dispersion within 36 feet of any target.

5.5.1.2. Low Angle Strafe. Planned dive angle 15 degrees or less. Minimum recovery altitude is 75 feet AGL. Foul line is 2,000 feet.

5.5.1.3. High Angle Strafe. Planned dive angle greater than 15 degrees. Minimum recovery altitude is 500 feet AGL.

5.5.2. Precision Guided Munitions Events. Hit criteria per the GPI AFTTP 3-1.*Shot Kill*.

5.5.2.1. Laser Guided Bomb. An event in which a combat/training laser is employed to self-lase simulated/actual ordnance during an laser guided bomb delivery. Minimum recovery is safe escape/fuse arm/guide time required for the ordnance being simulated/delivered.

5.5.2.2. Inertially Aided Munition. An event in which an aircraft system is used to determine release parameters. Simulated or actual delivery of ordnance is required. Minimum recovery is safe escape for the ordnance being simulated/delivered.

5.5.3. A/A Weapons Events. Hit criteria is per GPI AFTTP 3-1.F-35A, *Tactical Employment – F-35A*, AFTTP 3-1.*Shot Kill* and/or this volume as applicable.

**5.6. Full Scale/Live Ordnance.** Full scale weapons delivery and live ordnance training is essential to pilot combat capability. Each pilot should be given the opportunity to deliver/employ as many types of weapons inventoried on the unit committed munitions list as possible. Delivery of live or inert ordnance representing a typical combat configuration in a tactical scenario qualifies as a full scale weapons delivery event. See the RTM for additional full scale weapons delivery requirements.

# Chapter 6

# SPECIALIZED TRAINING

**6.1. General.** This chapter outlines upgrade training programs for special capabilities, certifications, and qualifications. These programs are intended to provide a basic starting point and may be modified by the SQ/CC based on the unit's requirements and/or the upgradee's previous experience, qualifications, and documented performance. Unless governed by a formal syllabus, ground and device training for these programs consists of unit-developed academics and scenarios. Conduct flight training per GPI a program approved by the SQ/CC.

6.1.1. Prior to any certification, the SQ/CC personally interviews the UP and reviews responsibilities, scope of duties, authority, and philosophy. The SQ/CC approves the new status, including any restrictions, in appropriate written format (grade sheet, training folder, Letter of X's, etc.).

6.1.2. Units review the progress of each UP for trends and common errors.

6.1.3. Unaccomplished Tasks. Scheduled training events unaccomplished need not delay certification/qualification. In such cases, the SQ/CC certifies individuals with appropriate limitations to preclude performance of duties in which training is incomplete (e.g., AAR).

6.1.4. Scope. The RTM may list additional specialized training requirements.

**6.2. Flight Lead Upgrade (FLUG) - Certification.**

6.2.1. FLUG entry can be as a 2-ship/element FL until experience and proficiency warrant further progression.

6.2.2. SQ/CCs select pilots for FLUG entry based on proficiency and experience. Hours are based on both aircraft and sim hours. Pilots selected for FLUG training should have:

6.2.2.1. 300 hours F-35A, or

6.2.2.2. 200 hours F-35A with 400 hours first pilot/mission pilot/IP/evaluator pilot in a 11K3F (T-6) or 11K3D (T-38) Air Force Specialty Code (AFSC), or

6.2.2.3. 50 hours F-35A if previously certified as a 11Fxx FL or sister service equivalent (e.g., F/A-18 pilot).

6.2.2.4. For converting units, OG/FG/CCs may select prior FL-certified pilots to upgrade to FL concurrent with MQT regardless of F-35A sorties.

6.2.3. FLUG Ground Training. Units develop local training in the following areas.:

6.2.3.1. FL Responsibilities. Wingman relationship, unit training objectives, and squadron responsibilities. Review of appropriate Joint/MAJCOM instructions, AFIs, and local guidance. **(T-3)**

6.2.3.2. Mission Preparation. Wingman requirements and responsibilities, currencies, proficiencies, capabilities, delegation of mission planning duties, developing appropriate mission objectives, and briefing preparation. **(T-3)**

6.2.3.3. Conduct of Flight Briefings and Debriefings. Mission objectives, use of briefing guides and audiovisual aids, wingmen involvement, briefing techniques,

debriefing/questioning techniques, mission recording review responsibilities and procedures. **(T-3)**

6.2.3.4. Conduct of Missions. Leadership and control of flight, flight discipline, and training rules. **(T-3)**

6.2.3.5. Practice Briefing(s). Administrative items, mission tasks, and contingencies. **(T-3)**

6.2.3.6. AGSM Techniques. Briefing, debriefing, and mission recording assessment. **(T-3)**

6.2.3.7. In-flight Emergencies and Emergency Diverts. Divert decisions as an element, support of wingman during EPs, FL responsibility and authority, minimum fuel planning, and air traffic control assistance. **(T-3)**

6.2.4. FLUG Sim Training. Units should incorporate FMS profiles into the FLUG to the maximum extent practical, depending on FMS capabilities and availability.

6.2.5. FLUG Flight Training.

6.2.5.1. SQ/CCs ensure the following guidelines are met:

6.2.5.1.1. All FLUG training will be under the direct supervision of an IP. **(T-3)**

6.2.5.1.2. A dedicated FL certification mission will be flown with the SQ/CC or a designated representative. **(T-3)**

6.2.5.1.3. Schedule dissimilar and support assets to the maximum extent practical.

6.2.5.2. FLUG Missions and Events. The following missions and events are recommended to be baseline FLUG. Missions may be flown in any order provided day training precedes respective night training. FLUG events can be accomplished anywhere in the FLUG.

6.2.5.2.1. FLUG Events. Day/Night AAR, instrument trail departure, radar trail recovery, threat reactions, hung ordnance recoveries, CDO, wounded bird, formation approach, and lost wingman procedures.

6.2.5.2.2. FLUG Missions. BFM, ACM, defensive counter air (DCA), CAS, air interdiction (AI) / offensive counter air – attack operations (OCA-AO), OCA-SEAD, and certification. See **paragraph 6.6** for night DAS/NVC certification.

**6.3. Instructor Pilot Upgrade (IPUG) – Qualification and Certification.** Upgrading instructor pilots (UIPs) at a FTU complete the formal syllabus IPUG.

