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SECRETARY OF THE AIR FORCE**

**AIR FORCE MANUAL 11-2F-22A,
Volume 1**



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Flying Operations

F-22A--AIRCREW TRAINING

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This publication implements Air Force Manual (AFMAN) 11-202 Volume 1, *Aircrew Training*. This publication establishes effective and safe operations of the F-22A. This AFMAN applies to all F-22A 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. This manual requires the collection and or maintenance of information protected by the Privacy Act of 1974 authorized by Executive Order 9397, *Numbering System for Federal Accounts Relating to Individual Persons*. The applicable Systems of Records Notice – F011 AF XO A, *Aviation Resource Management Systems (ARMS)* is available at: <http://dpcl.d.defense.gov/Privacy/SORNs>. Ensure all records generated as a result of processes prescribed in this publication adhere to Air Force Instruction (AFI) 33-322, *Records Management and Information Governance Program*, and are disposed in accordance with (IAW) 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. Air Combat Command (ACC) 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 route all direct supplements to Air Force Flight Standards Agency Flight Directives Division (AFFSA/XOF) and ACC Flight Operations and Training Branch (ACC/A3TO) for coordination prior to certification and approval. Field units below MAJCOM/direct reporting unit (DRU)/field operating agency (FOA) level forward copies of their supplements of this publication to their parent MAJCOM/DRU/FOA OPR for post-publication review. Copies of MAJCOM/DRU/FOA-level supplements, after approval and publishing, will be made available on the e-Publishing website at

<https://www.e-publishing.af.mil>. The authorities to waive wing or 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 publication office of primary responsibility (OPR) for non-tiered compliance items. Additional waiver authority to this publication is described in [paragraph 1.2](#).

SUMMARY OF CHANGES

This document has been substantially revised and should be completely reviewed. Major changes include: incorporated interim change 1, changed all references of Inexp/Exp to Wingman (WG) and 4-ship Flight Lead (4 FL). Removed outdated weapons tracking guidance, created table for recurrences and removed suggested hours for various upgrade programs.

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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-22A. **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* (as supplemented), for an explanation of qualifications versus certifications. ACC/A3 is designated the responsible agency for this volume IAW Air Force Policy Directive (AFPD) 11-2, *Aircrew Operations*.

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/Flight Operations Division (A3T) (or equivalent) level, board participation includes active and reserve component units/organizations. MAJCOM/A3s with major weapons systems for which 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.

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.

1.1.3. DRUs will:

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/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 will:

1.1.4.1. Develop/approve/implement programs to ensure training objectives are met and assist subordinate units in management of training programs. In this manual, OG/CC includes the equivalent function in various organizations (Deputy Commander for Operations (DCOM-O) in combat wings, Fighter Group (FG) in Air Force Reserve units, etc.).

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 National Guard Bureau (NGB) Combat Air Forces Division (NGB/A3/100), AFR to Air Force Reserve Command Combat Division (AFRC/A3D)).

1.1.5. Squadrons/units will:

1.1.5.1. Combat-coded units and formal training units (FTUs) will publish a letter of pilot qualifications/certifications monthly (Example: Letter of Xs). 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, etc.) and determine appropriate flight restrictions.

1.1.5.7. Ensure pilots only participate in missions, events, and tasks for which they are trained or being 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 will:

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 trained or being trained, current, and prepared for that purpose.

1.2. Waivers. Forward approved waivers through command channels to the appropriate MAJCOM/A3s and Commanders, Air Force Forces (COMAFFORs) for oversight purposes. The COMAFFOR or 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)** IAW DAFMAN 90-161, commander or directors must send a copy of the approved waiver within 30 days of approval. 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. Consult DAFMAN 90-161 and the applicable MAJCOM delegation memo prior to submitting a WG/CC waiver. Waiver authority for

supplemental guidance will be as specified in the supplement and approved through higher level coordination authority.

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 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. The guidelines in this manual should be balanced with operational procedures and Combatant Commander priorities.

1.3.2. ACC Training Support Squadron may assist operations group commanders (OG/CCs) in development of training programs when/where tasked by ACC/A3. Other MAJCOMs may submit requests for training program support to the ACC/A3. Test-coded units may develop syllabi to upgrade operational test pilots in support of specific test plans. These syllabi will be approved by the test group commander. **(T-2)**

1.3.3. Refer to AFI 10-217, *Management of Air Force Operational Training and Undergraduate Aircrew Training Systems* (as supplemented), for guidance, responsibilities, and processes for managing/updating training systems requirements analysis, system training plans, training task lists, and syllabi.

1.4. Mission Recording.

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

1.4.2. Pilots will record from takeoff to landing to the maximum extent possible in order to maximize training value. **(T-3)**

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 (IPs) and FL-certified 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 WG may make tactical decisions for the flight, but the FL retains overall authority and responsibility for the flight.

1.5.3. Experience. The definitions of Experience and Inexperience have been retired and changed to 4-ship Flight Lead (4 FL) and Wingman (WG) in this manual. Throughout the manual, WG includes 2 FL (read as WG/2 FL). Numerous USAF pubs have yet to change the terms. When encountering "Experienced" replace with 4 FL and "Inexperienced" with WG/2 FL.

1.6. Flight Lead (FL). A 4 FL consistently demonstrates the skills and experience (airmanship, situational awareness, and tactical leadership) required to effectively employ and lead multiple fighter aircraft in training and combat. Designation as a 4 FL requires SQ/CC certification on the

squadron Letter of Xs following completion of the 4-ship FL upgrade program (4 FLUG) (**Chapter 6**).

1.6.1. Entry into 4 FLUG is based on FTU course accomplishment and prior flight experience:

Table 1.1. Criteria for Entry into 4 FLUG.

FTU course graduated from:	F-22A flying sorties	F-22A simulator (sim) sorties	Notes
IQT	250	75	1
TX and previous F-22 pilot			2
And a previous 4 FL	-	-	
And not a previous 4 FL	250	75	1
TX and not a previous F-22 pilot			2, 3
And a previous 4 FL	50	NA	
And a previous fighter WG/2 FL	100	NA	
Notes:			
1. Both sorties and simulators are required.			
2. Includes senior officer course graduates.			
3. From a different fighter mission design series (MDS) (F-16, F-15, F/A-18, etc.)			

1.6.2. For 2 FL upgrade, use the F-22A Training Syllabus, a common collaborative training document written for Combat Air Force (CAF) units to conduct various upgrades (referred in this manual as the CAF Syllabus). SQ/CCs may select pilots for 2 FLUG training based on proficiency and experience, then certify as 2 FL on the Letter of Xs following completion of upgrade.

1.7. Ready Aircrew Program (RAP) 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:** MAJCOMs may set their own training cycles.). RAP training is designed to focus on skills needed to accomplish DOC-task 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/CC and 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 WG

pilots. **Exception:** In the ANG and the AFR at the OG/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-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. Pilots cannot log more than one RAP sortie 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 must stand alone as an effective RAP training sortie.

1.7.6.2. A maximum of three RAP training sorties will be logged per 24-hour period under these rules. **(Exception:** This limit does not apply to combat/contingency operations). Apply mission complexity guidance contained in AFMAN 11-2F-22A Volume 3, *F-22A Operations Procedures*, (e.g., prioritize flying upgrade missions and the most complex/demanding events to the first sortie).

