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SECRETARY OF THE AIR FORCE**

**AIR FORCE MANUAL 11-2F-22A,
VOLUME 2**



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Flying Operations

**F-22A—AIRCREW EVALUATION
CRITERIA**

COMPLIANCE WITH THIS PUBLICATION IS MANDATORY

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This publication implements Air Force Instruction (AFI) 11-200, *Aircrew Training, Standardization/Evaluation, and General Operations Structure*, and Air Force Manual (AFMAN) 11-202 Volume 2, *Aircrew Standardization and Evaluation Program*. This volume establishes criteria and procedures for F-22A flight evaluations. It applies to Regular Air Force, Air National Guard, and Air Force Reserve (AFR) F-22A units. This publication does not apply to the United States Space Force. Ensure all records generated as a result of processes prescribed in this publication adhere to AFI 33-322, *Records Management and Information Governance Program*, and are disposed in accordance with the Air Force Records Disposition Schedule, which is located in the Air Force Records Information Management System. Recommendations for improvements to this volume should be submitted on Department of the Air Force Form (DAF) 847, *Recommendation for Change of Publication*, through Numbered Air Force (NAF) Standardization/Evaluation (Stan/Eval) channels, to the parent Major Command (MAJCOM) Stan/Eval. Parent MAJCOM Stan/Eval will forward approved recommendations to lead command office of primary responsibility (OPR), Air Combat Command Standardization and Evaluation Branch (ACC/A3TV), 205 Dodd Blvd, Suite 234, Langley AFB VA 23665-2789. This publication may be supplemented as follows: MAJCOMs, Direct Reporting Units (DRUs), and Field Operating Agencies (FOAs) may forward proposed MAJCOM/ DRU/FOA-level supplements to this volume through ACC/A3TV to Air Force Total Force Aircrew Management (AF/A3TF) for approval prior to publication. After approved and published, MAJCOM/ DRU/FOA OPRs will provide copies of those supplements to ACC/A3TV and the user MAJCOM/DRU/FOA OPR. Field units below MAJCOM/DRU/FOA level will forward copies of their supplements to this publication to their parent MAJCOM/DRU/FOA OPR for pre-publication review. 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 **Table A10.1** of Department of the Air Force Manual (DAFMAN) 90-161, *Publishing Processes and Procedures*, 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 ACC/A3TV for non-tiered compliance items.

SUMMARY OF CHANGES

This publication has been substantially revised and must be thoroughly reviewed. Major changes include updates to the use of simulators for evaluations, renumbering of graded areas and re-structure of publication content.

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Chapter 1

ROLES AND RESPONSIBILITIES

1.1. The Deputy Chief of Staff, Operations, through the Director for Training and Readiness (AF/A3T):

1.1.1. Develops policy and guides the conduct and execution of the aircrew Stan/Eval program.

1.1.2. Assigns the OPR for this manual.

1.2. Air Combat Command Standardization and Evaluation Branch (ACC/A3TV):

1.2.1. Reviews and maintains this manual.

1.2.2. Reviews MAJCOM supplements to this manual to ensure MAJCOMs adhere to basic guidance in this publication.

1.2.3. Maintains liaison with Headquarters Air Force (HAF) organizations and MAJCOMs.

1.2.4. Coordinates with HAF organizations and MAJCOM Stan/Eval functions to ensure guidance in separate publications conforms to and complies with basic Air Force guidance contained in this manual.

1.3. Major Commands (MAJCOMS):

1.3.1. MAJCOM Stan/Eval staffs are primarily responsible for providing guidance and establishing administrative processes.

1.3.2. DRUs and FOAs and the Air National Guard Bureau (NGB) are considered MAJCOMs for purposes of this manual.

1.4. Operations Group (OG): The conduct of the unit level Stan/Eval program is directed by the Operations Group Commander (OG/CC).

1.4.1. The Operations Group Commander (OG/CC):

1.4.1.1. Provide manpower to the unit Stan/Eval function to execute the duties directed by this publication.

1.4.1.2. Designate and certify OG Stan/Eval (OGV) Flight Examiners (FEs).

1.4.1.3. At the discretion of the OG/CC, OGV and squadron Stan/Eval functions may be combined.

1.4.1.4. Has overall responsibility for the OG aircrew evaluation program

1.5. Group Stan/Eval (OGV) Functions:

1.5.1. Establish procedures for requisite aircrew examinations.

1.6. Squadron Stan/Eval (CCV) Functions:

1.6.1. Manage and conduct aircrew evaluations in accordance with published guidance. **Note:** The focus of the CCV program is at the squadron level. Its backbone is the program established by the squadron commander and administered by flight examiners assigned to the squadron.

1.6.2. Implement Stan/Eval aircrew examination procedures in accordance with published guidance.

1.7. Flight Examiners (FEs):

1.7.1. Should exercise judgment when assigning subjective area grades, when assigning the overall qualification level, and when evaluating in situations not covered explicitly by this document.

1.7.2. Brief the examinee on the purpose, conduct, and extent of each evaluation.

1.7.3. May assist in evaluation mission planning/briefing as tasked by the examinee.

1.7.4. May evaluate from any flight or formation position (to include chase and sensor trail) necessary to conduct a thorough evaluation.

1.7.5. Apply the grading criteria contained in **Chapter 3**, as applicable.

1.7.6. Debrief the examinee's overall rating, specific deviations, area grades assigned (if other than qualified), and any required additional training, at a minimum.

1.7.7. Should use all electronic means available, to reconstruct, evaluate, and debrief the mission adequately.

1.8. Examinees:

1.8.1. Accomplish required flight planning in accordance with the flight position assigned during the evaluation, furnishing FEs a copy of necessary mission data and mission materials, if appropriate.

1.8.2. Brief the mission if qualified as a flight lead or instructor pilot. For Mission (MSN) evaluations a qualified flight lead (which may be the FE) conduct the briefing for examinees qualified as wingmen unless the MSN evaluation is part of an upgrade program. Wingmen may conduct the briefing of Instrument (INSTM)/Qualification (QUAL) evaluations.

Chapter 2

EVALUATION REQUIREMENTS

2.1. General.

2.1.1. Publications Check/Currency of Flight Publications. All QUAL evaluations include a currency and accuracy check on all flight-required publications/checklists/Flight Information Publications (FLIP)/in-flight guides. Unit commanders may specify additional publications to be evaluated in the unit supplement to AFMAN 11-202 Volume 2, *Aircrew Standardization and Evaluation Program* and applicable MAJCOM supplement.

2.1.2. Cockpit/Crew Resource Management (CRM). AFMAN 11-290, *Cockpit/Crew Resource Management and Threat & Error Management Program*, states that all evaluations include assessment of CRM skills. CRM skills are integral to all phases of flight, but evaluations include specific CRM grading under Area 37. Use of the Air Force (AF) Form 4031 *CRM/TEM Skills Criteria Training/Evaluation* is unnecessary for evaluations in the F-22A as all required Crew Resource Management (CRM)/ Threat and Error Management (TRM) skills are evaluated during the course of QUAL and MSN evaluations. The Stan/Eval trend program can be used to measure the effectiveness of CRM training.

2.1.3. Combined Evaluations. With the approval OGV, the INSTM/QUAL and MSN evaluations may be combined as a single evaluation. This option is intended only for experienced pilots. Squadron Stan/Eval chiefs should request this option through OGV. Document approval on the AF Form 8, *Certificate of Aircrew Qualification*, by stating in the additional comments “OGV has approved a combined evaluation” and having the OGV chief sign as an additional reviewer if his/her signature is not elsewhere on the AF Form 8.

2.1.3.1. Combined evaluations include all current INSTM/QUAL and MSN evaluation requirements, including requisites.

2.1.3.2. One event may satisfy both the INSTM and MSN Emergency Procedure Evaluations (EPEs), as long as the EPE includes the required areas for both evaluations.

2.1.4. Required Graded Areas. Required graded areas are annotated in Tables 2.1 and 2.2, respectively. When it is impractical or impossible to accomplish a required evaluation area in-flight, an alternate method (e.g., Mission Training Center (MTC), Weapons and Tactics Trainer (WTT), or verbal examination) may be used in order to complete the evaluation. FEs will document the reason and type of alternate method used in the “Additional Comments” portion of the AF Form 8. (T-2) If the FE determines the required item cannot be adequately evaluated by an alternate method, an additional flight is required to complete the evaluation. In Tables 2.1 and 2.2.:

2.1.4.1. Areas annotated with an "R" are necessary items for that event.

2.1.4.2. Areas indicated with an “R2” require evaluation of at least two of the items under the associated section.

2.1.4.3. Areas indicated with an “R3” require evaluation of at least three of the items under the associated section.

2.1.4.4. Areas not indicated as being required for evaluation are graded and marked accordingly as observed by the FE or during discussions.

2.2. Instrument/Qualification (INSTM/QUAL) Evaluations.

2.2.1. Procedures.

2.2.1.1. A mission flown according to instrument flight rules (IFR), to the maximum extent practical, best fulfills the objective of the INSTM/QUAL evaluation.

2.2.1.2. For inexperienced pilots, to the maximum extent practical, this evaluation should include approaches at airfields other than home or deployed locations.

2.2.1.3. Approaches may be flown to fields which have a non-published, practice approach available (e.g., visual flight rules (VFR) conditions only approach), rather than a published FLIP approach. For these approaches, OGV shops will ensure that:

2.2.1.3.1. Non-published approaches are built using the standards applied to published approach plates. **(T-3)**

2.2.1.3.2. Approval for use of such an approach on evaluation missions is documented in the local unit supplement to applicable MAJCOM supplement. **(T-3)**

2.2.1.4. INSTM/QUAL evaluations may be administered on any compatible training mission and should be flown with the FE as the wingman for the instrument portions of the flight.

2.2.1.5. With the approval of the Operations Group Commander (OG/CC), experienced pilots may accomplish some graded areas of periodic INSTM/QUAL evaluations in the simulator (SIM). Those items are annotated in [Table 2.1](#). Document approval on the AF Form 8 by stating in the additional comments “OG/CC has approved a SIM evaluation” and having the OG/CC initial in the additional reviewer remarks, if his/her signature is not elsewhere on the AF Form 8. The method of this approval is at the discretion of the OG/CC.

2.2.1.5.1. This evaluation should be labeled per guidance provided in MAJCOM supplement to the AFMAN 11-202V2 on the AF Form 8 in the Flight Phase with an EPE documented as a requisite, even if the EPE is accomplished concurrently with the evaluation.

2.2.1.5.2. An in-flight evaluation is required for inexperienced pilots, Initial (INIT) or Re-Qualification (RQ) evaluations or for evaluations to regain a qualification (e.g., after loss of qualification due to commander directed downgrade or failed check ride).

2.2.1.5.3. The graded areas that cannot be accomplished in the SIM must be completed in-flight. **(T-3)** Document the evaluation of these items as an additional line entry on the AF Form 8 under Flight Phase as “INSTM/QUAL” and follow guidance outlined in applicable MAJCOM supplement. For example, the FE who conducts the preponderance of the evaluation in the SIM INSTM/QUAL line ensures the airborne VFR pattern/landing is accomplished, ensures the flight portion is annotated in the “INSTM/QUAL” line, and signs as the flight examiner.

2.2.2. Minimum Requisites. The minimum requisites for an INSTM/QUAL evaluation are:

2.2.2.1. an instrument examination,

- 2.2.2.2. a closed book examination,
- 2.2.2.3. an open book examination, and an
- 2.2.2.4. EPE.

2.3. Mission (MSN) Evaluations.

2.3.1. Procedures.

2.3.1.1. Squadron Commanders:

2.3.1.1.1. Ensure that FEs administer initial MSN evaluations in the primary designed operational capability (DOC) of the unit unless that unit has a different assigned mission or contingency for which to prepare.