6.3.1. SQ/CCs select pilots certified as a 4-ship FL for IPUG entry based on proficiency and experience. Hours are based on both aircraft and sim hours. Pilots selected for IPUG training should be a 4-ship FL with either:

6.3.1.1. 400 hours F-35A, or

6.3.1.2. 300 hours F-35A with 400 hours first pilot/mission pilot/IP/evaluator pilot in a 11K3F (T-6) or 11K3D (T-38) AFSC, or

6.3.1.3. 100 hours in F-35A if previously qualified as a 11Fxx IP or sister service equivalent (e.g., F/A-18 pilot).

6.3.1.4. For converting units, pilots may be designated by the OG/CC or the FG/CC for IPUG regardless of time in the new MDS if they have at least 1,000 hours first pilot/mission pilot/IP/evaluator pilot in a fighter AFSC.

6.3.2. IPUG Ground Training. UIPs complete the following unit-developed blocks of instruction prior to IP qualification:

6.3.2.1. Principles of Instruction. Creating clear learning objectives, IP/UP roles, instructing versus evaluating, and responsibility for UP progression. **(T-3)**

6.3.2.2. Techniques of Instruction. Training objectives, UP interaction, learning environment and IP demeanor, maneuver demonstration, performance assessment, recognition and analysis of common errors, in-flight corrections and assistance, immediate IP correction versus allowing UP to recognize/correct errors, post-flight review and instruction, and setting objectives for follow-on missions. **(T-3)**

6.3.2.3. Conduct of Flight Briefings. Mission objectives, adherence to training requirements, order of presentation, use of briefing guides and audiovisual aids, and debriefing techniques. **(T-3)**

6.3.2.4. Conduct of Phase Briefings. Review of applicable phase briefings, use of visual aids, review of flying and grading standards, common UP errors, and flight preparation techniques. **(T-3)**

6.3.2.5. UP Grading. Performance objectives, training standards, grading systems, determining unsatisfactory performance, and grade sheet completion. **(T-3)**

6.3.2.6. Practice Briefing(s). Administrative items and instruction of mission events. **(T-3)**

6.3.2.7. AGSM Techniques. Briefing, debriefing, and mission recording assessment. **(T-3)**

6.3.2.8. Chase Techniques. Techniques for flying evaluation chase to include recommended parameters to effectively determine aim point/glide path, airspeed, altitude, and the effects of level off on final. Discuss limitation of evaluation chase versus safety chase with regard to terrain/obstacle clearance. **(T-3)**

6.3.2.9. CRM. Techniques for increasing airmanship, methods to improve mission effectiveness, task/risk management and prioritization, feedback and crosscheck loops. **(T-3)**

6.3.3. IPUG Sim Training. Units should incorporate FMS/industry profiles into the IPUG to the maximum extent practical, depending on capabilities and availability.

6.3.4. IPUG Flight Training. Conduct flight training per GPI an upgrade program approved by the OG/FG/CC.

6.3.4.1. The SQ/CC ensures the following guidelines are met:

6.3.4.1.1. All IPUG training will be under the direct supervision of an IP. **(T-3)**

6.3.4.1.2. A dedicated IP qualification mission will be flown with the SQ/CC or a designated representative. **(T-3)**

6.3.4.1.3. IPUG training objectives are based on instruction of MQT, FLUG, and specialized training. Mission scenarios reflect typical unit training missions/events and the simulation of common UP errors.

6.3.4.1.4. Method of Instruction. UIPs practice assessing performance, immediately recognizing errors, and providing timely in-flight corrections. UIPs may also instruct mission tasks through maneuver demonstration as specified in the IPUG flight profile. Briefings should cover guidelines for in/out-of-scenario instruction, and methods for pausing and/or resuming the scenario, as appropriate.

6.3.4.2. IPUG Missions and Events. Unit programs should clearly specify which tasks the UIP demonstrates, which tasks the UIP practices evaluating the "student's" performance, and which tasks the UIP does both. The following missions and events are recommended for the baseline IPUG. IPUG events can be accomplished anywhere in the IPUG. IPUG Missions consist of BFM, ACM, DCA, CAS, AI/OCA-AO, OCA-SEAD and qualification. See **paragraph 6.6** for night DAS/NVC certification.

**6.4. Mission Commander (MC) Upgrade – Certification.**

6.4.1. MC Prerequisites. SQ/CCs select pilots certified as a 4-ship FL for MC upgrade based on proficiency and experience.

6.4.2. MC Responsibilities.

6.4.2.1. The MC is responsible for planning, coordinating, briefing, executing, and debriefing joint/composite force employment packages. Certified MCs are authorized to lead joint/composite force training.

6.4.2.2. MCs may delegate authority and responsibility for a portion of the mission to a package team lead/deputy MC.

6.4.3. MC Ground Training. Units develop local training in the following areas:

6.4.3.1. Review AFTTP 3-1 volumes for specific MC checklists and considerations. **(T-3)**

6.4.3.2. Mission Planning Considerations. Airspace requirements/restrictions, air traffic control restrictions/considerations/flight plans, air refueling operations, inter-unit coordination, A/A and A/G force integration, integrated air defense system penetration/avoidance, on-range controlling agencies coordination, and command and control coordination. **(T-3)**

6.4.4. MC Sim Training. Deleted until the sim becomes connected to outside entities that can provide composite force training.

6.4.5. MC Flight Training. The upgrading MC observes a certified MC during the planning, briefing, flight, and debriefing of at least one composite force mission prior to certification. The upgrading MC then plans, briefs, flies, and debriefs a minimum of one mission under the supervision of an MC-certified IP. Unit tasking should drive force composition, adversaries, and minimum flight size.

**6.5. Low Altitude (LOWAT) – Certification.** The purpose of LOWAT is training for safe single-ship maneuvering at low altitude based on defensive reactions that started at higher altitudes, ***not*** visual formations typically flown by 4$^{th}$ generation aircraft.

6.5.1. LASDT completion per GPI **paragraph 6.5.5** certifies pilots to conduct LOWAT tactics at the altitudes listed in **Table 6.1** Category I certification is the minimum requirement for CMR status and is normally accomplished in IQT or MQT. Category II or III training will not be conducted during MQT. **(T-2)**

6.5.2. Entry into LASDT (other than at FTU) requires SQ/CC approval. The category to which a pilot is certified is determined by the SQ/CC and based upon the lowest altitude at which all tasks can be performed and proficiency demonstrated.