1.7.7. Units converting from another MDS may fly pilots in CMR positions at the BMC rate if CMR sortie rates cannot be supported (e.g., due to lack of trained maintenance personnel or available aircraft). In this case, CMR pilots maintain CMR status while flying the BMC rate. SQ/CCs will determine when pilots become non-combat mission ready (N-CMR) due to lack of resources or training, and ensure CMR designated pilots fly at the CMR sortie rate no later than one month prior to the scheduled operationally ready date. **(T-3)**

1.8. Training Records and Reports.

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

1.8.1.1. AFI 11-202V1, (as supplemented).

1.8.1.2. AFI 11-202V2 (as supplemented).

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 as outlined in the RTM.

1.8.2.3. One and three-month RAP lookback as outlined in the RTM.

1.8.2.4. Training requirements and accomplishment of individual currencies.

1.8.3. Units update Air Resource Tool Enterprise Mission Information System (ARTEMIS) "No Date" with either the date of the last FTU, the United States Air Force Weapons School (USAFWS)-equivalent training accomplished, or the unit mission certification date.

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 squadrons (including those deployed) and FTUs (to the extent applicable) 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.

1.9. Pilot Utilization Policy.

1.9.1. In general, WG API-1s should receive sortie allocation priority over 4 FLs. 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-coded Units. 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 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 WGs 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 IAW 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 deputy, OG/CC or deputy. **(T-3)**

1.10.3. API-8 pilot authorizations and test-coded authorizations are IAW DAFMAN 11-401 and MAJCOM guidance. If units cannot meet attached flyer requirements, they must request relief IAW DAFMAN 11-401, as supplemented. Units requiring flight hour adjustments for attached API-8 and applicable API-6 pilots request program changes IAW 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/A3/100; AFR to AFRC/A3D).

2.1.1. Formal Training. IQT includes B-, TX-, and senior officer course training normally conducted during formal ACC Syllabus, *F-22AB00AT/F22ATX0AT/F22ACI00AT*, *USAF Operations Training*, *F-22 Basic Qualification*, *Transition/Requalification & Instructor Pilot* courses at the FTU squadron. 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 may be conducted IAW the provisions in this chapter. FTU will coordinate with gaining MAJCOM/A3T, or equivalents, to ensure the resources required to perform unaccomplished FTU tasks. **(T-2)** When local training is approved, the gaining MAJCOM assumes responsibility for the burden of providing this training. Local training is developed and conducted using the appropriate formal course syllabi.

2.2. Approval and Waiver for Local Initial Qualification Training (IQT).

2.2.1. Gaining MAJCOM/A3 (ANG to NGB/A3/100; 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 ACC Syllabus. Inform ACC/A3T of approved waivers prior to commencing local IQT.

2.2.2. Gaining MAJCOM/CC (ANG to NGB/A3/100; 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. Inform ACC/A3T of approved waivers prior to commencing local IQT.

2.2.3. Requests to conduct local IQT will include the following:

2.2.3.1. Justification for the local training in lieu of FTU training. **(T-2)**

2.2.3.2. Summary of individual's flying experience to include last centrifuge date. **(T-2)**

2.2.3.3. Date training will begin and expected completion date. **(T-2)**

2.2.3.4. Requested exceptions to formal course ACC Syllabus, with rationale. **(T-2)**

2.3. Prerequisites. Course prerequisites are IAW the appropriate formal course ACC 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 ACC Syllabus or expected completion date for local IQT. Failure to complete within the specified time limit requires OG/CC notification IAW ACC 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 an aircraft instrument (INSTM)/qualification (QUAL) evaluation IAW AFMAN 11-202V2 (as supplemented) and AFMAN 11-2F-22AV2, *F-22A-Aircrew Evaluation Criteria*.

2.5.3. UPs fly under IP supervision until completing the INSTM/QUAL evaluation.

2.5.4. Formal course ACC 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 ACC 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 IAW [paragraph 2.2.2](#).

2.6.2. Senior officers must meet course entry prerequisites outlined in the F-22A ACC Syllabus and complete all requirements unless waived IAW syllabus directives or [paragraph 2.2.1](#).

2.6.3. If a senior officer must be trained, the officer will be in a formal training status. **(T-2)** If the senior officer is a G-Series commander, consult the appropriate Office of the Staff Judge Advocate for G-Series orders implications to ensure command authority and unit duties are executed by the appropriate official until training is completed. Exceptions to this policy must be approved by the gaining MAJCOM/CC (ANG: ACC/CG) submitted through MAJCOM/A3.

Chapter 3

MISSION QUALIFICATION TRAINING (MQT)

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. The SQ/CC will develop and maintain responsibility for the local MQT programs. **(T-3)** Guidance in this chapter 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. Gaining units will review graduate training summary; DAF Form 475, *Education/Training Report*; and other pertinent records prior to developing individual student MQT syllabus. **(T-2)** Units will identify, and plan to complete unaccomplished tasks from FTU. **(T-2)** Applicable portions of MQT may be used to create a requalification program for pilots who have regressed from BMC/CMR to specifically address the deficiencies which caused the regression. For test/training-coded units, see [paragraph 3.3](#).

3.2. Combat-coded Unit Mission Qualification Training (MQT). 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/A3/100; 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 (if not previously accomplished within 24 months). **(T-3)**

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 IAW [Chapter 5](#) and as outlined in the RTM. **(T-2)**

3.2.1.7. Current INSTM/QUAL and mission (MSN) evaluations IAW AFMAN 11-202V2 (as supplemented) and AFMAN 11-2F-22AV2. **(T-2)**

3.2.2. Restrictions.

3.2.2.1. SQ/CCs will not fly MQT pilots in large exercises (RED FLAG, BAMBOO EAGLE, etc.) or weapon system evaluation programs. **(T-3)** If waived, the unit must receive approval from the exercise POC(s). **(T-3)**

3.2.2.2. There is a 90-day grace period (ARC: 180 days) granted for completion of the following training items after the SQ/CC certification to CMR/BMC: AAR, night training, ACBRN flight (see [paragraph 3.2.7](#)), and initial verification (not required for BMC).

SQ/CCs will regress pilots who fail to accomplish these tasks within the grace period to N-CMR/N-BMC. **(T-3)**

3.2.2.3. OG/CCs will ensure units schedule pilots to have proficiency and currency in day events prior to training in similar events at night. **(T-1)**

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 IAW AFMAN 11-202V1, paragraph 1.5. (weather, instrument procedures, host nation procedures, etc.) prior to first flight. Academics may be accomplished during MQT academics or as part of the MQT LAO briefing.

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. SQ/CCs will ensure initial verification is completed within 90 days (ARC: 180 days) after completing MQT. **(T-3)** As part of the verification process, a sim mission may be included at the SQ/CC discretion. FL qualified pilots who accomplished initial verification in a previous assignment may, at SQ/CC discretion, complete either an initial or a continuation verification to meet the requirements of this section.

3.2.4. Sim Training. In addition to the LAO sim (IAW [paragraph 3.2.1.](#)), MQT may include: day/night tactical sims. SQ/CCs will include the following events in sim training:

3.2.4.1. Selected emergency procedures (EPs). **(T-2)**

3.2.4.2. Unusual attitude recovery. **(T-2)**

3.2.4.3. Inadvertent weather entry procedures. **(T-2)**

3.2.4.4. Lost wingman. **(T-2)**

3.2.4.5. Emergency divert. **(T-2)**

3.2.4.6. Local procedures and approaches. **(T-2)**

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

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*, evaluation if required. MQT programs designed to regain CMR/BMC status do not require an AF Form 8 unless dictated by other regulations or SQ/CC.