2.3.1.1.2. If squadron is tasked with Aerospace Control Alert (ACA) missions, administer a sampling of ACA mission evaluations.

2.3.1.2. FEs:

2.3.1.2.1. Should tailor MSN evaluations in accordance with current tactics, unit DOC statement, theater area of responsibility (AOR) scenarios, and should incorporate all appropriate evaluation requirements from [Table 2.1](#). The profiles should be designed to evaluate the training/flight position/special qualifications as well as basic airmanship of the examinee.

2.3.1.2.2. Will evaluate examinees in the position of their highest certification (e.g., 2-ship flight lead, 4-ship flight lead, instructor pilot, etc.), even if a portion of the evaluation is flown in another position. **(T-3)**

2.3.1.2.3. May allow wingmen to brief and/or lead certain phases of the mission but should not evaluate flight leadership.

2.3.1.3. Evaluations during exercises are encouraged.

2.3.1.4. Evaluations during contingency/combat deployments should be given as a last resort in order to maintain mission qualification status.

2.3.1.5. Basic Mission Capable (BMC) aircrew should only be evaluated on those missions routinely performed.

2.3.1.6. With the approval of the OG/CC, experienced pilots may accomplish some graded areas of periodic MSN evaluations in the SIM. Those items are annotated in [Table 2.1](#). Document approval on the AF Form 8, by stating in the additional comments "OG/CC has approved a SIM evaluation" and having the OG/CC initial in the additional reviewer remarks, if his/her signature is not elsewhere on the AF Form 8. The method of this approval is at the discretion of the OG/CC.

2.3.1.6.1. This evaluation should be labeled SIM MSN on the AF Form 8 in the Flight Phase with an EPE documented as a requisite, even if the EPE is accomplished concurrently with the evaluation.

2.3.1.6.2. An in-flight evaluation is required for inexperienced pilots, INIT or RQ evaluations or for evaluations to regain a qualification (e.g., after loss of qualification due to commander directed downgrade or failed check ride).

2.3.1.6.3. The graded areas that cannot be accomplished in the SIM must be completed in-flight. **(T-3)** Document the evaluation of these items as an additional line entry on the AF Form 8 under Flight Phase as “MSN”.

2.3.2. Minimum Requisites. The MSN EPE is the only MSN evaluation requisite.

2.4. Formal Course Evaluations. Syllabus evaluations should be flown in accordance with syllabus mission profile guidelines, if stated, or on a mission profile developed from syllabus training objectives. FEs may modify course guidelines based on other factors, such as local operating considerations, in order to complete the evaluation.

2.5. Instructor Evaluations. Except for Area 33, Instructor Performance, FEs determine specific profiles and events for instructor evaluations. Subsequent evaluations (e.g., INSTM/QUAL, MSN) include instructor portions during the evaluations. If an instructional ride allows completion of all requirements for a periodic check, the evaluation may be used to update periodic evaluation providing all other requisites are completed. If conducting INIT INSTR and not fulfilling periodic evaluation requirements, requisite events need not be included.

2.6. Formal Training Unit (FTU) Instructor and Weapons Instructor Course (WIC) Instructor, and Operational Test Mission Evaluations.

2.6.1. Profiles. WIC and FTU IP periodic mission evaluation profiles should normally be in accordance with the formal course syllabus for any mission that the IP is qualified to instruct. The only required items for a WIC or FTU IP mission check are those items required by the syllabus for the specific syllabus sortie flown.

2.6.2. FTU IP initial qualification. FTU IP initial certification should be on a syllabus sortie in accordance with [Paragraph 2.6.1](#). Document FTU IP certifications on an AF Form 8 as an INSTR or INSTR/MSN evaluation and include in the additional comments: “This evaluation is the examinee’s FTU instructor certification.”

2.6.3. Operational test aircrew MSN evaluation profiles may be conducted on any test mission.

Table 2.1. Aircrew Evaluation Grading Areas.

AREA	NOTE	AREA TITLE	I/Q	MSN		
AIRCREW EVALUATION CRITERIA - GENERAL						
1	6	MISSION PLANNING	R	R		
2	6	BRIEFING (if applicable)	R	R		
3	6	PRE-TAKEOFF	R	R		
4	6	TAKEOFF	R	R		
6	6	DEPARTURE	R			
7	6	LEVEL OFF	R			

8	6	CRUISE/NAVIGATION	R			
9	7	FORMATION	R	R		
10	6	IN-FLIGHT CHECKS	R	R		
11	6	FUEL MANAGEMENT	R	R		
12	6	COMMUNICATION/NAVIGATION/IFF (CNI)	R	R		
14	1	AIRWORK / AHC / BFM	R			
15	2, 6	UNUSUAL ATTITUDE RECOVERIES	R			
16	6	WEAPONS SYSTEM/BIT CHECKS		R		
17		AIR REFUELING				
18	6	DESCENT	R			
19	6	GO-AROUND				
20	6	RECOVERY				
21	3	EMERGENCY TRAFFIC PATTERNS	R			
22	3	EMERGENCY APPROACH/LANDING	R			
23		VFR PATTERN/APPROACH	R			
24	6	FORMATION APPROACH				
25		LANDING	R			
26	6	AFTER LANDING	R			
27	6	FLIGHT LEADERSHIP (if applicable)	R	R		
28	6	DEBRIEFING/CRITIQUE	R	R		
29	6	KNOWLEDGE	R	R		

30	Critical, 6	AIRMANSHIP/ SITUATIONAL AWARENESS	R	R		
31	Critical, 6	SAFETY	R	R		
32	Critical, 6	FLIGHT DISCIPLINE	R	R		
33	6	INSTRUCTOR PERFORMANCE (if applicable)	R	R		
34	6	INSTRUMENT INTERPRETATION	R			
35	6	SENSOR INTERPRETATION		R		
36	6	TASK PRIORITIZATION	R	R		
37	6	COCKPIT RESOURCE MANAGEMENT	R	R		
INSTRUMENTS						
61	6	HOLDING				
62	6	INSTRUMENT PENETRATION/ENROUTE DESCENT	R			
63	6	INSTRUMENT PATTERNS	R			
64	6	NONPRECISION APPROACH	R			
65	4, 6	PRECISION APPROACH (PAR)	R			
66	4, 6	PRECISION APPROACH (ILS)	R			
67	6	MISSED APPROACH/CLIMB OUT	R			
68	6	CIRCLING/SIDESTEP APPROACH				
69	6	INSTRUMENT CROSS-CHECK	R			
TACTICAL EMPLOYMENT						

GENERAL					
81	6	TACTICAL/MISSION PLAN		R	
82	6	AEROSPACE CONTROL ALERT (ACA) TASKING (Air Defense Units)			
83	6	TACTICAL/MISSION EXECUTION		R	
84	6	COMPOSITE FORCE INTERFACE			
85	6	TACTICAL COMMUNICATION		R	
86	6	VISUAL/SENSOR LOOKOUT		R	
87	6	MUTUAL SUPPORT		R	
88	6	TACTICAL NAVIGATION			
89	6	INGRESS			
90	6	EGRESS			
91		COMBAT SEPARATION			
92	6	TIMING			
93	6	TRAINING RULES/ROE		R	
94	6	THREAT REACTIONS			
95	6	IN-FLIGHT REPORT			
96	6	EW/EXCM/AAMD			
98	5, 6	SENSOR MANAGEMENT		R	
99	5, 6	SIGNATURE MANAGEMENT		R	
100	5, 6	WEAPONS MANAGEMENT		R	
AIR-TO-AIR (A/A)					
111	5, 6	SENSOR SEARCH/SORTING		R	

112	5, 6	TACTICAL INTERCEPT		R		
113	8	AIR COMBAT MANEUVERING				
115	5, 6	A/A WEAPONS EMPLOYMENT		R		
116	6	A/A SYSTEMS INTEGRATION				
117	6	COMMAND AND CONTROL INTEGRATION				
AIR-TO-SURFACE						
131	5, 6	TARGET/THREAT ACQUISITION/VALIDATION		R		
132	5, 6	AIR-TO-SURFACE WEAPONS EMPLOYMENT		R		
133	6	RANGE/AIRSPACE PROCEDURES				
134	6	AIR-TO-SURFACE SENSOR OPERATIONS				
139	6	DYNAMIC TARGETING				
151	6	ELECTRONIC THREAT/ORDER OF BATTLE MANAGEMENT				
153	6	ELECTRONIC ATTACK				
161	9	DEGRADED/DENIED GPS				
162	9	DEGRADED/DENIED COMMUNICATIONS				
163	9	DEGRADED/DENIED DATALINK				
<p>Notes:</p> <p>1. Airwork/Advanced Handling/Tactical Maneuvering. Maneuvers can be:</p> <p>a. Aerobatics, to include a G-awareness exercise</p>						

<p>b. Advanced handling characteristics / Confidence maneuvers</p> <p>c. Any A/A mission (e.g., Basic Fighter Maneuvers (BFM), Air Combat Maneuvering (ACM), Air Combat Training (ACT), adversary training aid.)</p> <p>d. Threat reaction</p> <p>2. Unusual attitude recoveries are not performed in the aircraft and are evaluated in the SIM, during the evaluation or the EPE.</p> <p>3. Emergency Traffic Patterns/Approach/Landing is evaluated in the EPE. If an actual emergency occurs in-flight, these areas may be evaluated in-flight at the discretion of the FE.</p> <p>4. Precision Approach. FEs ensure that at least one precision approach (PAR or ILS) is flown and annotated to complete the flight evaluation. SIM INSTM/QUAL evaluations include both PAR and ILS.</p> <p>5. Mission evaluations should be conducted in the primary DOC of the unit. The flight should be planned to evaluate performance in a mission in which the unit may be tasked in accordance with guidance from the Squadron Commander, Operations Officer, or weapons officer. Annotate mission type and document weapons employment on the AF Form 8.</p> <p>6. This item may be evaluated in the F-22 MTC.</p> <p>7. Evaluation on formation tasks in the SIM are limited to day formation only.</p> <p>8. ACM evaluation in the SIM is limited to beyond visual range (BVR) tasks.</p> <p>9. Degraded/Denied task evaluation in the SIM may not include Air-to-Surface tasks.</p>		
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2.7. Emergency Procedures Evaluations (EPEs).

2.7.1. The EPE should be conducted in the SIM (MTC) to the maximum extent possible, the WTT when an MTC is not available, and tabletop if neither are available (e.g., deployment). Grading criteria for each required item are listed in [Chapter 3](#).

2.7.2. The following graded areas are required on all EPEs:

2.7.2.1. Aircraft General Knowledge.

2.7.2.2. CRM.

2.7.2.3. Emergency Procedures/Aircraft Malfunctions.

2.7.2.3.1. The FE will evaluate a minimum of two emergency procedures per the pre-takeoff, takeoff, and landing phases of flight. **(T-3)**

2.7.2.3.2. The FE will evaluate a minimum of three emergency procedures during the inflight phase. **(T-3)**

2.7.2.4. Checklist Usage.

2.7.3. The following additional graded areas are required on all INSTM and/or QUAL EPEs:

2.7.3.1. Abort.

2.7.3.2. Instrument Flight Procedures. Guidance for instrument flight procedures is in AFMAN 11-202 Volume 3 *Flight Operations*. This area includes a minimum of one Heads-Up Display-Out (HUD-Out) Approach, where the FE should focus on whether or not the approach permits landing, and the use of standby/emergency instruments.

2.7.3.3. Unusual Attitude Recoveries.

2.7.3.4. Alternate/Divert Airfields. This area includes a minimum of one approach at a divert/alternate airfield, other than home base.