6.5.3. The LASDT program is built on a multi-phase training process per GPI Table 6.1. There is no time limit to progress beyond CAT I and progress is based upon individual pilot proficiency and training availability. SQ/CC will ensure all LASDT sorties are supervised by an instructor who is certified and current in Low A/A or Low A/S. **(T-3)**

**Table 6.1. Low Altitude Categories.**

| Category | Altitude block (feet AGL) | Minimum requirements to certify |
|---|---|---|
| I | 1,000-500 | LASDT-1, -3 |
| II | 499-300 | LOWAT CAT I certified; LASDT-4, -6 |
| III | 299-100 | LOWAT CAT II certified; LASDT-7, -8, -9 |

6.5.4. LASDT Ground Training. Ground training supports the mission and concept of operations of the individual squadron. Incorporate appropriate portions of AFTTP 3-1.F-35 and AFTTP 3-3.F-35. Complete all ground academics prior to the flight brief and include discussion of the following:

6.5.4.1. Low-Altitude AHC. Aircraft performance, density altitude, G-loading, power settings, level turns and bank angles, vertical maneuvering, climb/dive/slice, recoveries, terrain avoidance and ridge crossings, helmet mounted display use, overbanking during turns, and cross check of aircraft attitude relative to horizon.

6.5.4.2. Environmental Factors. Cockpit visibility and field of view restrictions, sun angle, terrain, G-excess illusions/perceptions, weather considerations, air turbulence, jet wash, and bird strike.

6.5.4.3. Task Management. Low altitude tasks, task management and prioritization, factors influencing individual proficiency, and airmanship.

6.5.4.4. Low-Altitude Tactical Navigation. Dead reckoning, hazards at low altitudes, task prioritization.

6.5.4.5. Defensive Reactions. Threat weapons systems envelopes and threat reactions.

6.5.4.6. Special Subjects. Training rules, weather abort procedures, aircraft emergencies, and separation/disengagement considerations.

6.5.4.7. LOWAT Employment. Level engagements, fuel management, required turning room, maximum dive angle restrictions, weapons employment, visual lookout and intercepts.

6.5.5. LASDT Flight Training. SQ/CCs may combine and/or modify profiles as necessary, based on UP's experience. To conduct low altitude operations safely, pilots need to be knowledgeable of aircraft handling and performance characteristics, intercept, offensive maneuvering, defensive reactions, and navigation.

6.5.5.1. LOWAT Category I.

6.5.5.1.1. LASDT-1 (Single ship w/chase). Mission objectives: Demonstrate proficiency in single-ship maneuvering between 5,000 and 1,000 feet AGL. Introduce CAT I operations based on AFTTP 3-3.F-35. Mission tasks consist of AHC (low altitude handling/flight qualities, vertical awareness exercise, climb/dive/slice maneuvers, nose low recoveries, attitude awareness maneuvers); G warm up exercise, low-level navigation, airspeed control, fuel management, low-level turns, ridge crossings, terrain masking/maneuvering techniques for level/rolling/rough terrain, visual lookout, altitude awareness/control, attack maneuvering, practice "knock-it-offs," defensive reactions, and low altitude TI.

6.5.5.1.2. LASDT-3 (Single ship w/chase) – LOWAT CAT I Certification. Mission objectives: Demonstrate proficiency in low altitude operations down to 500 feet AGL. Mission tasks: Same as LASDT-1. Upon satisfactory completion of this mission, the SQ/CC can certify the pilot to LOWAT Category I.

6.5.5.2. LOWAT Category II.

6.5.5.2.1. LASDT-4 (Single-ship w/chase). Mission objectives: Introduce LOWAT CAT II operations. Mission tasks: Same as LASDT-1 only accomplish in the 300-500 foot AGL environment as UP proficiency increases.

6.5.5.2.2. LASDT-6 (Single ship w/chase) - LOWAT CAT II Certification. Mission objectives: Demonstrate proficiency in LOWAT cat II operations down to 300 feet AGL. Mission tasks: Same as LASDT-1. Upon satisfactory completion of this mission, the SQ/CC can certify the pilot to LOWAT Category II.

6.5.5.3. LOWAT Category III.

6.5.5.3.1. LASDT-7 (Single-ship w/chase). Mission objectives: Introduce LOWAT CAT III operations. Mission tasks: Same as LASDT-1 minus threat reactions, only accomplish in the 100-300 foot AGL environment as UP proficiency increases.

6.5.5.3.2. LASDT-8 (Single ship w/chase). Mission objectives: Demonstrate proficiency in single-ship LOWAT CAT III operations. Mission tasks: Same as LASDT-1 minus TI/threat reaction.

6.5.5.3.3. LASDT-9 (Single ship w/chase) - LOWAT CAT III Certification. Mission objectives: Demonstrate proficiency in LOWAT CAT III operations down to 100 feet AGL. Mission tasks: Same as LASDT-1 minus TI/threat reaction. Upon satisfactory completion of this mission, the SQ/CC can certify aircrew to LOWAT Category III.

## 6.6. Distributed Aperture System/Night Vision Camera (DAS/NVC) – Certification.

6.6.1. DAS/NVC. Upon successful completion of IQT per GPI formal FTU course syllabi (B-Course), pilots should be DAS/NVC certified by completion of that training at the FTU location. For pilots reporting to a unit who did not complete DAS/NVC training in a formal

course (e.g., TX), tailor the FTU DAS/NVC syllabus based upon individual's previous experience and documented performance.

6.6.2. FL. Certified DAS/NVC pilots who upgrade to FL need one supervised (IP) flight as a FL on DAS/NVC before performing unsupervised DAS/NVC FL duties. This flight may be conducted anytime during or after the FLUG syllabus.

6.6.3. IP. A DAS/NVC instructor must fly one supervised (IP) instructional night sortie using DAS/NVC before performing unsupervised night instructor duties while using DAS/NVC. **(T-3)** Multiple upgrades may be accomplished on a DAS/NVC sortie, or in conjunction with other DAS/NVC upgrades, at the SQ/CC discretion.