3.2.5.1. Supervision. SQ/CCs will ensure FTU graduates in MQT require an IP. All other MQT pilots require an IP or FL-certified SQ supervisor. **(T-3)**

3.2.5.2. Breaks-in-training. SQ/CCs will ensure if more than 14 calendar days elapse between sorties, the UP requires an additional review sortie before continuing in the program. **(T-3)** The SQ/CC may substitute a sim mission (with an IP) for a required review sortie.

3.2.6. ACBT Program. The following sorties (in sequence) are used for initial ACBT certification or to regain ACBT certification. Units may expand this program to achieve desired proficiency or capability.

3.2.6.1. Advanced Handling Characteristics (AHC). Demonstrate proficiency with aircraft maneuvering capabilities and limitations, by practicing advanced handling maneuvers (IAW Air Force Tactics, Techniques and Procedures (AFTTP) 3-3.F-22A, *Combat Aircraft Fundamentals—F-22A*).

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). Ground, sim, and flight training is not required pending ACBRN gear procurement.

3.3. Test/Training-coded Unit Mission Qualification Training (MQT).

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 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:

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

3.3.2.2. Unit mission sortie (may be combined with LAO sortie). **(T-2)**

3.4. Flight Surgeon and US Army Ground Liaison Officer Ground Training. Units train/document assigned flight surgeons and ground liaison officers. For flying activities, refer to host unit-equipped procedures for ground/flight training.

Chapter 4

CONTINUATION TRAINING (CT)

4.1. General. This chapter and the current F-22A RTM outline ground and flying training requirements for BAQ, BMC/CMR, and MR pilots in test/training-coded units. OG/CCs will ensure pilots are qualified IAW DAFMAN 11-401 and AFMAN 11-202V1 (as supplemented), and AFMAN 11-2F-22AV2. **(T-2)** 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-coded units, see [paragraph 4.5](#).

4.1.1. Focus ground training/academics on technique and assessment, including a discussion of the limitations imposed on aircraft/pilot performance as a result of an ineffective anti-G straining maneuver (AGSM). Emphasize briefing, debriefing, G-suit/aircrew flight equipment differences, and assessing the proper AGSM during flight debriefs.

4.1.2. 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.

4.2. 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. Accomplish overdue training requirements as specified by the SQ/CC before a pilot is considered recertified to perform the task. A pilot 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.

Table 4.1. F-22A Currencies.

Event	To update fly:	*WG/2 FL	*4 FL	Affects CMR/BMC	To regain currency:	Notes
Demanding Mission	Any flight	21	30	No	Non-demanding day flight	1
Night Sortie	Any night flight or sim	120	180	No	Night flight/profile or sim	2, 3

Landing	Day or night landing	30	45	No	Day landing	2, 4
Precision Approach	Flight or sim	See note	See note	No	Flight or sim	5
Instructor	Flight or sim	N/A	90	No	Flight or sim	6
AAR	Flight	180	180	Yes	Flight	2
ACBT	Flight	60	90	Yes	Flight	2, 7, 8
Functional Check Flight (FCF)	FCF flight or sim	N/A	180	No	FCF flight or sim	9
Weapons Delivery	Event in flight (actual or simulated)	60	90	Yes	Event in flight (actual or simulated)	2
Low Altitude Air-to-Air (LOW A/A)	LOW A/A flight	60	90	No	LOW A/A flight	2, 8, 10

Notes:

* denotes number of days between events after which the pilot goes non-current.

1. Recurrency for pilots is one of the dedicated non-demanding sorties as defined 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. Loss of currency restricts pilots to single ship instrument sorties (not wearing NVDs) only until recurrency accomplished IAW **Table 4.2**.

4. Loss of landing currency and recurrency/requalification IAW **Table 4.2**.

5. Refer to AFMAN 11-202 Volume 3, *Flight Operations*, (as supplemented) for Pilot Weather Category currency and minimums. Any reference to Experienced or Inexperienced in other AFMAN/AFIs will be the equivalent to 4 FL or WG/2 FL. Pilots require currency in order to fly an approach through actual weather down to pilot weather category minimums. **(T-3)**

6. IPs instruct airborne events in which they are current and qualified. With SQ/CC approval, IPs who become N-CMR/N-BMC may still instruct in events they are current and qualified. Loss of Instructor currency and recurrency/requalification IAW **Table 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. **(T-3)**

7. Recurrency IAW **Table 4.2**.

8. For formal course IPs (weapons instructor course and FTU), CT and exercise participation require above currencies; formal syllabus training missions require 180 days currency. **(T-3)**

9. Supervision for flight or sim is a current FCF pilot.

10. Currency is required to perform the event at or below 1,000 feet AGL in the pilot's low altitude training (LOWAT) category (Category I). See **Chapter 6** for low altitude step down training (LASDT) and LOWAT category. Loss of currency requires pilot regression to the next higher category (above 1,000 feet AGL). **(T-3)** Recurrency requires satisfactory performance in the following events: vertical awareness training, hard turns, tactical formation, and offensive/defensive maneuvering.

4.3.3. Noncurrent Versus Unqualified.

4.3.3.1. Noncurrent. A pilot becomes noncurrent in a particular currency if he or she exceeds the specified timeframe listed in **Table 4.1** (e.g., a WG becomes noncurrent for landing after 30 days from last landing).

4.3.3.2. Unqualified. A pilot becomes unqualified in a particular currency if he or she exceeds the specified timeframe listed in **Table 4.2**.

4.3.4. Currencies Requiring Recurrency/Requalification. **Table 4.2** addresses Landing, Instructor, ACBT, and night sortie (timing starts from date of last event accomplished).

Table 4.2. Currencies Requiring Recertification/Requalification.

Triggering Event	Days since: WG/2 FL*	Days since: 4 FL*	To regain:	Notes
Not landing for:	31-90	46-90	Pilot is noncurrent, regain landing currency IAW Table 4.1 .	1
Not landing for:	91-135	91-135	Pilot is noncurrent, regain landing currency IAW Table 4.1 ; and complete IP supervised EP sim	1
Not landing for:	136 to 210	136 to 225	Pilot is noncurrent, regain landing currency IAW Table 4.1 ; and complete IP-supervised EP sim, open, and closed book instrument examinations	1
Not landing for:	211-547 (18 months)	226-547	Pilot is unqualified, complete requalification program IAW AFMAN 11-202V1. OG/FG/CC is the approval authority to conduct	1

			this training locally.	
Not landing for:	547+	547+	Pilot is unqualified, complete applicable formal TX course. Reference paragraph 2.2 for local IQT waivers.	1
Not instructing for:	NA	91-180	IP is noncurrent. Regain instructor currency with an IP.	1
Not instructing for:	NA	181-270	IP is noncurrent. Regain IP currency IAW SQ/CC-directed program that may result in a flight evaluation.	1
Not instructing for:	NA	271	IP is unqualified. Accomplish an AF Form 8 requalification evaluation IAW AFMAN 11-202V2 (as supplemented) and AFMAN 11-2F-22AV2.	1
No ACBT for:	61-180	91-180	Dedicated sortie(s) including AHC and BFM.	1
No ACBT for:	181+	181+	SQ/CC-tailored ACBT program IAW Chapter 3 and documented in gradebook.	1
No night sortie for:	120+	180+	NVD academic review prior to the recurrency sortie (see paragraph 4.4.4.6)	1, 2, 3

Notes:

* denotes number of days between events after which the pilot goes noncurrent.