2.7.4. The following items are required on all MSN EPEs, as the FE tailors the MSN evaluation scenario to the unit tasking/mission:

2.7.4.1. ACA tasking (ACA qualified pilots in wings that support a full-time ACA detachment (or home-station alert) are required to complete at least one ACA intercept during every MSN EPE),

2.7.4.2. Weapon System Operation, and

2.7.4.3. Weapons Employment and Aircraft Switch Operations.

Table 2.2. EPE Grading Areas.

AREA	NOTES	AREA TITLE	I/Q	MSN
GENERAL				
29		AIRCRAFT GENERAL KNOWLEDGE	R	R
37		COCKPIT RESOURCE MANAGEMENT	R	R
82	1	ACA TASKING (Air Defense Units)		R
301		EMERGENCY PROCEDURES/AIRCRAFT MALFUNCTIONS (GENERAL)		
302		CHECKLIST USAGE	R	R
305		WEAPON SYSTEM OPERATION		R
306		WEAPONS EMPLOYMENT AND SWITCHOLOGY		R
PRE-TAKEOFF			R2	R2
321		HYDRAULIC EMERGENCY PROCEDURES/AIRCRAFT MALFUNCTIONS (PRE-TAKEOFF)		

331		ELECTRICAL EMERGENCY PROCEDURES/AIRCRAFT MALFUNCTIONS (PRE-TAKEOFF)		
341		FUEL EMERGENCY PROCEDURES/AIRCRAFT MALFUNCTIONS (PRE-TAKEOFF)		
351		ECS/OXYGEN EMERGENCY PROCEDURES/AIRCRAFT MALFUNCTIONS (PRE-TAKEOFF)		
361		ENGINE/APU EMERGENCY PROCEDURES/AIRCRAFT MALFUNCTIONS (PRE-TAKEOFF)		
371		AVIONICS EMERGENCY PROCEDURES/AIRCRAFT MALFUNCTIONS (PRE-TAKEOFF)		
381		WEAPONS EMERGENCY PROCEDURES/AIRCRAFT MALFUNCTIONS (PRE-TAKEOFF)		
391		FLCS EMERGENCY PROCEDURES/AIRCRAFT MALFUNCTIONS (PRE-TAKEOFF)		
401		BRAKES/LANDING GEAR EMERGENCY PROCEDURES/AIRCRAFT MALFUNCTIONS (PRE-TAKEOFF)		
411		EMERGENCY PROCEDURES/AIRCRAFT MALFUNCTIONS (PRE-TAKEOFF)		
TAKEOFF			R2	R2
421		HYDRAULIC EMERGENCY PROCEDURES/AIRCRAFT MALFUNCTIONS (TAKEOFF)		
431		ELECTRICAL EMERGENCY PROCEDURES/AIRCRAFT MALFUNCTIONS (TAKEOFF)		
441		FUEL EMERGENCY PROCEDURES/AIRCRAFT MALFUNCTIONS (TAKEOFF)		

451		ECS/OXYGEN EMERGENCY PROCEDURES/AIRCRAFT MALFUNCTIONS (TAKEOFF)		
461		ENGINE/APU EMERGENCY PROCEDURES/AIRCRAFT MALFUNCTIONS (TAKEOFF)		
463		ABORT	R	
471		AVIONICS EMERGENCY PROCEDURES/AIRCRAFT MALFUNCTIONS (TAKEOFF)		
481		WEAPONS EMERGENCY PROCEDURES/AIRCRAFT MALFUNCTIONS (TAKEOFF)		
491		FLCS EMERGENCY PROCEDURES/AIRCRAFT MALFUNCTIONS (TAKEOFF)		
501		BRAKES/LANDING GEAR EMERGENCY PROCEDURES/AIRCRAFT MALFUNCTIONS (TAKEOFF)		
511		EMERGENCY PROCEDURES/AIRCRAFT MALFUNCTIONS (TAKEOFF)		
INFLIGHT			R3	R3
521		HYDRAULIC EMERGENCY PROCEDURES/AIRCRAFT MALFUNCTIONS (IN- FLIGHT)		
531		ELECTRICAL EMERGENCY PROCEDURES/AIRCRAFT MALFUNCTIONS (IN- FLIGHT)		
541		FUEL EMERGENCY PROCEDURES/AIRCRAFT MALFUNCTIONS (IN-FLIGHT)		
551		ECS/OXYGEN EMERGENCY PROCEDURES/AIRCRAFT MALFUNCTIONS (IN- FLIGHT)		

561		ENGINE/APU EMERGENCY PROCEDURES/AIRCRAFT MALFUNCTIONS (IN-FLIGHT)		
571		AVIONICS EMERGENCY PROCEDURES/AIRCRAFT MALFUNCTIONS (IN-FLIGHT)		
581		WEAPONS EMERGENCY PROCEDURES/AIRCRAFT MALFUNCTIONS (IN-FLIGHT)		
591		FLCS EMERGENCY PROCEDURES/AIRCRAFT MALFUNCTIONS (IN-FLIGHT)		
601		BRAKES/LANDING GEAR EMERGENCY PROCEDURES/AIRCRAFT MALFUNCTIONS (IN-FLIGHT)		
611		EMERGENCY PROCEDURES/AIRCRAFT MALFUNCTIONS (IN-FLIGHT)		
614		UNUSUAL ATTITUDE RECOVERIES	R	
615		AFMAN 11-202V3 PROCEDURES/HUD OUT APPROACH/USE OF STANDBY INSTRUMENTS	R	
616		ALTERNATE/DIVERT AIRFIELDS	R	
LANDING			R2	R2
631		HYDRAULIC EMERGENCY PROCEDURES/AIRCRAFT MALFUNCTIONS (LANDING)		
641		ELECTRICAL EMERGENCY PROCEDURES/AIRCRAFT MALFUNCTIONS (LANDING)		
651		FUEL EMERGENCY PROCEDURES/AIRCRAFT MALFUNCTIONS (LANDING)		
661		ECS/OXYGEN EMERGENCY PROCEDURES/AIRCRAFT MALFUNCTIONS (LANDING)		

671		ENGINE/APU EMERGENCY PROCEDURES/AIRCRAFT MALFUNCTIONS (LANDING)		
681		AVIONICS EMERGENCY PROCEDURES/AIRCRAFT MALFUNCTIONS (LANDING)		
691		WEAPONS EMERGENCY PROCEDURES/AIRCRAFT MALFUNCTIONS (LANDING)		
701		FLCS EMERGENCY PROCEDURES/AIRCRAFT MALFUNCTIONS (LANDING)		
711		BRAKES/LANDING GEAR EMERGENCY PROCEDURES/AIRCRAFT MALFUNCTIONS (LANDING)		
721		EMERGENCY PROCEDURES/AIRCRAFT MALFUNCTIONS (LANDING)		
<p>Note:</p> <p>1. ACA certified aircrew only.</p>				

Chapter 3

EVALUATION CRITERIA

3.1. General Grading Standards.

3.1.1. FEs assign appropriate area grades by comparing examinee performance against standards per descriptions in this chapter. The overall flight evaluation grade should be derived from individual area grades based on a composite for the observed events and tasks. The grading criteria in this chapter are divided into three sections: General, Instrument, and Tactical Employment.

3.1.2. If the examinee receives an unqualified area grade in any of the areas identified as “critical” by this volume, the overall qualification level must be a "Q3" (unqualified).

3.1.3. If an FE assigns a qualification level of Q3, or if the FE assigns a qualification level of Q1 (qualified) or Q2 (Performance is safe, but indicates limited proficiency) but assigns additional training:

3.1.3.1. FEs recommend whether or not such an examinee is allowed to fly before the additional training or re-evaluation is successfully completed.

3.1.3.2. Squadron commanders determine whether or not such an examinee is allowed to fly before the additional training or re-evaluation is successfully completed.

Table 3.1. General Aircraft Control Criteria.

Aircraft Control Criteria.		
<i>The following general criteria apply at all times unless more specific criteria from Table 2.1 or Table 2.2 apply.</i>		
Q	Altitude	+/- 200 feet
	Airspeed	+/- 5%
	Course	+/- 5 degrees/3 NM (Nautical Mile(s)) (whichever is greater)
	TACAN Arc	≤ 2 NM
Q-	Altitude	+/- 300 feet
	Airspeed	+/- 10%
	Course	+/- 10 degrees/5 NM (whichever is greater)
	TACAN Arc	> 2 NM; ≤ 3 NM

U		Exceeded Q- limits

3.2. Documentation of Weapons Employment Results.

3.2.1. FEs document weapons employment results in the Mission Description Section of the AF Form 8 for MSN evaluations. Include entries for each type of actual and simulated ordnance employed.

3.2.2. Air-to-surface results should be recorded as Hit or Miss for each air-to-surface record delivery. Document results as in [Table 3.2](#).

3.2.3. The number of simulated A/A missile/gun firing attempts and valid attempts are recorded as in [Table 3.2](#).

3.2.4. FE judgment should be the determining factor in deciding the weapons employment grade. The FE may elect to award a higher area grade than warranted by the score(s) and include the justification in the Comments Section of the AF Form 8.

Table 3.2. Weapons Employment Scores.

Weapons employment scores were: (examples)		
Air-Surface (A/S) Scoring		
	Precision Guided Munition (PGM)	
	*Hit	
Air-to-Air (A/A) Scoring		
	ATTEMPTED	VALID
A/A Gun	2	1
Air Intercept Missile (AIM) 120	2	2
AIM 9	1	1
Video tape recording assessment is considered normal operations, otherwise enter: *SIM assessed or **Range scored		

3.3. General Aircrew Evaluation Criteria.

3.3.1. Area 1--Mission Planning:

3.3.1.1. Mission Preparation:

3.3.1.1.1. **Q.** Clearly defined the mission overview and mission goals. Effectively accomplished directed mission planning tasks. Developed a sound plan to accomplish

the mission. Provided specific information on what needed to be done. Solicited feedback from others to ensure understanding of mission requirements. Thoroughly critiqued plans to identify potential problem areas and ensured all flight members understood possible contingencies. Checked all factors applicable to flight in accordance with applicable directives. When required, extracted necessary information from air tasking order. Aware of alternatives available if flight cannot be completed as planned. Read and initialed for all items in the flight crew information file and read files. Prepared at briefing time.

3.3.1.1.2. **Q-** Did not adequately define the mission overview and mission goals. Did not adequately address potential problem areas. Did not adequately solicit feedback or critique the plans to ensure understanding of possible contingencies. Minor error(s) or omission(s) detracted from mission effectiveness but did not affect mission accomplishment. Demonstrated limited knowledge of performance capabilities or approved operating procedures/rules in some areas.

3.3.1.1.3. **U.** Did not define the mission overview and goals. Did not accomplish directed mission planning tasks. Lack of specific information on required items. Did not solicit feedback from other crewmembers to ensure understanding. Did not critique plans to identify potential problem areas. Major error(s) or omission(s) would have prevented a safe or effective mission. Displayed unsatisfactory knowledge of operating data or procedures. Did not review or initial Go/No Go items. Not prepared at briefing time.

3.3.1.2. Publications:

3.3.1.2.1. **Q.** Publications were current and usable for any of the unit's combat taskings. Contained only minor deviations, omissions, and/or errors.

3.3.1.2.2. **Q-** Publications contained deviations, omissions, and/or errors; however, contained everything necessary to effectively accomplish the mission and did not compromise safety of flight.

3.3.1.2.3. **U.** Not up to "Q-" standards. Contained major deviations, omissions, and/or errors.

3.3.2. Area 2--Briefing (if applicable):

3.3.2.1. Organization:

3.3.2.1.1. **Q.** Well organized, included all applicable information and presented in a logical sequence. Briefed flight member responsibilities, deconfliction contracts, combat mission priorities and sensor management. Concluded briefing in time to allow for element briefing (if applicable) and preflight of personal equipment, aircraft, and ordnance.

3.3.2.1.2. **Q-** Events out of sequence, hard to follow, some redundancy. Not fully prepared for briefing.