6.6.4. Night LOWAT. All of the following tasks must be completed to allow tactical maneuvering between 1,000 feet AGL and the MSA (GPI AFMAN 11-2F-35AV3 and AFI 11-214). Upon completion annotate completion on the UP's gradesheet. Execute the following tasks below using both DAS and NVC:

6.6.4.1. DAS tuning,

6.6.4.2. Horizon check and hard turn above the MSA,

6.6.4.3. Single ship LOWAT tactical navigation (IP chase) to include level hard turns,

6.6.4.4. Surface to air counter tactics to include anti-aircraft artillery jinks and a horizon abort,

6.6.4.5. Four DAS/NVD high angle strafe attacks,

6.6.4.6. 1v1 intercepts beginning or ending below the MSA (one of each minimum).

**6.7. Functional Check Flight – Certification.** Not applicable to F-35A.

**6.8. Aerospace Control Alert – Certification.** The following are guidelines to train and certify aerospace control alert (ACA) tasked pilots.

6.8.1. ACA Ground Training. The intent of ground training is to become familiar with combatant commander specific missions/organization, the threat, authentication procedures, applicable plans, facilities locations and call signs. Include applicable air defense artillery corridor procedures, safe passage procedures, alert procedures, alert camera operations and combatant commander rules of engagement. Refer to applicable sections of AFI 11-214 procedures and AFTTP 3-1 volumes.

6.8.2. ACA Sim Training. The intent of sim training is to practice procedures difficult to simulate during live flight. One FMS mission dedicated to an ACA scenario including a scramble, handover, voice authentication, combat air patrol procedures, controller-directed visual identification profiles, low altitude intercepts below 1,000 feet AGL, electronic counter-countermeasures intercepts, and weapons employment rules of engagement.

6.8.3. ACA Flight Training. The intent of flight training is to prepare pilots for intercepting aircraft with an emphasis on low/slow flying aircraft (rotary and fixed wing) and should include one dedicated flight. Creation of realistic environment to allow full use of F-35A electronic/ visual identification capabilities is essential to the conduct of low/slow-speed operations. SQ/CCs determine the depth of ground and flight training necessary prior to participating in exercises and contingency operations.

**6.9. Dual Capable Aircraft (DCA) – Certification.** The following are guidelines to train and certify dual capable aircraft DCA tasked pilots.

6.9.1. DCA Ground Training. The intent of ground training is to become familiar with combatant commander specific mission/organization, the threat, applicable plans, command and control procedures. Refer to applicable sections of AFI 11-214, AFTTP 3-1 volumes and theater requirements.

6.9.2. DCA Sim Training. The intent is to practice procedures difficult to simulate during live flight. One FMS mission dedicated to a DCA scenario including ground operations through weapons employment.

6.9.3. DCA Flight Training. The intent of flight training is to prepare pilots for local procedures, command and control requirements and should include one dedicated flight. A practice bomb (Bomb Dummy Unit-38) is not required. SQ/CCs determine the depth of ground and flight training necessary prior to participating in nuclear exercises and/or inspections.

6.9.4. Nuclear Certification. Nuclear certification is a formal process where a pilot demonstrates to a formal board satisfactory knowledge of the DCA mission, procedures and command and control. The OG/CC establishes the board composition. Desired composition is OG/CC, SQ/CC, weapons, electronic combat, intelligence, and plans representatives. As part of the verification process, a sim mission may be included at the OG/CC discretion.

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## Attachment 1

## GLOSSARY OF REFERENCES AND SUPPORTING INFORMATION

***References***

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AFI 11-214, *Air Operations Rules and Procedures*, 8 July 2020

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AFTTP 3-2.72, *Multi-Service Tactics, Techniques, and Procedures for Strike Coordination and Reconnaissance (SCAR)*, 1 January 2014

AFMAN 13-212V1, *Range Planning and Operations*, 22 June 2018

***Adopted Forms***

AETC Form 904, *Training Summary*

AF Form 8, *Certificate of Aircrew Qualification*

AF Form 475, *Education/Training Report*

DAF Form 679, *Department of the Air Force Publication Compliance Item Waiver Request/Approval*