1. See applicable currencies and notes in **Table 4.1**.

2. Pilots losing night sortie currency accomplish the following events in Note 3 below (wearing night vision devices (NVD)) prior to unrestricted night operations:

3. F-22A sim capabilities have matured and are effective for night training. Pilots may regain Night Sortie currency in the simulator. All tactical events will still be accomplished, e.g., 2-ship basic formation work, light drills, and visual maneuvering.

a. 2-ship basic formation work/light drills and unit-specific mission elements.

b. Visual maneuvering.

c. Minimum of one of the following night profiles/sorties above 5,000 feet above ground level

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

- 1) Tactical intercepts, or
- 2) 2-ship Red Air sortie (OG/CC waiverable up to 4-ship).

4.3.5. ACC Air Operations Squadron 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 Air Operations Squadron (ACC/AOS). **(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 IAW [Chapter 3](#). BAQ is not a permanent status except for general officers above the wing level (reference AFMAN 11-202V1 (as supplemented) for restrictions), and any other pilots specifically authorized by MAJCOM/A3 (ANG to NGB/A3/100; AFR to AFRC/A3D). SQ/CCs will ground pilots who are in BAQ status for more than six months unless the pilots are enrolled in a program to achieve CMR/BMC. **(T-2)** BAQ requirements:

4.4.1.1. INSTM/QUAL evaluation IAW AFMAN 11-202V2 (as supplemented) and AFMAN 11-2F-22AV2.

4.4.1.2. Currencies (as applicable) IAW [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 (WG) or 30 days (4 FL), 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 IAW [paragraph 1.7](#).

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 IAW with 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 IAW AFMAN 11-202V2 (as supplemented) and AFMAN 11-2F-22AV2.

4.4.2.2.2. RAP sorties, sortie rate (lookback), mission types, and events (including weapons certifications), and applicable mission/event ground training requirements IAW the procedures set forth in this manual and as outlined in the RTM. API-8 (e.g., Numbered Air Force/MAJCOM rated staff) 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) IAW [Table 4.1](#).

4.4.2.2.4. LOWAT Category I certification.

4.4.3. CMR. CMR establishes the minimum training required for pilots 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 IAW [paragraph 1.7](#).

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 IAW AFMAN 11-202V2 (as supplemented) and AFMAN 11-2F-22AV2.

4.4.3.2.2. RAP sorties, sortie rate (lookback), mission types, and events, and ground training IAW the procedures set forth in this manual and as outlined in the RTM.

4.4.3.2.3. Currencies (as applicable) IAW [paragraph 4.3](#).

4.4.3.2.4. LOWAT Category I certification.

4.4.3.2.5. Verification IAW [Chapter 3](#).

4.4.4. Ground Training. Accomplish ground training IAW the parent directives and as outlined in the the RTM tables. Units may credit ground training accomplished during IQT/MQT towards CT requirements for the training cycle in which it was accomplished. Ensure ground training is tracked in ARTEMIS 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. 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 informed/refreshed of new/current F-22A 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 IAW AFMAN 14-402, *Intelligence Mission Roles, Responsibilities, and Program Management*, 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 and Threat & Error Management (CRM/TEM). Pilots participate in CT CRM/TEM training at the frequency referenced in the RTM (AFMAN 11-290, *Cockpit/Crew Resource Management and Threat & Error Management Program*), as supplemented. Briefs and debriefs include the core curriculum of CRM/TEM training IAW AFMAN 11-290 and the appropriate MAJCOM supplements. The instructor CRM/TEM course may be used to satisfy the periodic requirement.

4.4.4.6. Night Vision Device (NVD) Refresher Academics. Conduct refresher training IAW AFMAN 11-202V1 (as supplemented) and as outlined in the RTM.

4.4.5. Sim Training. SQ/CCs determine the required supervision for CT sim missions based on sim capabilities and mission training objectives. Units develop scenarios that cover RAP-event sim missions based on unit tasking and EP/general systems knowledge requirements. Emphasis should be placed on skill-set training not attainable during live fly and 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, inadvertent weather entry, controlled flight departure recognition and recovery procedures, controlled and uncontrolled ejection parameters, aircraft subsystem failure checklist procedures, relevant EPs, minimum fuel and emergency divert profiles, and precision instrument procedures. Incorporate environmental/mission/system scenarios to include NVD use that can lead to Type I spatial disorientation. **(T-3)** Intent is to highlight the role that instrument crosscheck discipline plays in prevention of unrecognized unusual attitudes and recognition/recovery from recognized unusual attitudes/spatial disorientation. Include EPs during which pilots make ejection decisions and, if a decision to eject is determined, the pilot will physically pull the sim ejection handle. **(T-2)**

4.4.5.3. Situational Emergency Procedure Training (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. **(T-2)**

4.4.5.3.1.2. Include two EPs per phase of flight and/or major aircraft subsystem (e.g., engines, FLCS, IVSC, APU, electrical, hydraulic, oxygen, and fuel) during

each session. The EPs will also span all phases of flight to include the role of supporting a fighter that has an emergency (checklist backup, air traffic control coordination, and flight path clearance). For at least one emergency, discuss considerations for handling that emergency at night. **(T-2)**

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. 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. One-month lookback starts the first full month of CMR/BMC status. Post-MQT sorties flown 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:

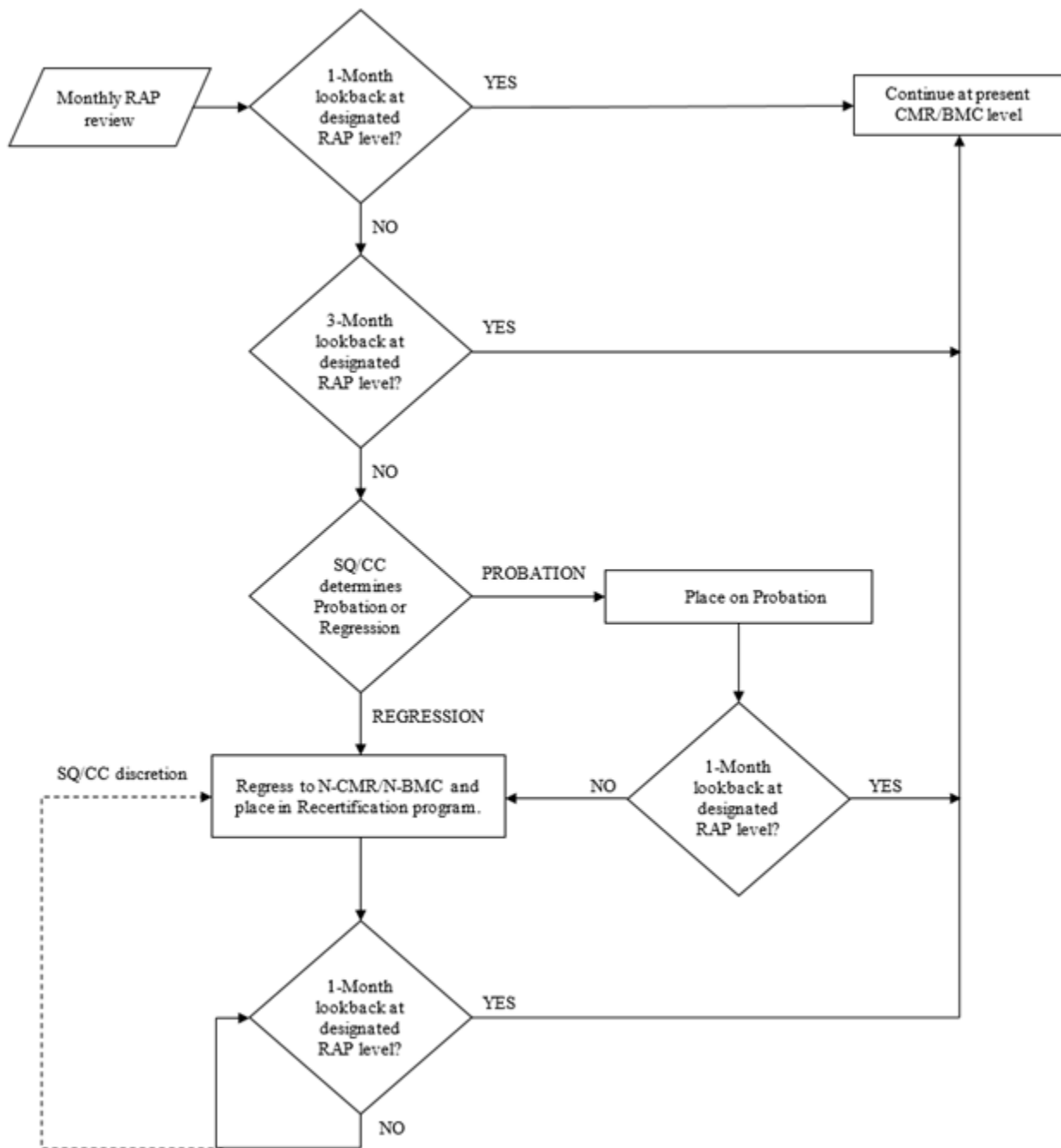
4.4.7.2.1. Less than 3 Months. The pilot completes a SQ/CC-approved recertification program. Additionally, the pilot regains all expired currencies affecting CMR/BMC, and meets lookback requirements.