3.3.2.1.3. **U.** Confusing presentation, poorly organized and not presented in a logical sequence. Did not allow time for element briefing (if applicable) and preflight of personal equipment, aircraft, and ordnance. Failed to brief required areas.

3.3.2.2. Presentation:

3.3.2.2.1. **Q.** Presented briefing in a professional manner covering all pertinent items. Effectively used available briefing aids. Flight members clearly understood mission requirements.

3.3.2.2.2. **Q-.** Some difficulty communicating clearly. Did not make effective use of available briefing aids. Dwelt on nonessential mission items.

3.3.2.2.3. **U.** Failed to conduct/attend required briefings. Failed to use available briefing aids. Redundant with lack of continuity. Lost interest of flight members. Demonstrated lack of knowledge of subject. Presentation created doubts or confusion.

3.3.2.3. Mission Coverage:

3.3.2.3.1. **Q.** Established objectives for the mission. Presented all training events and special interest items. Included effective technique discussion for accomplishing the mission.

3.3.2.3.2. **Q-.** Omitted items pertinent, but not critical, to the mission. Limited discussion of training events or special interest items. Dwelt on non-essential items. Limited discussion of valid techniques.

3.3.2.3.3. **U.** Did not establish relevant objectives for the mission. Omitted essential items. Failed to discuss training events or special interest items. Presented erroneous information and/or did not correct erroneous information that would affect safe/effective mission accomplishment. Omitted major training events. Did not discuss valid techniques.

3.3.2.4. Flight Member Consideration:

3.3.2.4.1. **Q.** Properly assessed the abilities of all flight members. Briefed corrective action from previous mission and probable problem areas when appropriate.

3.3.2.4.2. **Q-.** Did not correctly assess all flight members' abilities. Did not identify probable problem areas.

3.3.2.4.3. **U.** Ignored flight members' abilities and past problem areas.

3.3.3. Area 3--Pre-Takeoff:

3.3.3.1. **Q.** Established and adhered to step, start, taxi and take-off times to assure thorough preflight, check of personal equipment, etc. Accurately determined readiness of aircraft for flight. Performed all checks and procedures prior to takeoff in accordance with approved checklists and applicable directives.

3.3.3.2. **Q-.** Same as above except for minor procedural deviations which did not detract from mission effectiveness.

3.3.3.3. **U.** Omitted major item(s) of the appropriate checklist. Major deviations in procedure which would preclude safe mission accomplishment. Failed to accurately determine readiness of aircraft for flight. Pilot errors directly contributed to a late takeoff which degraded the mission or made it non-effective.

3.3.4. Area 4--Takeoff:

3.3.4.1. **Q.** Maintained smooth aircraft control throughout takeoff. Performed takeoff in accordance with Technical Order (TO) 1F-22A-1, *Flight Manual—F-22A* and Air Force Tactics, Techniques, and Procedures (AFTTP) 3-3.F-22A, *Tactical Employment F-22A*, procedures.

3.3.4.2. **Q-.** Minor procedural deviations. Control was inconsistent, rough, or erratic.

3.3.4.3. **U.** Takeoff potentially dangerous. Exceeded aircraft/systems limitations and/or violated applicable flight rules. Over-controlled aircraft resulting in excessive deviations from intended flight path.

3.3.5. Area 6--Departure:

3.3.5.1. Instrument/Visual Flight Rules:

3.3.5.1.1. **Q.** Performed departures as published/directed and complied with all restrictions.

3.3.5.1.2. **Q-.** Minor deviations in airspeed and navigation occurred during completion of departure.

3.3.5.1.3. **U.** Failed to comply with published/directed departure instructions.

3.3.5.2. Trail Departure/Rejoin:

3.3.5.2.1. **Q.** Effective use of sensors. Trail departure/rejoin accomplished using proper procedures and techniques. Provided efficient commentary throughout departure and/or rejoin.

3.3.5.2.2. **Q-.** Minor deviations from established or appropriate procedures. Slow to obtain sensor acquisition and/or contact due to poor technique. Delayed rejoin due to poor sensor technique or inefficient commentary.

3.3.5.2.3. **U.** Unable to accomplish trail departure or rejoin. Gross overshoot or excessively slow rejoin caused by poor technique. Missed rejoin.

3.3.6. Area 7--Level Off:

3.3.6.1. **Q.** Leveled off smoothly. Promptly established proper cruise airspeed.

3.3.6.2. **Q-.** Level off was erratic. Slow in establishing proper cruise airspeed. Slow to set/reset altimeter, as required.

3.3.6.3. **U.** Level-off was erratic. Exceeded Q- limits. Excessive delay or failed to establish proper cruise airspeed. Failed to set/reset altimeter, as required.

3.3.7. Area 8--Cruise/Navigation:

3.3.7.1. **Q.** Demonstrated satisfactory capability to navigate using all available means. Used appropriate navigation procedures. Ensured nav aids were properly tuned, identified, and monitored. Complied with clearance instructions. Aware of position at all times. Remained within the confines of assigned airspace.

3.3.7.2. **Q-.** Minor errors in procedures/use of navigation equipment. Some deviations in tuning, identifying, and monitoring nav aids. Slow to comply with clearance instructions. Had some difficulty in establishing exact position and course.

3.3.7.3. **U.** Major errors in procedures/use of navigation equipment. Could not establish position. Failed to recognize checkpoints or adjust for deviations in time and course. Did not remain within the confines of assigned airspace. Exceeded parameters for **Q-**.

3.3.8. Area 9--Formation:

3.3.8.1. Flight Lead:

3.3.8.1.1. **Q.** Established and maintained appropriate formations utilizing published and briefed procedures. Maintained positive control of flight/element. Smooth control and considered the wingman appropriately. Planned ahead and made timely decisions. Ensured wingman position and adherence to deconfliction contracts. Effectively coordinated with other flight members throughout the mission. Ensured smooth and efficient flight operation.

3.3.8.1.2. **Q-**. Made minor deviations from published and/or briefed procedures. Demonstrated limited flight management. Occasionally rough on the controls. Maneuvered excessively, making it difficult for wingman to maintain position. Did not always plan ahead and/or hesitant in making decisions. Flight coordination was adequate to accomplish the mission. Deficiencies in communication or interaction resulted in degraded flight or mission efficiency.

3.3.8.1.3. **U.** Formation flight not accomplished in accordance with published and/or briefed procedures. Did not establish appropriate formations. Continually rough on the controls. Maneuvered erratically causing wingman to break out or overshoot formation. Provided little consideration for wingman. Indecisive. Failed to ensure wingman maintained proper position. Failed to maintain deconfliction contracts. Poor flight coordination seriously degraded mission accomplishment or safety of flight.

3.3.8.2. Wingman:

3.3.8.2.1. **Q.** Maintained position in accordance with published and briefed procedures with only momentary deviations. Demonstrated smooth and immediate position corrections. Maintained appropriate separation and complied with leader's instructions. Rejoin was smooth and timely. Contributed to the smooth and efficient operation of the flight. Maintained mutual support during the entire sortie.

3.3.8.2.2. **Q-**. Made minor deviations to published procedures. Slow to comply with leader's instructions. Varied position considerably. Over-controlled. Slow to rejoin. Made minor mistakes reducing mutual support. Minor errors in performing assigned flight tasks.

3.3.8.2.3. **U.** Formation flight not accomplished in accordance with published and/or briefed procedures. Did not comply with leader's instructions. Unable to maintain a formation position. Failed to maintain deconfliction contracts. Made abrupt position corrections. Did not maintain appropriate separation. Rejoin was unsafe. Poor flight coordination seriously degraded mission accomplishment or safety of flight.

3.3.9. Area 10--In-Flight Checks:

3.3.9.1. **Q.** Performed all in-flight checks as required.

3.3.9.2. **Q-**. Same as qualified, except for minor deviations or omissions during checks. Did not detract from mission accomplishment.

3.3.9.3. **U**. Did not perform in-flight checks or monitor systems to the degree that an emergency condition would have developed if allowed to continue uncorrected or would have severely degraded mission accomplishment.

3.3.10. Area 11--Fuel Management:

3.3.10.1. **Q**. Properly managed fuel throughout the mission. Complied with all established fuel requirements. Adhered to briefed Joker/Bingo calls.

3.3.10.2. **Q-**. Errors in fuel management procedures that did not preclude mission accomplishment.

3.3.10.3. **U**. Failed to monitor fuel status or comply with established fuel requirements. Poor fuel management precluded mission accomplishment or required intervention for safety. Did not adhere to briefed fuel requirements.

3.3.11. Area 12—Communications, Navigation, and Identify Friend/Foe (IFF) (CNI) Usage:

3.3.11.1. **Q**. Complete knowledge of and compliance with correct communication and IFF procedures. Transmissions concise, accurate and utilized proper terminology. Complied with and acknowledged all required instructions. Thoroughly familiar with communications security requirements, HAVE QUICK and secure voice equipment (if applicable).

3.3.11.2. **Q-**. Occasional deviations from correct procedures required retransmissions or resetting codes. Slow in initiating or missed several required calls. Minor errors or omissions did not significantly detract from situational awareness, threat warning or mission accomplishment. Transmissions contained extraneous matter, were not in proper sequence or used nonstandard terminology. Demonstrated limited knowledge of communications security requirements, HAVE QUICK and secure voice equipment (if applicable).

3.3.11.3. **U**. Incorrect procedures or poor performance caused confusion and jeopardized mission accomplishment. Omitted numerous required radio calls. Inaccurate or confusing terminology significantly detracted from situational awareness, threat warning or mission accomplishment. Displayed inadequate knowledge of communications security requirements, HAVE QUICK and secure voice equipment (if applicable).

3.3.12. Area 14—Airwork/Aircraft Handling Characteristics (AHC)/Basic Flight Maneuvering (BFM):

3.3.12.1. **Q**. Aircraft control during maneuvers was positive and smooth. Maneuvers performed in accordance with directives and appropriate to the tactical situation/environment. Adhered to established procedures.

3.3.12.2. **Q-**. Aircraft control during maneuvers not always smooth and positive, but adequate. Minor procedure deviations or lack of full consideration for the tactical situation.

3.3.12.3. **U**. \ Aircraft control erratic. Aircraft handling caused unsatisfactory accomplishment of maneuvers. Exceeded Q- criteria. Failed to consider the tactical situation. Temporary loss of aircraft control.

3.3.13. Area 15--Unusual Attitude Recoveries:

3.3.13.1. **Q.** Smooth, positive recovery to level flight with correct recovery procedures.

3.3.13.2. **Q-.** Slow to analyze attitude, or erratic in recovery to level flight. Correct recovery procedures used.

3.3.13.3. **U.** Unable to determine attitude. Improper recovery procedures were used.

3.3.14. Area 16--Weapons System/Built in Test (BIT) Checks:

3.3.14.1. **Q.** Completed all checks. Thorough knowledge and performance of weapons system checks.

3.3.14.2. **Q-.** Completed most weapons system checks. Limited knowledge of checks. Unsure of systems degradation due to check failure.

3.3.14.3. **U.** Failed to complete weapons system checks. General lack of knowledge on how to perform weapons system checks. Unable to determine systems degradation due to check failures.

3.3.15. Area 17--Air Refueling:

3.3.15.1. Air Refueling Rendezvous:

3.3.15.1.1. **Q.** Rendezvous effectively accomplished using proper procedures. Demonstrated effective use of radio communications. Used proper communication procedures for briefed emission control level.

3.3.15.1.2. **Q-.** Rendezvous delayed by improper techniques, procedures, or radio communications.

3.3.15.1.3. **U.** Displayed lack of knowledge or familiarity with procedures to the extent that air refueling was or could have been jeopardized. Failed rendezvous as a result of improper procedures. Gross overshoot spent excessive time in trail or safety of flight jeopardized due to poor judgment.