DAF Form 847, *Recommendation for Change of Publication*

***Abbreviations and Acronyms***

**A/A**—Air-to-Air

**A/S**—Air-to-Surface

**AAR**—Air-to-Air Refueling

**ACA**—Aerospace Control Alert

**ACBRN**—Aircrew Chemical Biological, Radiological, Nuclear

**ACBT**—Air Combat Training

**ACC**—Air Combat Command

**ACC/AOS**—Air Combat Command, Air Operations Squadron

**ACC/TRSS**—Air Combat Command, Training Support Squadron

**ACM**—Air Combat Maneuvering

**ACT**—Air Combat Tactics

**AF**—Air Force

**AFE**—Aircrew Flight Equipment

**AFI**—Air Force Instruction

**AFMAN**—Air Force Manual

**AFPD**—Air Force Policy Directive

**AFR**—Air Force Reserve

**AFRC**—Air Force Reserve Command

**AFSC**—Air Force Specialty Code

**AFTTP**—Air Force Tactics, Techniques and Procedures

**AGCAS**—Automatic Ground Collision Avoidance System

**AGL**—Above Ground Level

**AGSM**—Anti-G Straining Maneuver

**AHC**—Advanced Handling Characteristics

**AI**—Air Interdiction

**AIM**—Air Intercept Missile

**ANG**—Air National Guard

**AOA**—Angle of Attack

**AOMSW**—Air Operations in Maritime Surface Warfare

**AOS**—Air Operations Squadron

**API**—Aircrew Position Indicator

**ARC**—Air Reserve Component

**ARMS**—Aviation Resource Management System

**B**—Basic

**BAQ**—Basic Aircraft Qualification

**BFM**—Basic Fighter Maneuvers/Maneuvering

**BMC**—Basic Mission Capable

**CAS**—Close Air Support

**CAT**—Category (as pertains to LOWAT)

**CB PIC**—Chemical/Biological Pilot Interface Connector

**CC**—Commander

**CDO**—Contested, Degraded, Operationally Limited

**CMR**—Combat Mission Ready

**COMAFFOR**—Commander, Air Force Forces

**Comm**—Communications

**CRM**—Cockpit/Crew Resource Management

**CT**—Continuation Training

**(D)**—Dissimilar

**DAFI**—Department of the Air Force Instruction

**DAFMAN**—Department of the Air Force Manual

**DAS**—Distributed Aperture System

**DCA**—Defensive Counter Air

**DCA**—Dual Capable Aircraft

**DO**—Operations Officer

**DOC**—Designed Operational Capability

**DRU**—Direct Reporting Unit

**e.g.**—for example

**EOC**—End of Cycle

**EP**—Emergency Procedure(s)

**EW**—Electronic Warfare

**Exp**—Experienced

**FAC(A)**—Forward Air Controller (Airborne)

**FAM**—Familiar

**FG**—Fighter Group

**FG/CC**—Fighter Group, Commander

**FL**—Flight Lead

**FLUG**—Flight Lead Upgrade

**FMS**—Full Mission Simulator

**FOA**—Field Operating Agency

**FSD**—Flight Series Data

**FTU**—Formal Training Unit

**G**—Gravitational load factor

**GPI**—Guidance Provided In

**GPS**—Global Positioning System

**i.e.**—that is

**Inexp**—Inexperienced

**INSTM**—Instrument

**IP**—Instructor Pilot

**IPE**—Integrated Planning and Employment

**IPUG**—Instructor Pilot Upgrade

**IQT**—Initial Qualification Training

**JSAM**—Joint Service Aircrew Mask

**JTAC**—Joint Terminal Attack Controller

**LAO**—Local Area Orientation

**LASDT**—Low Altitude Step Down Training

**LOWAT**—Low Altitude Training

**MAJCOM**—Major Command

**MC**—Mission Commander

**MDS**—Mission Design Series

**mm**—millimeter

**MQT**—Mission Qualification Training

**MR**—Mission Ready

**MSA**—Minimum Safe Altitude

**MSN**—Mission evaluation

**N-BMC**—Non-Basic Mission Capable

**N-CMR**—Non-Combat Mission Ready

**N/A**—Not Applicable

**NAF**—Numbered Air Force

**NGB**—National Guard Bureau

**NVC**—Night Vision Camera

**OCA**—Offensive Counter Air

**OCA-AO**—Offensive Counter Air – Attack Operations

**OG**—Operations Group

**OG/CC**—Operations Group, Commander

**OPR**—Office of Primary Responsibility

**PFO**—Precautionary Flame Out

**PROF**—Proficient

**QUAL**—Qualification

**RAP**—Ready Aircrew Program

**RTM**—RAP Tasking Memorandum

**SCAR**—Strike Coordination and Reconnaissance

**SEAD**—Suppression of Enemy Air Defenses

**SEPT**—Situational Emergency Procedure Training

**SERE**—Survival, Evasion, Resistance and Escape (SERE) Program

**sim**—Simulator

**SQ**—Squadron

**SQ/CC**—Squadron, Commander

**SQ/DO**—Squadron, Operations Officer

**T**—Tier

**TDY**—Temporary Duty

**TI**—Tactical Intercept(s)

**TR**—Technical Refresh (as pertains to aircraft hardware configuration)

**TRSS**—Training Support Squadron

**TX**—Transition/Requalification

**UIP**—Upgrading Instructor Pilot

**UP**—Upgrading Pilot

**USAFWS**—United States Air Force Weapons School

**V**—Volume

**WG**—Wing

**WG/CC**—Wing, Commander

***Office Symbols***

**ACC/A3**—Air Combat Command, Director of Operations

**ACC/A3T**—Air Combat Command, Flight Operations Division

**ACC/A3TO**—Air Combat Command Flight Operations and Training Branch

**AF/A3T**—Air Force Training and Readiness Directorate

**AF/ACTF**—Air Force, Aircrew Crisis Task Force

**AFRC/A3D**—Air Force Reserve Command, Combat Operations

**F**—35 JPO—F-35 Joint Program Office

**MAJCOM/A3**—Major Command, Director of Operations

**NAF/A3**—Numbered Air Force, Director of Operations

**NGB/A3/10O**—National Guard Bureau, Combat Air Forces Division

***Terms***

**Note**—See AFI 11-214 for further clarification on definitions/terms throughout the following attachments. If there is a conflict, AFI 11-214 takes precedence.

**#v#**—This term describes the number aircraft that are fighting against each other (e.g., 1v1 = 1 aircraft versus 1 aircraft).

**Aerospace Control Alert (ACA)**—Mission focused on intercepting various threat systems, with emphasis on target identification and command & control procedures.

**Basic Aircraft Qualification (BAQ)**—An aircrew member who has satisfactorily completed training prescribed to maintain the skills necessary to perform aircrew duties in the unit aircraft (AFMAN 11-202V1).

**Basic Mission Capable (BMC)**—An aircrew member who has satisfactorily completed mission qualification training, is qualified in some aspect of the unit mission, but does not maintain MR/CMR status (AFMAN 11-202V1).

**Certification**—Procedure used to document competency in a particular task. Not interchangeable with "qualification," which requires formal AF Form 8 documentation (AFMAN 11-202V2).

**Combat Mission Ready (CMR)**—An aircrew member who has satisfactorily completed MQT and maintains qualification and proficiency in the command or unit combat mission (AFMAN 11-202V1).

**Continuation Training (CT)**—Training to maintain proficiency and improve pilot capabilities to perform unit missions. CT includes pilot proficiency sorties and upgrades not flown in IQT/MQT.

**Currency**—The minimum frequency required to maintain proficiency and allow safe performance of an event or mission.

**Delivery Parameters**—Weapons-related data reflecting current delivery considerations for proper ordnance function and tactical survivability. Appropriate aircraft/weapons technical orders must be consulted for live ordnance safe escape criteria and aircraft performance charts for recovery altitudes.

**Emergency Procedures Evaluation**—See AFMAN 11-202V2 and AFMAN 11-2F-35AV2.

**Experienced Pilot (Exp)**—A pilot who has flown the aircraft for a specified criteria, which then permits training at a reduced rate to maintain a safe level of proficiency (see **paragraph 1.6**) (AFI 11-412, *Aircrew Management*).

**Familiar**—Aircrew have a basic knowledge of mission area and may make errors of omission or commission. Aircrew are able to operate in a permissive environment and are able to handle some basic contingencies and unusual circumstances. Familiar aircrew may need additional training prior to first mission tasking.

**Flight Lead (FL)**—As designated on flight orders, the pilot responsible for overall mission conduct from preflight preparation and briefing to post-flight debriefing, regardless of actual position within the formation. A 2-ship FL is authorized to lead an element in a larger formation. If approved by the SQ/CC, a 4-ship FL is considered a multi-ship FL and may lead formations and missions in excess of four aircraft.

**Hot Pit**—Term for an engine running aircraft refueling procedure where the aircraft lands, taxis to a designated location, refuels, then takes off for another mission.