4.4.7.2.2. 3 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 IAW [Chapter 3](#).

4.4.7.3. Flight Evaluation Failure. Pilots who fail a flight evaluation are handled IAW AFMAN 11-202V2 (as supplemented) and AFMAN 11-2F-22AV2 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 the training cycle may require additional training depending on the type and magnitude of the deficiency. Refer to [paragraph 4.4.9](#) for probation 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 IAW [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 when duty not including flight, emergency/consecutive overseas tour leave, non-flying TDYs/exercises, or non-flying combat/contingency deployments preclude training for a portion of the training cycle. Loss of training due to ordinary annual leave will not result in proration. 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, and 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 prorate only 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 4.3](#) 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 IAW [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, AAR, and live A/A 20mm gun (Banner) requirements accomplished during MQT may be credited towards 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 one 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 (IQ, TX, or senior officer course) IAW [paragraph 4.4.9.4](#), and the pilot is 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 4.3. 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
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346 - 365	12

4.5. Test and Training-coded Units.

4.5.1. Pilots assigned or attached to test/training-coded units will fly at the BMC rate (see RTM table) at a minimum and should meet monthly flying-lookback. **(T-3)** Sorties should be

IAW the unit's mission as determined by the SQ/CC, but also fulfill RTM AHC/instruments requirements, which is applied towards lookback. Any RAP mission listed in the RTM also counts towards lookback. 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. RAP requirements do not apply, with the following exception: each pilot must accomplish one graded or evaluated (IAW AFMAN 11-202V2 (as supplemented) and AFMAN 11-2F-22AV2) EP sim per year. **(T-2)** Part task training devices and cockpit mock-ups are not acceptable. All pilots accomplish SEPTs IAW [paragraph 4.4.5.3](#).

4.5.4. Flight Training. SQ/CC-directed.

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

4.5.6. MSN and INSTM/QUAL (initial and requalification) evaluations are conducted as applicable, IAW AFMAN 11-202V2 (as supplemented) and AFMAN 11-2F-22AV2.

4.5.7. 83d Fighter Weapons 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 4 FL and instructor duties during tactical missions.

4.6. Special Categories.

4.6.1. Flight Surgeon. Flight surgeon flight rates and requirements are IAW AFMAN 11-202V1 and AFMAN 11-202V2 (both as supplemented).

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. See AFMAN 11-202V1 and AFMAN 11-202V2 (both as supplemented) for guidance on authorization to obtain multiple qualification. OG/CCs submit multiple qualification requests through command channels to MAJCOM/A3 (ANG to NGB/A3/10O; AFR to AFRC/A3D). **(T-2)** All requests must contain full justification. 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 ARTEMIS. 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/A3/100; AFR to AFRC/A3D).

4.7.1.1. The F-22A Blocks 20/30/35 are considered the same MDS.

4.7.1.2. While all F-22A variants are considered the same MDS, software and capability differences between Block 30/35 and Block 20 require local differences academics. A sim may be required as directed by the OG/CC prior to flying a different block.

4.7.2. 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/deputy commander or OG/CC should qualify in another of the wing's aircraft (not the same aircraft selected by the WG/CC).

4.7.3. 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)**

4.7.4. 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, HUD-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.

4.8.1. Units that 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. SQ/CCs will ensure 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. **(T-3)** 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 towards monthly RAP lookback as outlined in the RTM.

4.8.4. Heads-Up Display (HUD)-Out Approach. The desired means for accomplishing a HUD-Out approach is in the sim. If planning to execute a HUD-Out approach during a flight, the risks associated (including tail-strike during aerobrake) must be pre-briefed with the formation.

4.9. Gravitational Load Factor (G)-Awareness Continuation Training (CT). Units will develop a CT program that provides feedback to pilots and ingrains a proper 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. SQ/CCs will develop a program to ensure at least one tactical mission recording for each pilot is reviewed and documented each training cycle by an aeromedical specialist (i.e., flight surgeon), aerospace operational physiologist, and/or pilot-physician for AGSM and human factors required IAW AFMAN 11-403, *Aerospace Physiological Training Program*, and Air Force Pamphlet (AFPAM) 11-419, *G Awareness for Aircrew*. **(T-3)** As a last resort, SQ/CC or SQ/DO may accomplish the review.

4.9.1.2. Focus ground training/academics on technique and assessment, including a discussion of the limitations imposed on aircraft/pilot performance as a result of an ineffective AGSM. Emphasize briefing, debriefing, G-suit/aircrew flight equipment differences, and assessing the proper AGSM during flight debriefs. 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. 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 sorties.

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. The SQ/CC determines if commander-directed acceleration training is required IAW AFMAN 11-404, *Fighter Aircrew Acceleration Training Program* and refers the pilot to the aerospace operational physiologist for training. **(T-3)**

4.10. Contested, Degraded and Operationally Limited Operations (CDO). CDO scenario development will be included in daily training (aircraft, academics and sim), and also be incorporated into MSN evaluations and EP evaluations. 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 (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.).

Chapter 5

WEAPONS DELIVERY/EMPLOYMENT CERTIFICATION

5.1. General. This chapter outlines guidance for attaining initial weapons certification, and maintaining CT proficiency in the weapons listed in the RTM. Refer to [Attachment 2](#) of this manual for further guidance on weapons events.

5.2. Mission Evaluation Versus Employment Certification. A successful AF Form 8 mission evaluation qualifies a pilot to employ the pilot's assigned weapon system in accomplishing the unit's operational or DOC statement mission(s). A SQ/CC signature on the AF Form 8 and/or squadron letter of Xs certifies that pilot to employ weapons without instructor supervision.