3.3.15.2. Air Refueling Procedures/Techniques:

3.3.15.2.1. **Q.** Expeditiously established and maintained proper position. Used proper procedures. Aircraft control was positive and smooth. Refueled without pilot-induced disconnects.

3.3.15.2.2. **Q-.** Slow to recognize and apply needed corrections to establish and maintain proper position. Aircraft control was not always positive and smooth, but adequate. Accomplished published/directed procedures with deviations or omissions that did not affect the successful completion of air refueling.

3.3.15.2.3. **U.** Erratic in the pre-contact/refueling position. Made deviations or omissions that affected flight safety and/or the successful completion of the air refueling. Used unacceptable procedures. Excessive time to hookup delayed mission accomplishment. Performance caused excessive and unnecessary pilot-induced disconnects and/or delayed mission accomplishment.

3.3.16. Area 18--Descent:

3.3.16.1. **Q.** Performed descent as directed, complied with all restrictions.

3.3.16.2. **Q-**. Performed descent as directed with minor deviations.

3.3.16.3. **U**. Performed descent with major deviations.

3.3.17. Area 19--Go-Around:

3.3.17.1. **Q**. Initiated and performed go-around promptly in accordance with flight manual and operational procedures and directives.

3.3.17.2. **Q-**. Slow to initiate go-around or procedural steps.

3.3.17.3. **U**. Did not self-initiate go-around when appropriate or directed. Applied incorrect procedures.

3.3.18. Area 20--Recovery:

3.3.18.1. **Q**. Performed recovery in accordance with applicable procedures using proper techniques. Effective use of sensors during sensor assisted trail recovery. Provided efficient commentary throughout recovery.

3.3.18.2. **Q-**. Performed recovery with minor deviations from established or appropriate procedures. Slow to obtain sensor track and/or contact due to poor technique during sensor assisted trail recovery. Inefficient commentary.

3.3.18.3. **U**. Recovery not performed in accordance with applicable procedures. Unable to accomplish sensor assisted trail recovery (if applicable) due to poor technique.

3.3.19. Area 21--Emergency Traffic Pattern (Prior to configuration):

3.3.19.1. **Q**. Complied with all TO, AFTTP 3-3. F-22A, and other applicable procedures. Maintained safe maneuvering airspeed/Angle of Attack (AOA). Flew approach compatible with the situation. Adjusted approach for type of emergency.

3.3.19.2. **Q-**. Minor procedural errors. Erratic airspeed/AOA control. Errors did not detract from safe handling of the situation but were inappropriate for the situation/emergency.

3.3.19.3. **U**. Did not comply with applicable procedures. Erratic airspeed/AOA control compounded problems associated with the emergency. Flew an approach that was incompatible with the simulated emergency. Did not adjust approach for the emergency.

3.3.20. Area 22--Emergency Approach/Landing (Configuration through rollout):

3.3.20.1. **Q**. Used sound judgment and safely landed. Configured at the appropriate position/altitude for the situation and emergency. Flew final, based on recommended procedures, airspeed/AOA, and glide path, that was appropriate for the situation and emergency. Smooth, positive control of aircraft. Touchdown point was in accordance with TO and other guidance and/or permitted safe stopping on available runway. Arrestment gear was safely used (if applicable).

3.3.20.2. **Q-**. Safety not compromised. Configured at a position and altitude which allowed for a safe approach. Could have landed safely, however deviations from recommended procedures, airspeed/AOA and altitudes were not appropriate for the situation or emergency. Unnecessary maneuvering due to minor errors in planning or judgment.

3.3.20.3. **U.** Major deviations from recommended procedures, airspeed/AOA, and altitudes. Required excessive maneuvering due to inadequate planning or judgment. Could not have landed safely. Touchdown point was not in accordance with applicable guidance and did not or would not allow for safe stopping on available runway. Arrestment gear could not have been used. Did not attempt go-around if approach was unsuccessful.

3.3.21. Area 23--VFR Pattern/Approach:

3.3.21.1. **Q.** Performed patterns/approaches in accordance with TO and AFTTP 3-3. F-22A procedures, techniques, and local directives. Aircraft control was smooth and positive. Accurately aligned with runway. Maintained proper/briefed airspeed/AOA. Airspeed -5/+10 knots.

3.3.21.2. **Q-.** Performed patterns/approaches with minor deviations to Technical Order and AFTTP 3-3. F-22A procedures, techniques, and local directives. Aircraft control was not consistently smooth, but safe. Alignment with runway varied. Slow to correct to proper/briefed airspeed/AOA. Airspeed -5/+15 knots.

3.3.21.3. **U.** Approaches not performed in accordance with TO and AFTTP 3-3. F-22A procedures, techniques, and local directives. Erratic aircraft control. Large deviations in runway alignment. Exceeded Q- parameters.

3.3.22. Area 24--Formation Approach:

3.3.22.1. Flight Lead:

3.3.22.1.1. **Q.** Smooth on controls and considered wingman. Flew approach as published/directed.

3.3.22.1.2. **Q-.** Occasionally rough on the controls. Made it difficult for wingman to maintain position. Some procedural deviations. Slow to comply with published procedures.

3.3.22.1.3. **U.** Did not monitor wingman's position or configuration. Rough on the controls. No consideration for wingman. Major deviations in procedures. Did not fly approach as published/directed. Flight could not land from approach.

3.3.22.2. Wingman:

3.3.22.2.1. **Q.** Maintained position with only momentary deviations. Smooth and immediate corrections. Maintained appropriate separation and complied with procedures and leader's instructions.

3.3.22.2.2. **Q-.** Varied position considerably. Over-controlled.

3.3.22.2.3. **U.** Abrupt position corrections. Did not maintain appropriate separation. Erratic wing position and/or procedural deviations.

3.3.23. Area 25--Landing. Listed criteria only applicable to normal VFR approaches. Where runway configuration, arresting cable placement or applicable guidance requires an adjustment to the desired touchdown point, a simulated runway threshold should be identified, and the grading criteria applied accordingly. For instrument approaches, the examinee should utilize a normal glideslope from either the decision height or from a point where visual acquisition of the runway environment is made.

3.3.23.1. **Q.** Performed landings in accordance with TO and AFTTP 3-3. F-22A procedures, techniques, and local directives. Touchdown Point 0' to 1500' from the runway threshold.

3.3.23.2. **Q-.** Performed landings with minor deviations to Technical Order and AFTTP 3-3. F-22A procedures, techniques, and local directives. Touchdown Point 1501' to 2000' from the runway threshold.

3.3.23.3. **U.** Landing not performed in accordance with TO and AFTTP 3-3. F-22A procedures, techniques, and local directives. Touchdown Point exceeded Q- criteria or departed the prepared surface.

3.3.24. Area 26--After Landing:

3.3.24.1. **Q.** Appropriate after landing checks and aircraft taxi procedures accomplished in accordance with TO and applicable directives. Completed all required forms accurately.

3.3.24.2. **Q-.** Same as qualified except some deviations or omissions noted in performance of after landing check and/or aircraft taxi procedures in which safety was not jeopardized. Required forms completed with minor errors.

3.3.24.3. **U.** Major deviations or omissions were made in performance of after-landing check or aircraft taxi procedures which could have jeopardized safety. Data recorded inaccurately or omitted.

3.3.25. Area 27--Flight Leadership (if applicable):

3.3.25.1. **Q.** Positively and effectively led the flight and made timely comments to correct discrepancies when required. Made sound and timely in-flight decisions. Provided direction/information when needed. Adapted effectively to meet new situational demands. Knew assigned tasks of other flight members. Asked for inputs and made positive statements to motivate flight members/other agencies when appropriate. Coordinated effectively with other flight members/other agencies without misunderstanding, confusion, or undue delay.

3.3.25.2. **Q-.** In-flight decisions delayed mission accomplishment or degraded training benefit. Flight coordination was limited though adequate to accomplish the mission. Provided limited direction/information when needed. Slow to adapt to meet new situational demands. Demonstrated only limited knowledge of assigned tasks of other flight members. Did not consistently seek inputs from other flight members/other agencies when appropriate. Limited effort to motivate flight members/other agencies through positive statements.

3.3.25.3. **U.** Did not accomplish the mission or failed to correct in-flight discrepancies. In-flight decisions were unsafe and/or jeopardized mission accomplishment. Failed to maintain briefed formation roles and responsibilities. Did not provide direction/information when needed. Did not adapt to meet new situational demands. Did not know the assigned tasks of other flight members. Did not ask for inputs when appropriate. Made no effort to make positive statements to motivate flight members/other agencies. Lack of flight/other agency coordination resulted in significant degradation of mission accomplishment.

3.3.26. Area 28--Debriefing/Critique:

3.3.26.1. **Q.** Thoroughly debriefed the mission (or applicable portions) in a timely manner. Correctly analyzed mission results with respect to established objectives. Provided specific, objective, non-threatening positive and negative feedback on team and individual performance. Debriefed deviations. Offered corrective guidance as appropriate. Thoroughly debriefed any breakdowns in deconfliction contracts, roles, and responsibilities. Asked for reactions/inputs from other mission participants. Re-capped key points and compared mission results with mission objectives.

3.3.26.2. **Q-.** Limited debriefing. Did not thoroughly discuss performance relative to mission objectives. Minor time management problems. Debriefed mission without specific, non-threatening positive and negative feedback on individual and team performance. Did not debrief significant deviations to an acceptable level. Did not consistently seek input from other mission participants. Incomplete or inadequate re-cap of key points and comparison of mission results to mission objectives.

3.3.26.3. **U.** Did not correctly debrief mission deviations or offer corrective guidance. Used excessive time to debrief. Failed to debrief breakdowns in deconfliction contracts, roles, and responsibilities. Did not provide non-threatening positive and negative feedback during debriefing. Did not seek input from other mission participants. Did not re-cap key mission points nor compare mission results to mission objectives.

3.3.27. Area 29--Knowledge. Evaluate all applicable subareas.

3.3.27.1. Aircraft General:

3.3.27.1.1. **Q.** Demonstrated thorough knowledge of aircraft systems, limitations, and performance characteristics.

3.3.27.1.2. **Q-.** Knowledge of aircraft systems, limitations, and performance characteristics sufficient to perform the mission safely. Demonstrated deficiencies either in depth of knowledge or comprehension.

3.3.27.1.3. **U.** Demonstrated unsatisfactory knowledge of aircraft systems, limitations, or performance characteristics.

3.3.27.2. Emergency Procedures:

3.3.27.2.1. **Q.** Displayed correct, immediate response to emergency situations. Effectively used checklist.

3.3.27.2.2. **Q-.** Response to certain emergencies was slow/confused. Used the checklist when appropriate, but slow to locate required data.

3.3.27.2.3. **U.** Unable to analyze problems or take corrective action. Did not use checklist or lacks acceptable familiarity with its arrangement or contents.

3.3.27.3. Flight Rules/Procedures:

3.3.27.3.1. **Q.** Thorough knowledge of flight rules and procedures.

3.3.27.3.2. **Q-.** Deficiencies in depth of knowledge.

3.3.27.3.3. **U.** Inadequate knowledge of flight rules and procedures.