**Initial Qualification Training (IQT)**—Training needed to qualify aircrew for basic aircrew duties in an assigned crew position for a specific aircraft, without regard for the unit's operational

mission (AFMAN 11-202V1). IQT graduates demonstrate proficiency in mission tasks as indicated in the FTU syllabi.

**Letter of X's**—A monthly summary of assigned and attached pilots that lists qualifications and certifications. An "X" is put in the appropriate column next to the pilot name showing their qualification or certification, hence its name.

**Lookback**—Used to assist a commander in determining a pilot's status (CMR/BMC - Probation - N-CMR/N-BMC). Lookback reflects RAP sortie and sim counts over 1 and 3 month periods. Reference **paragraph 4.4.7** and **Figure 4.1** for lookback use in regression determination.

**Mission Commander (MC)**—A SQ/CC certified 4-ship FL designated to lead LFEs (AFI 11-214) and joint/composite force missions.

**Mission Qualification Training (MQT)**—Training required to achieve the required level of competence in a unit's primary-tasked missions. This training follows IQT and is a prerequisite for CMR/BMC status. MQT provides an aircraft mission qualification certificate, and allows the pilot to prepare for follow-on specialized training.

**Mission Ready (MR)**—An aircrew member who has satisfactorily completed MQT and maintains qualification and proficiency in the command or unit operational mission (AFMAN 11-202V1).

**Proficient**—Aircrew have a thorough knowledge of mission area but occasionally may make an error or omission or commission. Aircrew are able to operate in a complex, fluid environment and are able to handle most contingencies and unusual circumstances. Proficient aircrew are prepared for mission tasking on the first sortie in theater.

**Qualification**—See AFMAN 11-202V2 and AFMAN 11-2F-35AV2.

**Specialized Training**—Training to provide CMR/BMC pilots with advanced qualifications or certifications to support the unit's mission tasking. This training normally follows MQT as pilot skills and proficiency warrant, but may be conducted during MQT or CT, as required.

**SQ Supervisor**—May include all or some of the following depending on SQ/CC certification: SQ/CC, SQ/DO, assistant DOs, and flight commanders. (ARC: as designated by the OG/CC or the FG/CC).

**Verification**—A unit briefing for pilots to update and verify tactical knowledge required to accomplish the unit's wartime mission tasking. Verification includes initial and continuation phases in which a formal board is normally convened to assess pilot knowledge of tactical employment.

## Attachment 2

## GLOSSARY OF MISSION AND EVENT DEFINITIONS

### A2.1. Mission/Event Definitions.

A2.1.1. Air Interdiction/Offensive Counter Air – Attack Operations AI/OCA-AO. Mission designed to develop proficiency in AI/OCA-AO tactics. Mission elements include: Intel scenario and tactical mission planning, execution of strikers diverting, disrupting, delaying or destroying the enemy's military capabilities while negating simulated adversary aircraft which are operating within specific commit criteria (i.e., range, airspace corridor, vulnerability time), and in-flight report.

A2.1.2. Air Combat Maneuvers (ACM). 2vX training mission designed to achieve proficiency in element formation maneuvering and the coordinated application of BFM to achieve a simulated kill or effectively defend against one or more aircraft from a pre-planned starting position (AFI 11-214).

A2.1.3. Aircraft Handling Characteristics (AHC). Training for proficiency in utilization and exploitation of the aircraft flight envelope, consistent with operational and safety constraints, including, but not limited to: high/maximum AOA maneuvering, energy management, minimum-time turns, maximum/optimum acceleration and deceleration techniques and confidence maneuvers (AFI 11-214).

A2.1.4. Air-to-Air Refueling (AAR). Event requires tanker rendezvous, hook-up and transfer of fuel or stabilized dry hook-up. More than one event may be credited if receivers accomplish another rendezvous, hook-up and fuel transfer/dry hook-up.

A2.1.5. Alert Scramble. From an alert posture, launch on a scramble order in any tasked role. Simulated event may terminate after initial taxi.

A2.1.6. Air Strike Control Event. Not used.

A2.1.7. Basic Fighting Maneuvers (BFM). 1v1 training mission designed to apply aircraft handling skills to gain proficiency in recognizing and solving range, closure, aspect, angle off, and turning room problems in relation to another aircraft to either attain a position from which weapons may be launched or defeat weapons employed by an adversary (AFI 11-214).

A2.1.8. Basic Surface Attack. Training designed to achieve proficiency in air-to-surface weapons delivery events.

A2.1.9. Chaff/Flare. Inflight dispensing of chaff/flare during a tactical mission profile in response to an actual or simulated threat.

A2.1.10. Close Air Support (CAS). Mission flown with detailed coordination in support of ground forces under the positive control of a joint terminal attack controller (JTAC)/FAC(A). Mission elements include: intel scenario, tactical mission planning, interface with the terminal attack control system / Army air-to-ground system network, execution against threats, and weapons employment against JTAC/FAC(A)-designated targets. Except for the role of a JTAC/FAC(A), mission elements and roles may be simulated during training.

A2.1.11. CAS in Urban Terrain. CAS in urban terrain emphasizes target identification, attack axis limitations, and avoiding collateral damage in close proximity to and coordination with friendly forces.

A2.1.12. Commander (CC) Option Mission. An allotment of missions to each pilot for allocation at commander's discretion in support of training requirements and unit objectives. CC Option missions are part of the pilot's overall training cycle sortie allotment and may be designated uniquely for each pilot or generally for all in the unit.

A2.1.13. Composite Force Training. Scenarios employing multiple flights of the same or different MDS aircraft, each under the direction of its own flight leader, performing the same or different roles (AFI 11-214). Blue air sorties including multiple fighter/bomber MDSs, a command and control platform (desired for flight event), and an A/A and/or A/S threat scenario. Reference RTM for specific flight and sim event requirements.

A2.1.14. Contingency Sortie. A sortie tasked and flown while deployed for a contingency operation. We do not conduct training during contingency operations; however, SQ/CCs determine when pilot/aircrew can log training for contingency sorties.