5.3. Initial Weapon Certification. Initial weapon certification can be achieved in IQT and/or MQT. Initial weapons certification carries over for consecutive tours in the MDS. In order to be designated CMR, accomplish initial certification in RTM-directed "proficient" munitions. Initial certification in a weapon is satisfied when a pilot has achieved a minimum of 3 valid employments out of 6 consecutive attempts (see [Attachment 2](#)). To count as valid, the attempt must be assessable at weapons release IAW AFTTP 3-1.*Shot Kill*.

5.4. Continuation Training (CT) Proficiency.

5.4.1. 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. Familiarization is maintained by achieving a 50 percent valid rate IAW AFTTP 3-1.*Shot Kill*.

5.4.2. Individual units will document weapons employment effectiveness per GPI AFMAN 11-2F-22A Volume 2, *Aircrew Evaluation Criteria*. Units should have a way to identify pilots having difficulty successfully employing weapons to provide extra instruction. 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. Procedures, training rules, and restrictions are contained in the appropriate range instruction and AFMAN 11-214, *Air Operations Rules and Procedures*.

5.6. Live/Full Scale Ordnance. Employment of either a live or inert missile (telemetry vs. warhead) qualifies as a full scale weapons delivery event for RTM tracking.

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. The enterprise-wide Combat Air Force (CAF) F-22A, *Training Syllabus*, can be used as a starting point to conduct flight training IAW a program approved by the SQ/CC.

6.1.1. Prior to any certification, the SQ/CC meets with 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 Xs, 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. 4-ship Flight Lead Upgrade (4 FLUG) - Certification.

6.2.1. Initial FLUG entry is as a 2-ship/element FL until experience and proficiency warrant further progression. SQ/CCs select pilots for FLUG entry based on proficiency and experience. See [paragraph 1.6](#).

6.2.2. 4 FLUG Ground Training. Units develop local training in the following areas:

6.2.2.1. 4 FL Responsibilities. Wingman relationship, unit training objectives, and squadron responsibilities. Review of appropriate Joint/MAJCOM instructions, AFIs/AFMANs, and local guidance.

6.2.2.2. Mission Preparation. Wingman requirements and responsibilities, currencies, proficiencies, capabilities, delegation of mission planning duties, developing appropriate mission objectives, and briefing preparation.

6.2.2.3. 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.

6.2.2.4. Conduct of Missions. Leadership and control of flight, flight discipline, and training rules.

6.2.2.5. Practice Briefing(s). Administrative items, mission tasks, and contingencies.

6.2.2.6. AGSM Techniques. Briefing, debriefing, and mission recording assessment.

6.2.2.7. In-flight Emergencies and Emergency Diverts. Divert decisions as an element, support of wingman during EPs, 4 FL responsibility and authority, minimum fuel planning, and air traffic control assistance.

6.2.3. 4 FLUG Sim Training. Units should incorporate sim profiles into 4 FLUG to the maximum extent practical, depending on sim capabilities and availability.

6.2.4. 4 FLUG Flight Training.

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

6.2.4.1.1. SQ/CCs ensure all 4 FLUG training will be under the direct supervision of an IP. **(T-3)**

6.2.4.1.2. SQ/CCs ensure a dedicated 4 FL certification mission will be flown with the SQ/CC or a designated representative. **(T-3)**

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

6.2.4.2. 4 FLUG Missions and Events. The following missions and events are recommended to be baseline 4 FLUG. Missions may be flown in any order provided day training precedes respective night training. 4 FLUG events can be accomplished anywhere in 4 FLUG.

6.2.4.2.1. 4 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.

6.2.4.2.2. 4 FLUG Missions. ACM, primary DOC tasked missions, and certification. Secondary DOC tasked missions may be added at OG/CC discretion. See [paragraph 6.6](#) for NVD certification.

6.3. Instructor Pilot Upgrade (IPUG) – Qualification and Certification. Upgrading instructor pilots (UIPs) at an FTU complete the formal ACC Syllabus program.

6.3.1. SQ/CCs select pilots certified as a 4 FL for IPUG entry based on proficiency and experience.

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.

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.

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.

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.

6.3.2.5. UP Grading. Performance objectives, training standards, grading systems, determining unsatisfactory performance, and grade sheet completion.

6.3.2.6. Practice Briefing(s). Administrative items and instruction of mission events.

6.3.2.7. AGSM Techniques. Briefing, debriefing, and mission recording assessment.

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.

6.3.2.9. CRM/TEM. Techniques for increasing airmanship, methods to improve mission effectiveness, task/risk management and prioritization, feedback and crosscheck loops.

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

6.3.4. IPUG Flight Training. Conduct flight training IAW 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. SQ/CCs ensure all IPUG training will be under the direct supervision of an IP. (T-3)

6.3.4.1.2. See AFMAN 11-202V2 (as supplemented) for guidance on instructor evaluations.

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. Missions consist of BFM, AHC, LOWAT, ACM, primary DOC-task missions, and certification. Secondary DOC-task missions may be added at OG/CC discretion. IPUG events can be accomplished anywhere in IPUG. See [paragraph 6.6](#) for NVD certification.

6.4. Mission Commander (MC) Upgrade – Certification.

6.4.1. MC Prerequisites. SQ/CCs select pilots certified as a 4 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 deputy MC/package commander.

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

6.4.3.1. Review AFTTP 3-series volumes for MC considerations.

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 air-to-ground force integration, integrated air defense system penetration/avoidance, on-range controlling agencies coordination, and command and control coordination.

6.4.4. 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 Step Down Training (LASDT) – Certification.

6.5.1. LASDT completion IAW [paragraph 6.5.4](#) certifies pilots to conduct LOWAT 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.

6.5.2. SQ/CC will ensure all LASDT sorties are supervised by an instructor who is certified and current in Low A/A. (T-3)

Table 6.1. Low Altitude Training (LOWAT) Categories.

Category	Altitude Block	Minimum Requirements To Certify
I	1,000-500	LASDT-1, -2, -3

6.5.3. LASDT Ground Training. Ground training supports the mission and concept of operations of the individual squadron. Incorporate appropriate portions of AFTTP 3-1.F-22A, *Tactical Employment* and AFTTP 3-3.F-22A. Complete all ground academics prior to the flight brief and include discussion of the following:

6.5.3.1. 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, HUD use, overbanking during turns, and crosscheck of aircraft attitude relative to horizon.

6.5.3.2. 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.

6.5.3.3. Task Management. Low altitude tasks, task management and prioritization, factors influencing individual proficiency, route familiarity and complacency, and airmanship.

6.5.3.4. Low Altitude Tactical Navigation/Formation. Dead reckoning, GPS/inertial navigation system use/techniques, tactical formations, hazards at low altitudes, task prioritization, and visual lookout/mutual support.

6.5.3.5. Defensive Reactions. Visual lookout and mutual support, threat weapons systems envelopes, threat reactions, and flight member deconfliction.

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

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

6.5.4. LASDT Flight Training - LOWAT Category I. 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, tactical formation, intercept, offensive maneuvering, defensive reactions, and navigation. LASDT-1 is a dedicated mission.

6.5.4.1. LASDT-1 (Single ship w/chase). Mission objectives: Demonstrate proficiency in single-ship maneuvering between 5,000 and 1,000 feet AGL. Introduce Category I operations based on AFTTP 3-3.F-22A. 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, practice "knock-it-offs," defensive reactions, and low altitude tactical intercepts.