3.3.27.4. Weapon/Tactics/Threat:

- 3.3.27.4.1. **Q.** Thorough knowledge of all aircraft weapons systems, weapons effects, tactics, and threats applicable to the unit mission.
- 3.3.27.4.2. **Q-.** Deficiencies in depth of knowledge or comprehension of weapons systems, weapons effects, tactics, and threat knowledge which would not preclude successful mission accomplishment.
- 3.3.27.4.3. **U.** Insufficient knowledge of weapons, tactics and threat contributed to ineffective mission accomplishment.
- 3.3.27.5. Local Area Procedures:
- 3.3.27.5.1. **Q.** Thorough knowledge of local procedures.
- 3.3.27.5.2. **Q-.** Limited knowledge of local procedures.
- 3.3.27.5.3. **U.** Inadequate knowledge of local procedures.
- 3.3.27.6. Plans/Alert Procedures:
- 3.3.27.6.1. **Q.** Adequate knowledge of plans applicable to the unit mission. Thoroughly familiar with alert procedures and contingencies.
- 3.3.27.6.2. **Q-.** Deficiencies in depth of knowledge or comprehension of plans or alert procedures applicable to the unit.
- 3.3.27.6.3. **U.** Knowledge of plans/alert procedures insufficient to ensure effective mission accomplishment.
- 3.3.27.7. Authentication Procedures:
- 3.3.27.7.1. **Q.** Performed authentication with no errors.
- 3.3.27.7.2. **Q-.** Minor errors in authentication. Required numerous attempts to complete authentication.
- 3.3.27.7.3. **U.** Unable to authenticate or authenticated incorrectly.
- 3.3.28. Area 30--Airmanship/Situational Awareness (Critical):
- 3.3.28.1. **Q.** Executed the assigned mission in a timely, efficient manner. Conducted the flight with a sense of understanding and comprehension. Made appropriate decisions based on available information. Recognized the need for action. Aware of performance of self and other flight members. Aware of on-going mission status. Recognized, verbalized, and correctly acted on unexpected events.
- 3.3.28.2. **U.** Decisions or lack thereof resulted in failure to accomplish the assigned mission. Misanalysed flight conditions and/or failed to recognize/understand mission developments, or demonstrated poor judgment to the extent that flight safety could have been compromised. Did not recognize the need for action. Not aware of performance of self and other flight members. Not aware of on-going mission status. Failed to recognize, verbalize, and act on unexpected events.
- 3.3.29. Area 31--Safety (Critical):
- 3.3.29.1. **Q.** Aware of and complied with all safety factors required for safe aircraft operation and mission accomplishment.

3.3.29.2. **U.** Was not aware of or did not comply with all safety factors required for safe operation or mission accomplishment. Did not adequately clear aircraft flight path. Operated the aircraft in a dangerous manner.

3.3.30. Area 32--Flight Discipline (Critical):

3.3.30.1. **Q.** Provided required direction/information. Correctly adapted to meet new situational demands. Demonstrated strict professional flight and crew discipline throughout all phases of the mission.

3.3.30.2. **U.** Did not provide direction/information when needed. Did not correctly adapt to meet new situational demands. Failed to exhibit strict flight or pilot discipline. Violated or ignored rules or instructions.

3.3.31. Area 33--Instructor Performance (if applicable).

3.3.31.1. Briefing/Debriefing:

3.3.31.1.1. **Q.** Presented a comprehensive, instructional briefing/debriefing which encompassed all mission events. Made excellent use of training aids. Excellent analysis of all events/maneuvers. Clearly defined objectives. Gave positive and negative performance feedback at appropriate times—feedback was specific, objective, based on observable behavior, and given constructively. Re-capped key points/compared mission's results with objectives. When appropriate, took the initiative and time to share operational knowledge and experience.

3.3.31.1.2. **Q-** Minor errors or omissions in briefing/debriefing or mission critique. Occasionally unclear in analysis of events or maneuvers. Some feedback given but was not always given at appropriate times and not always a positive learning experience for the entire formation. Debrief covered the mission highlights but was not specific enough.

3.3.31.1.3. **U.** Major errors or omissions in briefing/debriefing. Analysis of events or maneuvers was incomplete, inaccurate, or confusing. Did not use training aids/reference material effectively. Briefing/debriefing below the caliber of that expected of instructors. Failed to define mission objectives. Feedback not given or given poorly. Attempted to hide mistakes. Elected not to conduct flight debrief.

3.3.31.2. Instructor Knowledge:

3.3.31.2.1. **Q.** Demonstrated in-depth knowledge of procedures, requirements, aircraft systems/performance characteristics, mission, and tactics beyond that expected of non-instructors.

3.3.31.2.2. **Q-** Deficiencies in depth of knowledge, comprehension of procedures, requirements, aircraft systems/performance characteristics, mission, or tactics.

3.3.31.2.3. **U.** Unfamiliar with procedures, requirements, aircraft systems/performance characteristics, mission, or tactics. Lack of knowledge in certain areas seriously detracted from instructor effectiveness.

3.3.31.3. Ability to Instruct:

3.3.31.3.1. **Q.** Demonstrated excellent instructor/evaluator ability. Clearly defined all mission requirements and any required additional training/corrective action. Instruction/evaluation was accurate, effective, and timely. Was completely aware of aircraft/mission situation at all times.

3.3.31.3.2. **Q-.** Problems in communication or analysis degraded effectiveness of instruction/evaluation.

3.3.31.3.3. **U.** Demonstrated inadequate ability to instruct/evaluate. Unable to perform, teach or assess techniques, procedures, systems use or tactics. Did not remain aware of aircraft/mission situation at all times.

3.3.31.4. Training/Evaluation Forms Preparation:

3.3.31.4.1. **Q.** Completed appropriate training/evaluation records accurately. Adequately assessed and recorded performance. Comments were clear and pertinent.

3.3.31.4.2. **Q-.** Minor errors or omissions in training/evaluation records. Comments were incomplete or slightly unclear.

3.3.31.4.3. **U.** Did not complete required forms or records. Comments were invalid, unclear, or did not accurately document performance.

3.3.32. Area 34--Instrument Interpretation:

3.3.32.1. **Q.** Demonstrated satisfactory knowledge of basic instrument procedures, in-flight penetration, and approach procedures. Quickly analyzed flight instruments.

3.3.32.2. **Q-.** Demonstrated limited knowledge of instrument procedures. Slow to interpret instruments.

3.3.32.3. **U.** Displayed faulty or insufficient knowledge of instrument procedures. Unable to properly interpret instruments.

3.3.33. Area 35--Sensor Interpretation:

3.3.33.1. **Q.** Correctly interpreted sensor display. Had no difficulties compensating for errors or unanticipated developments.

3.3.33.2. **Q-.** Slow to interpret sensor display. Had difficulties compensating for system errors or unanticipated developments.

3.3.33.3. **U.** Could not interpret sensor display. Could not compensate for or identify system errors or unanticipated developments.

3.3.34. Area 36--Task Prioritization:

3.3.34.1. **Q.** Correctly identified, prioritized, and managed tasks based on existing and new information that assured mission success. Used available resources to manage workload, communicated task priorities to other flight members. Asked for assistance when required. Displayed sound knowledge of systems. Effectively identified contingencies and alternatives. Gathered and crosschecked available data before acting. Clearly stated decisions and ensured they were understood. Investigated doubts and concerns of other flight members when necessary.

3.3.34.2. **Q-**. Made minor errors in prioritization, management of tasks, system knowledge which did not affect safe or effective mission accomplishment. Did not completely communicate task priorities to other flight members. Made minor errors in identifying contingencies, gathering data, or communicating a decision which did not affect safe or effective mission accomplishment.

3.3.34.3. **U**. Incorrectly prioritized or managed tasks. Displayed lack of systems knowledge causing task overload that seriously degraded mission accomplishment or safety of flight. Failed to communicate task priorities to other flight members. Failed to ask for assistance when overloaded. Improperly or ineffectively identified contingencies, gathered data, or communicated a decision that seriously degraded mission accomplishment or safety of flight.

3.3.35. Area 37--Cockpit Resource Management:

3.3.35.1. **Q**. Effectively employed available resources to mitigate identified and/or emerging risks during the mission.

3.3.35.2. **Q-**. Adequately employed available resources to mitigate identified and/or emerging risks during the mission.

3.3.35.3. **U**. Failed to employ available resources to mitigate identified and/or emerging risks during the mission.

3.3.36. Area 38--Takeoff and Landing Data:

3.3.36.1. **Q**. Accurately computed and checked all required takeoff and landing data. Complete understanding of abort considerations, runway condition, and impact of weather on takeoff and landing operations. All distances computed to within ± 500 feet and all speeds ± 5 knots.

3.3.36.2. **Q-**. Computed and checked required takeoff data with minor omissions or errors, which did not detract from mission accomplishment or safety. Limited understanding of abort considerations, runway condition, and impact of weather on takeoff and landing operations. Computed distances within ± 800 feet and speeds ± 8 knots.

3.3.36.3. **U**. Major errors or omissions which compromise safety. Faulty or improper knowledge of takeoff and landing data. Computed distances and speeds tolerances greater than Q- parameters.

3.4. Aircrew Evaluation Criteria—Instruments.

3.4.1. Area 61--Holding:

3.4.1.1. **Q**. Performed entry and holding in accordance with published procedures and directives. Holding pattern limit exceeded by not more than: Leg Timing ± 15 seconds, Tactical Air Navigation (TACAN) ± 2 NM.

3.4.1.2. **Q-**. Minor deviations to procedures or directives. Holding pattern limit exceeded by not more than: Leg Timing ± 20 seconds, TACAN ± 3 NM.

3.4.1.3. **U**. Holding was not in accordance with published procedures and directives. Exceeded criteria for Q- or holding pattern limits.

3.4.2. Area 62--Instrument Penetration (Initial Approach Fix to Final Approach Fix/Descent Point)/Enroute Descent (Radar Vectors to Final Approach):

3.4.2.1. **Q.** Performed the penetration/enroute descent and approach as published/directed and in accordance with applicable flight manuals. Complied with all restrictions. Made smooth and timely corrections.

3.4.2.2. **Q-.** Performed the penetration/enroute descent and approach with minor deviations. Complied with all restrictions. Slow to make corrections.

3.4.2.3. **U.** Performed the penetration/enroute descent and approach with major deviations. Erratic corrections.

3.4.3. Area 63--Instrument Patterns (Downwind/Base Leg):

3.4.3.1. **Q.** Performed procedures as published or directed and in accordance with TO procedures. Smooth and timely response to controller instruction.

3.4.3.2. **Q-.** Performed procedures with minor deviations. Slow to respond to controller instruction.

3.4.3.3. **U.** Performed procedures with major deviations/erratic corrections. Failed to comply with controller instruction.

3.4.4. Area 64—Non-Precision Approach:

3.4.4.1. **Q.** Adhered to all published/directed procedures and restrictions. Used appropriate descent rate to arrive at Minimum Descent Altitude (MDA) at or before Visual Descent Point (VDP)/Missed Approach Point (MAP). Position would have permitted a safe landing. Maintained proper/briefed AOA.

3.4.4.1.1. Airspeed +10/-5 knots.

3.4.4.1.2. Heading +/-5 degrees (Airport Surveillance Radar [ASR]).

3.4.4.1.3. Course +/-5 degrees at MAP.

3.4.4.1.4. Localizer less than one dot deflection.

3.4.4.1.5. Minimum Descent Altitude +100/-0 feet.

3.4.4.2. **Q-.** Performed approach with minor deviations. Arrived at MDA at or before the MAP, but past the VDP. Position would have permitted a safe landing. Slow to correct to proper/briefed AOA.

3.4.4.2.1. Airspeed +15/-5 knots.

3.4.4.2.2. Heading +/-10 degrees (ASR).

3.4.4.2.3. Course +/-10 degrees at MAP.

3.4.4.2.4. Localizer within two dots deflection.

3.4.4.2.5. Minimum Descent Altitude +150/-50 feet.

3.4.4.3. **U.** Did not comply with published/directed procedures or restrictions. Exceeded Q- limits. Maintained steady-state flight below the MDA, even though the 50-foot limit

was not exceeded. Could not land safely from the approach. **Note:** The 50-foot tolerance applies only to momentary excursions.