A2.1.15. Counter Fast Attack Craft/Fast Inshore Attack Craft Mission. A mission that adapts elements of air operations in maritime surface warfare, is conducted in direct defense of maritime assets and requires increased integration between air and surface delivered fires and the movement of maritime forces. Primary consideration is rapid response to counter immediate threats and attack targets of opportunity. For more on counter fast attack craft/fast inshore attack craft, see AFTTP 3-2.74, *Multi-Service Tactics, Techniques, and Procedures for Air Operations in Maritime Surface Warfare (AOMSW).*

A2.1.16. Defensive Counter Air (DCA). Mission designed to develop proficiency in DCA mission tactics. Mission elements include: Intel scenario and planning; execution of tactics to detect, engage, and negate aircraft employing adversary tactics and weapons to penetrate protected airspace or target areas, and in-flight report.

A2.1.17. Dual Capable Aircraft (DCA). Mission designed to deliver nuclear weapons.

A2.1.18. Degraded/Denied Comm. Inflight operations in a Comm jamming environment that provides realistic effects (intervals and duration) without use of active anti-jam radios and/or effective chattermark procedures to counter jamming.

A2.1.19. Degraded/Denied Datalink. Inflight operations with degraded or denied datalink. Log only one event per sortie. In the absence of systems capable of degrading or denying datalink, the effects may be generated by turning systems OFF or SILENT.

A2.1.20. Degraded/Denied GPS. Inflight operations with degraded or denied GPS which impacts navigation and/or weapons capability at a minimum. In the absence of actual systems capable of degrading or denying GPS, the effects are difficult to simulate.

A2.1.21. Demanding Mission. Missions that task the pilot to the extent that flying currency and proficiency are most critical. Missions and events requiring demanding mission currency are: Missionized sorties (e.g., OCA-AO, OCA-SEAD, AI) opposed or unopposed by adversary aircraft, ACM (greater than a 2v2), TI (greater than a 2v2), DCA, LOWAT below 1,000 feet AGL, CAS, joint/composite force training, and aerial demonstrations. SQ/CCs may add missions/events to the demanding mission list, depending on unit tasking and pilot capabilities

(i.e., may call Red Air demanding based on number of aircraft in the fight). See ***Non-Demanding Mission***.

A2.1.22. Dynamic Targeting A/S. An air-to-ground attack/engagement against a target/(time sensitive target relayed/passed by an appropriate command and control asset). Targeting within a CAS scenario does not meet the intent of this event.

A2.1.23. Electronic Attack A/A. An intercept performed against a target using active and/or passive electronic protection against attacker's radar, causing the attacker to employ electronic attack techniques or tactics. Does not include co-channel interference.

A2.1.24. Electronic Protection A/A. The pilot detects an airborne threat via electronic means and reacts with appropriate maneuvers, pod/internal ECM switchology, and/or expendables. Airborne threat training can be accomplished only with a dedicated adversary attacking from beyond visual range.

A2.1.25. Event. Unless otherwise specified in these event descriptions, units determine the necessary parameters for fulfilling and/or logging tasked events. An event is defined in one of the following manners:

A2.1.25.1. Accomplishment of a specific training element, function, or task.

A2.1.25.2. A specific type of weapon delivery performed during a mission, defined by aircraft flight path, ordnance delivered, delivery method, or target struck.

A2.1.25.3. Expending ordnance, or simulated attack where allowed, against a target according to predetermined flight path parameters and delivery methods.

A2.1.26. Electronic Warfare (EW) Range. Inflight operations conducted on an EW range with fixed or mobile surface-to-air emitters operating and detection/threat reaction emphasized. Normally accomplished in conjunction with other EW-type events. The pilot detects a surface threat via electronic means and reacts with appropriate maneuvers, pod/internal switchology and/or expendables. Missions flown against EW Aggressor or mobile threat emitters placed in non-special use airspace are acceptable. See **paragraph 4.10.4**.

A2.1.27. Formation Approach. Begins no later than the final approach fix and may terminate in a low approach.

A2.1.28. Have Quick, Secure Voice, Multi-function Advanced Data Link, Link-16 J-Voice. Proper configuration for communications systems operation and successful utilization during tactical mission accomplishment and/or effective chattermark procedures.

A2.1.29. Instrument. Training designed to ensure instrument proficiency. RAP events may be accomplished on an instrument sortie mission provided accomplishment does not interfere with the primary goal of instrument training. Units are allocated sorties for every pilot to accomplish their basic skills requirements and maintain minimum basic skills.

A2.1.30. Low Altitude Intercept. An intercept conducted below 5,000 feet AGL.

A2.1.31. Low Altitude Training (LOWAT). LOWAT is the tactical employment of the aircraft below 5,000 feet AGL (day) or MSA (night). Tactical training operations in a certified low altitude block, which is divided into low altitude step-down training (LASDT) categories. This tactical training does not apply to traffic pattern operations or other basic transitions through the low-altitude structure. A LOWAT event involves performing realistic, mission-oriented

low altitude operations while in a LOWAT-certified low altitude block, in which pilots practice realistic reactions to air and ground threats and low altitude intercepts.

A2.1.32. LOWAT Currency. Mission-oriented A/A and A/S operations while in a LOWAT certified LOWAT block (see **Table 6.1**). Includes skills necessary to search for and engage an aerial target at low altitude offensively or defensively, low altitude tactical navigation, defensive maneuvering to avoid or negate ground threats, and low altitude weapons delivery.

A2.1.33. Night. Flying sortie on which either takeoff or landing and at least 50 percent of flight duration or 1 hour, whichever is less, occur between the end of evening civil twilight and the beginning of morning civil twilight.

A2.1.34. Non-Demanding. Mission that provides the pilot with the opportunity to regain basic flying proficiency after a period of non-flying. Events in this mission do not excessively task pilot skills that have been underused. Missions not included in **paragraph A.2.1.21** are non-demanding missions. SQ/CCs take into account operational risk management before determining whether a mission is non-demanding depending on unit tasking and an individual's capabilities (i.e., flying as Red Air with maneuvering restrictions). See ***Demanding Mission***.

A2.1.35. OCA-SEAD. Mission designed to develop proficiency in suppression of enemy air defense tactics. Mission elements include: Intel scenario and integrated mission planning to support force package objectives, execution of tactics to detect and negate enemy air defenses, to include surface to air missile, anti-aircraft artillery systems, and critical air defense nodes, employing adversary tactics and weapons capabilities to disrupt force package employment/destroy package assets, and in-flight report.

A2.1.36. Red Air. Mission where adversary tactics, aircraft simulation, weapon systems, and/or maneuvering is replicated in support of blue air.