6.5.4.2. LASDT-2 (2-ship). Mission objectives: Demonstrate proficiency in single-ship LOWAT Category I operations and introduce 2-ship low altitude operations down to 500 feet AGL. Mission tasks: Same as LASDT-1 only accomplished down to 500 feet AGL as UP proficiency increases.

6.5.4.3. LASDT-3 (2-ship) – LOWAT Category 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.

6.6. Night Vision Device (NVD) – Certification.

6.6.1. NVD. Upon successful completion of IQT IAW formal ACC Syllabi (e.g., B-course), pilots should be NVD-certified by completion of that training at FTU. For pilots reporting to a unit who did not complete NVD training in a formal course (e.g., TX), tailor the FTU NVD syllabus based upon individual's previous experience, qualifications, and documented performance.

6.6.2. FL. Certified NVD pilots who upgrade to FL need one supervised (IP) flight as a FL wearing NVDs before performing unsupervised NVD FL duties. This flight may be conducted at anytime during or after FLUG syllabus.

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

6.7. Functional Check Flight (FCF) – Certification.

6.7.1. Prerequisites. OG/FG/CCs select pilots to enter the FCF training program based on experience and proficiency.

6.7.2. Supervision. Unit-designated chief FCF pilot, or his or her representative, trains new FCF pilots and administers FCF certification flights according to local unit training programs. Minimum supervision for flight or sim is a current and certified FCF pilot.

6.7.3. FCF Ground Training. Ground training includes a review of applicable technical orders and publications, including, at a minimum, Department of the Air Force Instruction (DAFI) 21-101, *Aircraft and Equipment Maintenance Management*; technical order (TO) 1-1-300; *Technical Manual, Acceptance/Functional Check Flight and Maintenance Operational Checks*; F-22A-FCF-CL-001, *Functional Check Flight Procedures, USAF Series F-22A Aircraft*; and local FCF procedures. A full-profile FCF should be flown in the sim.

6.7.4. FCF Flight Training. Upon completion of the training program, the OG/FG/CC or designated representative certifies the pilot via a memorandum, placed in the pilot's training record.

6.7.5. CT. Establish a CT program for review of FCF techniques and procedures. Refer to [Table 4.1](#) for FCF currency requirements.

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

6.8.1. ACA Ground Training. The intent of ground training is to become familiar with combatant commander-specific missions/organization, authentication procedures, applicable plans, alert procedures, camera operations and applicable rules of engagement. Refer to applicable sections of 1st Air Force (1 AF) Operation NOBLE EAGLE information, AFMAN 11-214, and AFTTP 3-1.

6.8.2. ACA sim Training. The intent of sim training is to practice procedures difficult to simulate during live flight. One mission dedicated to an ACA scenario: scramble launch, 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 practice intercepting an airborne object at any altitude. For typical low altitude general aviation intercepts, emphasize safety (minimum speeds and ground collision avoidance). Creation of a realistic environment to allow full use of F-22A electronic/visual identification capabilities is essential to the conduct of low/slow-speed operations. SQ/CCs determine ground and flight training necessary prior to participating in exercises and contingency operations but should include one dedicated flight.

6.9. Banner – Certification. Banner (airborne towed gunnery target) certification should be accomplished in MQT, FLUG, and IPUG.

6.9.1. Banner Ground Training. Unit-produced ground training should incorporate the following topics: pattern procedures, firing procedures/techniques, training rules and foul criteria, degraded system considerations, gun malfunction procedures, and hot/hung gun recovery.

6.9.2. Banner Flight Training. Pilots need one IP-supervised banner flight for certification. Pilots who upgrade to FL/IP require an additional IP-supervised banner flight before performing unsupervised FL/IP duties. This training can be combined and may be conducted at anytime during or after FLUG/IPUG syllabus.

JOHN M. KLEIN, Jr., Maj Gen, USAF
Acting Deputy Chief of Staff, Operations

Attachment 1**GLOSSARY OF REFERENCES AND SUPPORTING INFORMATION*****References***

ACC Syllabus, *F-22AB00AT/F22ATX0AT/F22ACI00AT, USAF Operations Training, F-22 Basic Qualification, Transition/Requalification & Instructor Pilot*, May 2022

DAFI 21-101, *Aircraft and Equipment Maintenance Management*, 20 December 2023

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AFMAN 11-202V1, *Aircrew Training*, 27 September 2019

AFMAN 11-202V2, *Aircrew Standardization and Evaluation Program*, 30 August 2021

AFMAN 11-202V3, *Flight Operations*, 10 January, 2022

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AFMAN 11-404, *Fighter Aircrew Acceleration Training Program*, 27 November 2019

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AFPD 11-2, *Aircrew Operations*, 31 January 2019

AFTTP 3-1.F-22A, *Tactical Employment – F-22*, 22 September 2023

AFTTP 3-1.*Shot Kill*, 18 August 2023

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AFTTP 3-3.F-22A, *Combat Aircraft Fundamentals: F-22A*, 22 September 2023

F-22A-FCF-CL-001, *Functional Check Flight Procedures, USAF Series F-22A Aircraft*, updated cyclically

CAF F-22A, *Training Syllabus*, undated 2024

Adopted Forms

AF Form 8, *Certificate of Aircrew Qualification*

DAF 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

AAR—Air-to-Air Refueling

ACA—Aerospace Control Alert

ACBRN—Aircrew Chemical Biological, Radiological, Nuclear

ACBT—Air Combat Training

ACC—Air Combat Command

ACM—Air Combat Maneuvering

ACT—Air Combat Tactics

AF—Air Force

AFI—Air Force Instruction

AFMAN—Air Force Manual

AFPAM—Air Force Pamphlet

AFPD—Air Force Policy Directive

AFR—Air Force Reserve

AFRC—Air Force Reserve Command

AFTTP—Air Force Tactics, Techniques and Procedures

AGL—Above Ground Level

AGSM—Anti-G Straining Maneuver

AHC—Advanced Handling Characteristics

AIM—Air Intercept Missile

ANG—Air National Guard

API—Aircrew Position Indicator

ARC—Air Reserve Component

ARTEMIS—Air Resource Tool Enterprise Mission Information System

B—Basic—BAQ—Basic Aircraft Qualification

BFM—Basic Fighter Maneuvers/Maneuvering

BMC—Basic Mission Capable

CAF—Combat Air Force

CC—Commander

CDO—Contested, Degraded and Operationally Limited Operations

CMR—Combat Mission Ready

COMAFFOR—Commander, Air Force Forces

CRM/TEM—Cockpit/Crew Resource Management and Threat & Error Management

CT—Continuation Training

D—Dissimilar—DAF—Department of the Air Force

DAFI—Department of the Air Force Instruction

DAFMAN—Department of the Air Force Manual

DCA—Defensive Counter Air

DCOM-O—Deputy Commander for Operations

DO—Director of Operations, Operations Officer

DOC—Designed Operational Capability

DRU—Direct Reporting Unit

e.g.—*exempli gratia* (for example)

EOC—End of Cycle

EP—Emergency Procedure

FCF—Functional Check Flight

FG—Fighter Group

FL—Flight Lead

FLUG—Flight Lead Upgrade

FOA—Field Operating Agency

FTU—Formal Training Unit

G—Gravitational—load factor

GPS—Global Positioning System

IAW—In Accordance With

i.e.—*id est* (that is)