3.4.5. Area 65--Precision Approach (Precision Approach Radar [PAR]) (See **Note 4; Table 2.1**):

3.4.5.1. **Q.** Performed procedures as directed and in accordance with TO procedures. Smooth and timely response to controller's instructions. Complied with decision height. Position would have permitted a safe landing. Maintained proper/briefed AOA. Maintained glide path with only minor deviations.

3.4.5.1.1. Airspeed +10/-5 knots.

3.4.5.1.2. Heading within 5 degrees of controller's instructions.

3.4.5.1.3. Initiated missed approach (if applicable) at decision height.

3.4.5.2. **Q-.** Performed procedures with minor deviations. Slow to respond to controller's instructions. Position would have permitted a safe landing. Slow to correct to proper/briefed AOA. Improper glide path control.

3.4.5.2.1. Airspeed +15/-5 knots.

3.4.5.2.2. Heading within 10 degrees of controller's instructions.

3.4.5.2.3. Initiated missed approach (if applicable) at decision height, +50/-0 ft.

3.4.5.3. **U.** Performed procedures with major deviations. Did not respond to controller's instructions. Erratic corrections. Exceeded Q- limits. Did not comply with decision height and/or position would not have permitted a safe landing. Erratic glide path control.

3.4.6. Area 66--Precision Approach (Instrument Landing System [ILS]) (See **Note 5; Table 2.1**):

3.4.6.1. **Q.** Performed procedures as published and in accordance with Flight Series Data (FSD) procedures. Smooth and timely corrections to azimuth and glide slope. Complied with decision height and position would have permitted a safe landing. Maintained proper/briefed AOA.

3.4.6.1.1. Airspeed +10/-5 knots.

3.4.6.1.2. Glide Slope/Azimuth within one dot.

3.4.6.1.3. Initiated missed approach (if applicable) at decision height.

3.4.6.2. **Q-.** Performed procedures with minor deviations. Slow to make corrections or initiate procedures. Position would have permitted a safe landing. Slow to correct to proper/briefed AOA.

3.4.6.2.1. Airspeed +15/-5 knots.

3.4.6.2.2. Glide Slope within one dot low/two dots high.

3.4.6.2.3. Azimuth within two dots.

3.4.6.2.4. Initiated missed approach (if applicable) at decision height, +50/-0 ft.

3.4.6.3. **U.** Performed procedures with major deviations. Erratic corrections. Exceeded Q-limits. Did not comply with Decision Height or position at Decision Height would not have permitted a safe landing.

3.4.7. Area 67--Missed Approach/Climb Out:

3.4.7.1. **Q.** Executed missed approach/climb-out as published/directed. Completed all actions in accordance with TO procedures.

3.4.7.2. **Q-.** Executed missed approach/climb-out with minor deviations. Slow to comply with published procedures, controller's instructions, or flight manual procedures.

3.4.7.3. **U.** Executed missed approach/climb-out with major deviations or did not comply with applicable directives.

3.4.8. Area 68--Circling/Sidestep Approach:

3.4.8.1. **Q.** Performed circling/sidestep approach in accordance with procedures and techniques outlined in the TO and AFMAN 11-202V3. Aircraft control was positive and smooth. Proper runway alignment.

3.4.8.2. **Q-.** Performed circling/sidestep approach with minor deviations to procedures and techniques outlined in the TO and AFMAN 11-202V3. Aircraft control was not consistently smooth, but safe. Runway alignment varied, but go-around not required.

3.4.8.3. **U.** Circling/sidestep approach not performed in accordance with procedures and techniques outlined in the TO and AFMAN 11-202V3. Erratic aircraft control. Large deviations in runway alignment required go-around.

3.4.9. Area 69--Instrument Cross-Check:

3.4.9.1. **Q.** Effective instrument cross-check. Smooth and positive aircraft control throughout flight. Meets "Q" criteria listed in General Criteria, applicable special events or instrument final approaches.

3.4.9.2. **Q-.** Slow instrument cross-check. Aircraft control occasionally abrupt to compensate for recognition of errors. Meets "Q-" criteria listed in General Criteria, applicable special events or instrument final approaches.

3.4.9.3. **U.** Inadequate instrument cross-check. Erratic aircraft control. Exceeded Q-limits.

3.5. Aircrew Evaluation Criteria—Tactical Employment.

3.5.1. General:

3.5.1.1. Area 81--Tactical/Mission Plan:

3.5.1.1.1. **Q.** Realistic, well-developed plan that encompassed mission objectives, threats, and capabilities of all flight members. Addressed contingencies in development of plan.

3.5.1.1.2. **Q-.** Minor omissions in the plan resulted in less than optimum achievement of objectives and detracted from mission effectiveness. Planned tactics resulted in unnecessary difficulty.

- 3.5.1.1.3. **U.** Major errors in the plan precluded accomplishment of the stated objectives.
- 3.5.1.2. Area 82—Aerospace Control Alert (ACA) Tasking (Air Defense Units):
- 3.5.1.2.1. **Q.** Responded properly to directive commentary. Completed all required armament/safety checks. Successfully completed visual identification pass. Properly performed procedures for air defense operations.
- 3.5.1.2.2. **Q-.** Slow response to directive commentary contributed to delayed completion of a visual identification pass or required large position corrections to complete a firing pass. Completed all required armament/safety checks. Minor deficiencies during performance of procedures for air defense operations.
- 3.5.1.2.3. **U.** Failed to complete intercepts/visual identification passes because of improper procedures. Did not complete an armament/safety check. Failed to perform proper procedures for air defense operations.
- 3.5.1.3. Area 83--Tactical/Mission Execution:
- 3.5.1.3.1. **Q.** Applied tactics consistent with the threat, current directives, and good judgment. Executed the plan and achieved mission goals. Quickly adapted to changing environment. Maintained situational awareness.
- 3.5.1.3.2. **Q-.** Minor deviations from tactical plan which did not result in an ineffective mission. Slow to adapt to changing environment. Low situational awareness.
- 3.5.1.3.3. **U.** Unable to accomplish the mission due to major errors of commission or omission during execution of the plan. Situational awareness lost.
- 3.5.1.4. Area 84--Dissimilar Force (DF) Interface:
- 3.5.1.4.1. **Q.** Effectively planned for and used DF assets to enhance mission and achieve objectives.
- 3.5.1.4.2. **Q-.** Minor confusion between DF assets and fighters. Less than optimum use of Composite Force Assets which did not affect the fighter's offensive advantage.
- 3.5.1.4.3. **U.** Inadequate or incorrect use of DF assets resulted in loss of offensive potential.
- 3.5.1.5. Area 85--Tactical Communications:
- 3.5.1.5.1. **Q.** Radio communications were concise, accurate and effectively used to direct maneuvers or describe the tactical situation.
- 3.5.1.5.2. **Q-.** Minor terminology errors or omissions occurred, but did not significantly detract from situational awareness, mutual support, or mission accomplishment. Extraneous comments over primary or secondary radios presented minor distractions.
- 3.5.1.5.3. **U.** Radio communications over primary/secondary radios were inadequate or excessive. Inaccurate or confusing terminology significantly detracted from mutual support, situational awareness, or mission accomplishment.

3.5.1.6. Area 86—Visual/Sensor Lookout:

3.5.1.6.1. **Q.** Demonstrated thorough knowledge and effective application of visual lookout techniques and integration of sensor information throughout all phases of flight. Maintained deconfliction contracts.

3.5.1.6.2. **Q-.** Demonstrated limited knowledge of visual lookout techniques. Slow to establish lookout responsibilities for all phases of flight. Slow to integrate visual lookout and sensor information to acquire threats to flight or targets to be attacked. Made minor deviations in deconfliction contract adherence.

3.5.1.6.3. **U.** Demonstrated unsatisfactory knowledge and/or application of visual lookout and sensor integration. Allowed threat to penetrate to short range undetected. Failed to maintain deconfliction contracts.

3.5.1.7. Area 87--Mutual Support:

3.5.1.7.1. **Q.** Maintained mutual support during entire engagement thus sustaining an offensive posture and/or negating all attacks. Adhered to all engaged and supporting responsibilities and deconfliction contracts.

3.5.1.7.2. **Q-.** Mutual support occasionally broke down resulting in temporary confusion or the loss of an offensive advantage. Demonstrated limited knowledge of engaged and supporting responsibilities or deconfliction contracts.

3.5.1.7.3. **U.** Mutual support broke down resulting in the flight being put in a defensive position from which all attacks were not negated. Demonstrated inadequate knowledge of engaged and supporting responsibilities and deconfliction contracts. Caused an unsafe deconfliction issue.

3.5.1.8. Area 88--Tactical Navigation:

3.5.1.8.1. **Q.** Navigated to desired destination and remained geographically oriented during the tactical portion of the mission. Altitude and route of flight reflected consideration for enemy threats. Maintained terrain awareness. Complied with established altitude minimums. Adhered to airspace restrictions.

3.5.1.8.2. **Q-.** Deviations from planned route of flight were recognized and corrected. Maintained terrain awareness. Altitude control contributed to exposure to threats for brief periods.

3.5.1.8.3. **U.** Failed to locate desired destination. Deviations from planned route of flight exposed flight to threats. Violated airspace restrictions or altitude minimums. Poor airspeed/altitude control contributed to disorientation. Inadequate terrain awareness.

3.5.1.9. Area 89--Ingress:

3.5.1.9.1. **Q.** Aware of all known/simulated threats and defenses. Employed effective use of evasive maneuvers, and/or route and altitude selection.

3.5.1.9.2. **Q-.** Ignored some of the known/simulated threats and defenses. Improper use of evasive maneuvers, and/or route and altitude selection resulted in unnecessary exposure.

- 3.5.1.9.3. **U.** Failed to honor known/simulated threats and defenses significantly reducing survivability. Failed to employ effective evasive maneuvers, and/or route or altitude threat deconfliction.
- 3.5.1.10. Area 90--Egress:
- 3.5.1.10.1. **Q.** Effectively used evasive maneuvers to complete an expeditious egress from the target area. Formation was reestablished as soon as possible without undue exposure to enemy defenses.
- 3.5.1.10.2. **Q-.** Egress contributed to unnecessary exposure to threats and delayed return to formation and departure from target area.
- 3.5.1.10.3. **U.** Egress caused excessive exposure to threats. Return to formation was not accomplished or resulted in excessive exposure to threats.
- 3.5.1.11. Area 91--Combat Separation:
- 3.5.1.11.1. **Q.** Adhered to briefed/directed separation procedures. Positive control of flight/element during separation. Adversary was unable to achieve valid simulated missile/gun firing parameters.
- 3.5.1.11.2. **Q-.** Minor deviations from briefed/directed separation procedures. Allowed mutual support to break down intermittently.
- 3.5.1.11.3. **U.** Did not adhere to briefed/directed separation procedures to the degree that an emergency fuel condition would have developed if allowed to continue uncorrected. Could not effectively separate from the engagement or could not regain mutual support.
- 3.5.1.12. Area 92--Timing. Time should be based on preplanned time on target (TOT), time to target (TTT) for ordnance impact or Vulnerability Period (VUL) Suppression of Enemy Air Defenses (SEAD)/Defensive Counter Air (DCA) or push time (Offensive Counter Air Sweep). Adjustments in TOT should be made for non-pilot caused delays. The FE may widen this timing criterion if the examinee was forced to maneuver extensively along the ingress route due to simulated enemy air or ground defense reactions, Air Traffic Control (ATC) instructions, and/or weather.
- 3.5.1.12.1. Conventional attack:
- 3.5.1.12.1.1. **Q.** ± 1 minute.
- 3.5.1.12.1.2. **Q-.** ± 2 minutes.
- 3.5.1.12.1.3. **U.** Exceeded Q- parameters.
- 3.5.1.12.2. A/A Escort/Sweep/DCA:
- 3.5.1.12.2.1. **Q.** Arrived on station not more than 1 minute late. Covered VUL.
- 3.5.1.12.2.2. **Q-.** Arrived on station not more than 2 minutes late. Covered VUL.
- 3.5.1.12.2.3. **U.** Exceeded Q- parameters. Failed to cover VUL due to inadequate planning or use of resources.
- 3.5.1.13. Area 93--Training Rules/Rules of Engagement (ROE):