A2.1.37. Sortie. An operational flight from takeoff to final full stop landing which includes a set of tasks that lead to an (airborne) objective, to include associated planning, brief, enroute, mission execution, recovery, and debrief events.

A2.1.38. Strike Coordination and Reconnaissance. Mission flown for the purpose of detecting targets and coordinating or performing attack or reconnaissance on those targets (AFTTP 3-2.72, *Multi-Service Tactics, Techniques, and Procedures for Strike Coordination and Reconnaissance (SCAR)).*

A2.1.39. Tactical Intercepts (TI). Mission designed to develop proficiency in TI tactics. Mission elements include: Intel scenario and planning, execution of tactics to engage and negate aircraft employing adversary tactics (hot and cold ops), and in-flight report.

## A2.2. Weapon Employment Terms.

A2.2.1. A delivery is defined as a pass at a target on which ordnance is expended or simulated and meets the criteria defining a specific weapon delivery. Weapon events are defined in **Chapter 5**. All deliveries are recorded, but not necessarily as a record delivery. The two types of deliveries are as follows:

A2.2.1.1. Basic Delivery. A delivery using a conventional box pattern. It may be used as a record event only for initial certification. There is no restriction on the number of dry

passes made before or during basic deliveries in a record event for initial certification; however, only the first two deliveries per event may count for record.

A2.2.1.2. Tactical Delivery. A delivery using patterns and techniques that minimize final flight path predictability, yet allow sufficient time for accurate weapons delivery. When a tactical delivery is flown for record, dry passes in the event are not permitted before or during the event. Timing will be from completion of roll-out until initiation of weapons release and exceeding five seconds will result in gross error. All tactical deliveries will normally include recovery to egress parameters.

A2.2.2. A delivery constitutes a weapons delivery event based on two categories, record keeping (Record or Non-Record), and RAP tasking familiar and proficient (FAM and Proficient (PROF)), as follows:

A2.2.2.1. Record Keeping.

A2.2.2.1.1. Non-Record. Weapons delivery accomplishments not credited toward weapons proficiency provided the pilot declares "non-record" prior to beginning the event.

A2.2.2.1.2. Record. Weapons delivery scored for individual proficiency. Scoring will be accomplished by ground, air, or mission recording (for guided weapons), as appropriate. A maximum of two record deliveries may be credited during a mission from a single run-in heading. Additional record deliveries may be accomplished from headings differing by at least 90 degrees or on different targets/ranges. Record deliveries may not be preceded by non-record deliveries in the event on the same sortie. The first two deliveries in each event will be considered record unless otherwise declared prior to the roll-in to final. Additional guidelines are:

A2.2.2.1.2.1. Basic. Scored on a Class A range (GPI AFMAN 13-212, Volume 1, *Range Planning and Operations*).

A2.2.2.1.2.2. Tactical. A minimum of 50 percent accomplished on a ground scored range, except for simulated precision munition events. Remaining record hits may be air scored by reference to known distances from the target.

A2.2.2.1.2.3. Strafe. Aircraft burst limit is set to meet RTM requirements.

A2.2.2.1.2.4. Laser Guided Bomb. Designator and bomber functions are accomplished simultaneously by a single aircraft using self-lase procedures. To record a complete laser guided bomb delivery using buddy-lase designation techniques, one simulated or actual weapons release and one designation must be performed, if authorized by the SQ/CC. **(T-3)**

A2.2.2.2. RAP Tasking. See current RTM for training cycle requirements.

A2.2.2.2.1. Familiar. Weapons events tasked at FAM may be basic/tactical record deliveries. Each single hot pass counts as one delivery. Hit percentage criteria for FAM events is not specified and is tracked at unit's discretion.

A2.2.2.2.2. Proficient (PROF). Weapons events tasked at PROF must be tactical, record deliveries. **(T-3)** PROF tasking demonstrates the pilot's ability to put appropriate

ordnance on target. Unless otherwise specified in the RTM or formal course syllabi, **Chapter 5** establishes PROF criteria for each event.

A2.2.3. Miscellaneous definitions of weapons deliveries and events.

A2.2.3.1. Dry Pass. Weapons delivery pass during which no ordnance is expended. Such dry passes prior to completion of record deliveries in an event are charged to the pilot as gross error unless the pass was dry because of safety considerations, system malfunctions, basic delivery requirements, or directed for flight integrity purposes.

A2.2.3.2. Foul. A penalty directed to a specific aircraft and pilot for actions inconsistent with established procedures or safety considerations. A foul will result in a gross error for that delivery (except non-acoustic-scored strafe that will be penalized one-half the event score). A second foul or any dangerous pass will result in mandatory expulsion from any further deliveries during that mission and a gross error score for the event. A foul will be charged per GPI flying directive publications. Verbal warnings do not constitute a foul.

A2.2.3.3. Full Scale Weapons Delivery. Delivery of live or inert ordnance representing a typical combat configuration or standard configuration load in a tactical scenario.

A2.2.3.4. Gross Error. A penalty score or miss assigned to a pilot's records when a weapons delivery attempt results in: munitions impact outside the range scoring capability, a chargeable dry pass, a foul, an unintentional release, or exceeding tactical delivery time on final requirements.

A2.2.3.5. Hit. Any munitions impact within the weapons criteria established for that event. For simulated weapons employment, hits will be assessed by mission recording review.

A2.2.3.6. Multiple or Unexpected Release. More than one weapon released against the same target on a single pass or a weapon released without approval, and assessed as follows:

A2.2.3.6.1. Intentional. Predetermined multiple ordnance release. The pilot will advise the range officer prior to delivery and may designate which impact to score.

A2.2.3.6.2. System Malfunction. Undeclared multiple release caused by a verified system malfunction. Score is void after the system malfunction is verified, otherwise unintentional rules apply.

A2.2.3.6.3. Inadvertent. Unexpected ordnance release by the aircraft, uncommanded by the pilot. Impact is not be scored.

A2.2.3.6.4. Unintentional. Unexpected ordnance released due to pilot error. Scored as a gross error regardless of impact point.

A2.2.3.7. No Spot. A weapons release during which no impact was observed. No score or error will be assigned.

A2.2.3.8. Void Delivery. Weapons delivery not successfully completed due to a documented and verified weapons system malfunction, a pass aborted for safety, no spot, or circumstances beyond the control of the pilot.