INSTM—Instrument

IP—Instructor Pilot

IPUG—Instructor Pilot Upgrade
IQT—Initial Qualification Training
LAO—Local Area Orientation
LASDT—Low Altitude Step Down Training
LOW A/A—Low Altitude Air-to-Air
LOWAT—Low Altitude Training
MAJCOM—Major Command
MC—Mission Commander
MDS—Mission Design Series
MQT—Mission Qualification Training
MR—Mission Ready
MSA—Minimum Safe Altitude
MSN—Mission
N—Non—N/A—Not Applicable
NGB—National Guard Bureau
NVD—Night Vision Device
OCA-ESC—Offensive Counter Air–Escort
OG—Operations Group
OPR—Office of Primary Responsibility
QUAL—Qualification
RAP—Ready Aircrew Program
RTM—RAP Tasking Memorandum
SEPT—Situational Emergency Procedure Training
sim—Simulator
SQ/CC—Squadron Commander
T—Tier—TDY—Temporary Duty
TO—Technical Order
TX—Transition
UIP—Upgrading Instructor Pilot
UP—Upgrading Pilot
USAF—United States Air Force
USAFWS—United States Air Force Weapons School

V—Volume—WG—Wing

WG—Wingman

Office Symbols

ACC/A3—ACC Director of Operations

ACC/A3T—ACC Flight Operations Division

ACC/A3TO—ACC Flight Operations and Training Branch

ACC/AOS—ACC Air Operations Squadron

AFFSA/XOF—Air Force Flight Standards Agency Flight Directives Division

AFRC/A3D—AFRC Combat Division

NGB/A3/100—NGB Combat Air Forces Division

Terms

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

Air Combat Training (ACBT)—A general training term that encompasses dissimilar (D)BFM, (D)ACM, and (D)ACT (AFMAN 11-214).

Air Combat Tactics (ACT)—Training in the application of BFM, ACM, and tactical intercept skills to achieve a tactical air-to-air objective (AFMAN 11-214).

Airspace Control Alert (ACA)—Defensive mission focused on intercepting airborne objects, with emphasis on target identification, shadowing procedures, and weapons rules of engagement.

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 MQT, 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)—A pilot who has satisfactorily completed MQT and maintains qualification and proficiency in the unit's combat mission (AFMAN 11-202V1).

Continuation Training (CT)—Training to maintain proficiency and capability 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.

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.

Fighter Integration—The integration of different fighter platforms using a holistic approach designed to achieve a greater effect than would otherwise be possible independently. AFTTP 3-2.89, *Multi-Service Tactics, Techniques, and Procedures for Fighter Integration*. Assume a minimum of two fighter formations and any combination of a four-ship of F-15s, F-16s, F/A-18s, or F-35s; or a two-ship of F-22s.

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 and has an Air Force Specialty Code of 11F2J. 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. Has an Air Force Specialty Code of 11F3J.

Hot Pit—Term for an engine running aircraft refueling and/or rearming procedure where the aircraft lands, taxis to a designated location, refuels/rearms, 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 Xs—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 his or her 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 FL designated to lead multiple flights of the same or different MDS aircraft, each under the direction of its own flight leader performing the same or different roles (see AFMAN 11-214).

Mission Qualification Training (MQT)—Training required to achieve the required level of competence in a unit's primary-task 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)—A pilot of a Test or Training squadron, who has satisfactorily completed that unit's mission training. (AFMAN 11-202V1).

Proficient—Aircrew have a thorough knowledge of mission area but occasionally may make an error of 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-22AV2.

Specialized Training—Specialized training provides 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.

Squadron Supervisor—May include all or some of the following depending on SQ/CC certification: SQ/CC, SQ/DO, assistant DOs, and flight CCs. (ARC: as designated by the OG/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 that a formal board is normally convened to assess pilot knowledge of tactical employment.

Wingman—A pilot that has completed MQT (includes 2 FL) but has not completed 4 FLUG and achieved 4-ship flight lead certification. Has an Air Force Specialty Code of 11F2J.

Attachment 2

GLOSSARY OF MISSION AND EVENT DEFINITIONS (USED IN RTM)

Air Combat Maneuvers (ACM) Mission. 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 (AFMAN 11-214). ACM maneuvers cover training (2vX or 1vX) designed to prioritize flow priorities and signature management to achieve proficiency in element and single-ship 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.

Advanced Handling Characteristics (AHC) Mission. 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 angle of attack maneuvering, energy management, minimum-time turns, maximum/optimum acceleration and deceleration techniques, and confidence maneuvers (AFTTP 3-3.F-22A).

Air-to-Air Refueling (AAR) Event. An 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.

Alert Scramble Event. From an alert posture, launch on a scramble order in any tasked role. Simulated event may terminate after initial taxi. Only one event may be logged per sortie.

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

Basic Intercept. Single or two-ship intercept performed with the express purpose of practicing fundamental radar acquisition and lock-on techniques, controlling intercept geometry against LIMITED maneuvering targets, recognizing weapons employment zones and taking valid shots, practicing proper switchology and radio commentary. Tasks are performed independent of actual or briefed threat capabilities and weapons, and environmental considerations. These intercepts will not update ACBT currency.

Composite Force. 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 (AFMAN 11-214). Reference RTM for specific flight and sim event requirements.

Contingency Sortie. A sortie tasked and flown while deployed for a contingency operation. Training is not normally conducted during contingency operations; however, SQ/CCs will determine when pilots can log training on contingency sorties.

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

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.

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 may be generated by selecting a non-GPS navigational aid or turning GPS OFF.

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: ACM, ACT, and LOWAT below 1,000 feet AGL. SQ/CCs may add missions/events to the demanding mission list, depending on unit tasking and pilot capabilities. See Non-Demanding Mission.

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

Electromagnetic Protection A/A Event. The pilot detects an airborne threat via electromagnetic means and reacts with appropriate maneuvers, internal electromagnetic countermeasures switchology, and/or expendables. Airborne threat training can be accomplished only with a dedicated adversary attacking from beyond visual range.

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:

- a. Accomplishment of a specific training element, function, or task.
- b. A specific type of weapon delivery performed during a mission, defined by aircraft flight path, ordnance delivered, delivery method, or target struck.

Electromagnetic Warfare (EW) Range Event. 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 electromagnetic means and reacts with appropriate maneuvers, internal switchology and/or expendables. Missions flown against EW aggressor or mobile threat emitters placed in non-special use airspace are acceptable.

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

Secure Anti-Jam Event. Radio configuration for anti-jam voice operation and successful utilization during tactical mission accomplishment and/or effective chattermark procedures.

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

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

Low Altitude Training (LOWAT). 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.

LOW A/A Currency. Mission-oriented A/A 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.

Night Sortie. 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.

Non-Demanding Sortie. Sortie 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. The daily schedule must identify non-demanding pilots. The non-demanding event must be a day sortie, accompanied with a specifically tailored flight brief that addresses basic execution fundamentals. The SQ/CC approves all non-demanding sorties. SQ/CCs take into account operational risk management before determining whether a sortie is non-demanding depending on unit tasking and the individual's capabilities.

OCA-ESC/Sweep Mission. Mission designed to develop proficiency in OCA ESC/sweep tactics. Mission elements include: Intel scenario and tactical mission planning, execution of tactics designed to detect, engage, and negate simulated adversary aircraft that are operating within specific commit criteria (e.g., range, airspace corridor, vulnerability time), and in-flight report.

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

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.

Tactical Intercepts Mission. Mission designed to develop proficiency in tactical intercept 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.