- 3.5.1.13.1. **Q.** Adhered to and knowledgeable of all training rules/ROE.
- 3.5.1.13.2. **Q-.** Minor deviations. Made timely and positive corrections. Did not jeopardize safety of flight.
- 3.5.1.13.3. **U.** Significant deviations indicating a lack of knowledge of training rules/ROE. Jeopardized safety of flight.
- 3.5.1.14. Area 94--Threat Reactions:
 - 3.5.1.14.1. **Q.** Threat reactions were timely and correct. Accomplished appropriate countermeasures and performed maneuvers to counter threat.
 - 3.5.1.14.2. **Q-.** Threat reactions were slow or inconsistent. Slow to accomplish appropriate countermeasures or perform maneuvers to counter threat.
 - 3.5.1.14.3. **U.** Numerous threat reactions were omitted or incorrect. Failed to accomplish countermeasures or perform maneuvers to counter threat.
- 3.5.1.15. Area 95--In-Flight Report:
 - 3.5.1.15.1. **Q.** Gave accurate, precise in-flight reports in correct format.
 - 3.5.1.15.2. **Q-.** Deviated from established procedures/format. Completed reports.
 - 3.5.1.15.3. **U.** Failed to make in-flight reports. Unfamiliar with in-flight reporting procedures.
- 3.5.1.16. Area 96—Electronic Warfare (EW) / Expendable Countermeasures (EXCM) / All Aspect Missile Defense (AAMD)
 - 3.5.1.16.1. **Q.** Displayed thorough knowledge and operation of Electronic Attack (EA)/Electronic Protection (EP) systems.
 - 3.5.1.16.2. **Q-.** Displayed limited knowledge and/or minor errors in operation of EA/EP systems.
 - 3.5.1.16.3. **U.** Displayed unsatisfactory knowledge and/or significant errors in operation of EA/EP systems.
- 3.5.1.17. Area 98--Sensor Management:
 - 3.5.1.17.1. **Q.** Correctly planned, briefed, prioritized, and executed a sound sensor management plan in accordance with applicable guidance. Identified high task periods and primary/secondary/tertiary sensors based on mission priorities and flight member responsibilities. Accounted for threats, changes in tasking, weather, and flight member experience. Re-prioritized sensor tasks based on existing and new information to ensure mission success. Displayed sound knowledge of sensor systems.
 - 3.5.1.17.2. **Q-.** Made minor errors in planning, prioritization, and management of sensor tasks. Did not completely account for threats, changes in tasking, weather, or flight member experience.
 - 3.5.1.17.3. **U.** Incorrectly prioritized or managed sensor tasks in a manner which seriously degraded mission accomplishment or safety of flight. Overtasked other flight members or failed to communicate task overload. Displayed lack of knowledge of sensor systems.

3.5.1.18. Area 99--Signature Management:

3.5.1.18.1. **Q.** Correctly planned, briefed, prioritized, and executed a sound signature management plan. Accounted for threats, changes in tasking, and weather. Displayed sound knowledge of aircraft signature.

3.5.1.18.2. **Q-.** Made minor errors in planning, prioritization, and management of aircraft signature. Did not completely account for threats, changes in tasking, or weather.

3.5.1.18.3. **U.** Incorrectly prioritized or managed aircraft signature in a manner which seriously degraded mission accomplishment or safety of flight. Displayed lack of knowledge of aircraft signature.

3.5.1.19. Area 100--Weapons Management:

3.5.1.19.1. **Q.** Correctly planned, briefed, prioritized, and executed a sound weapons management plan. Operated weapons in accordance with all technical requirements. Executed effective troubleshooting when required. Accounted for threats, weather, and changes in tasking. Re-prioritized tasks based on existing and new information to ensure mission success. Displayed weapons systems knowledge. Successfully placed the air vehicle in position to allow optimum weapons employment in accordance with mission requirements.

3.5.1.19.2. **Q-.** Made minor errors in planning, prioritization, management and troubleshooting of weapons without seriously degrading mission accomplishment. Did not completely account for threats, changes in tasking, weather, Air vehicle maneuvering, or poor positioning affected or reduced weapons employment.

3.5.1.19.3. **U.** Incorrectly prioritized or managed weapons in a manner which seriously degraded mission accomplishment or safety of flight. Displayed lack of weapons systems knowledge. Unable to troubleshoot and follow technical directives for weapons abnormal conditions. Air vehicle maneuvering or poor positioning affected or reduced weapons employment.

3.5.2. A/A:

3.5.2.1. Area 111--Sensor Search/Sorting:

3.5.2.1.1. **Q.** Correctly planned, briefed, prioritized, and executed a sound sensor management plan. Adhered to sensor timeline. Identified high task periods and primary/secondary/tertiary sensors based on mission priorities and flight member responsibilities. Accounted for threats, changes in tasking, weather, and flight member experience. Re-prioritized sensor tasks based on existing and new information to ensure mission success. Displayed sound knowledge of sensor systems.

3.5.2.1.2. **Q-.** Made minor errors in planning, prioritization, and management of sensor tasks. Minor deviations in sensor timeline. Did not completely account for threats, changes in tasking, weather, or flight member experience.

3.5.2.1.3. **U.** Incorrectly prioritized or managed sensor tasks in a manner which seriously degraded mission accomplishment or safety of flight. Inadequate adherence to sensor timeline that led/could have led to mission failure. Overtasked other flight

members or failed to communicate task overload. Displayed lack of knowledge of sensor systems.

3.5.2.2. Area 112--Tactical Intercept:

3.5.2.2.1. **Q.** Thorough knowledge and correct employment of tactical intercept procedures. Effective aircraft positioning and sensor use resulting in successful threat identification and intercept, if applicable. Successfully engaged all factor threats.

3.5.2.2.2. **Q-.** Limited knowledge of tactical intercept procedures. Intercept resulted in successful threat identification; however, excessive corrections were required to complete the intercept and/or threat engagement. Sensor use/aircraft positioning could have been more effective.

3.5.2.2.3. **U.** Did not adequately cover designated airspace. Threat identification and/or intercept unsuccessful due to poor techniques and/or improper procedures. Engagement terminated in a defensive position.

3.5.2.3. Area 113--Offensive Maneuvering:

3.5.2.3.1. **Q.** Effective use of basic fighter maneuvering and air combat maneuvering or BVR weapons employment in accordance with the ROE to successfully engage opposing aircraft. Effectively managed energy level during engagements. Maintained offensive advantage.

3.5.2.3.2. **Q-.** Limited maneuvering proficiency. Did not effectively counter opposing aircraft. Occasionally mismanaged energy levels, jeopardizing offensive advantage.

3.5.2.3.3. **U.** Unsatisfactory knowledge or performance of maneuvers, aircraft handling or energy management. Lost offensive advantage.

3.5.2.4. Area 114--Defensive/Counteroffensive Maneuvering:

3.5.2.4.1. **Q.** Performed correct initial move to counterattack of opposing aircraft. Used correct maneuvers to negate the threat. Effectively gained counteroffensive advantage.

3.5.2.4.2. **Q-.** Some hesitation or confusion during the defensive situation. Minor errors in energy management or maneuvering delayed negating the attack of opposing aircraft.

3.5.2.4.3. **U.** Unable to negate attack of opposing aircraft.

3.5.2.5. Area 115--A/A Weapons Employment. Snapshots assessed as misses may be discounted from computations if attacks were tactically sound and attempted within designated parameters.

3.5.2.5.1. **Q.** Demonstrated proper knowledge of weapons employment procedures and attack parameters. Simulated weapons employment was accomplished at each opportunity and within designated parameters. 75 percent (or two of three or one of two) of all attempted weapons employment were valid.

3.5.2.5.2. **Q-.** Demonstrated limited knowledge of weapons employment or attack parameters. Simulated weapons employment was successful but slow to recognize

appropriate parameters. Did not meet Q criteria for attempted shots, but minor errors did not affect mission accomplishment.

3.5.2.5.3. **U.** Demonstrated inadequate knowledge of weapons employment procedures or attack parameters. All attempts to simulate weapons employment were unsuccessful due to pilot error.

3.5.2.6. Area 116--Air-to-Air (A/A) Systems Integration:

3.5.2.6.1. **Q.** Effective use and integration of sensors. Optimized information flow to other flight members and participants.

3.5.2.6.2. **Q-.** Slow to integrate use of sensors. Passed sub-optimal information to other flight members and participants.

3.5.2.6.3. **U.** Failed to effectively integrate sensors. Failed to pass appropriate information to other flight members and participants.

3.5.2.7. Area 117--Command and Control (C2) Integration:

3.5.2.7.1. **Q.** Effectively integrated Airborne Warning and Control System (AWACS)/Ground Control Intercept (GCI) information into tactical plan when necessary. Requested threat declarations when required. Communicated changes in the tactical situation, weather, and threats to C2 agencies.

3.5.2.7.2. **Q-.** Slow to integrate AWACS/GCI information into tactical plan when necessary. Slow to request threat declarations. Incomplete communication of changes in the tactical situation, weather, and threats to C2 agencies.

3.5.2.7.3. **U.** Failed to integrate AWACS/GCI information into tactical plan when necessary. Failed to request or did not abide by threat declarations. Inadequate communication of changes in the tactical situation, weather, and threats to C2 agencies.

3.5.3. Air-to-Surface:

3.5.3.1. Area 131--Target /Threat Acquisition:

3.5.3.1.1. **Q.** Target acquired on the first attack with radar, if missed due to safety, clearance to expend, or difficult target identification features, a successful reattack was accomplished. For multiple target scenarios, all targets were acquired on the first attack or with a successful reattack.

3.5.3.1.2. **Q-.** Late to acquire the target with radar, degraded the initial attack or reattack. For multiple target scenarios, 50 percent or more of the targets were acquired on the first attack or with a successful reattack.

3.5.3.1.3. **U.** Target was not acquired. For multiple target scenarios, less than 50 percent of the targets were acquired on the first attack or with a successful reattack. **Note:** A successful reattack is defined as being within parameters to effectively employ the planned weapons against the target.

3.5.3.2. Area 132--Air-to-Surface Weapons Employment:

3.5.3.3. **Note: 1** . Scorable Ranges. When weapons deliveries are performed on different ranges during the same mission, or like deliveries constituting separate events are

performed on the same range, all events count for evaluation, and the area grade should be predicated upon the criteria below.

3.5.3.4. **Note: 2.** Unscoreable Ranges. The FE should determine Hit/Miss based on impact of the ordnance and/or desired weapons effects for the attack.

3.5.3.5. **Note: 3.** Simulated Releases. FEs determine Hit/Miss based on video debrief review.

3.5.3.6. **Note: 4.** FEs determine Hit/Miss by reference to video debrief in cases where unexplained weapons delivery misses occur (e.g., wind shears, weapons malfunctions).

3.5.3.6.1. Single Weapon Event:

3.5.3.6.1.1. **Q.** Demonstrated complete knowledge of weapons delivery procedures, attack parameters, weapons computations and error analysis for the events performed. At least 50% of all weapons were within hit criteria.

3.5.3.6.1.2. **Q-.** Minor errors in knowledge of weapons delivery procedures, attack parameters, weapons computations, or error analysis for the events performed. At least 50% of all weapons were within hit criteria.

3.5.3.6.1.3. **U.** Demonstrated inadequate knowledge of weapons delivery procedures, attack parameters, weapons computations or error analysis for the events flown. Less than 50% of all weapons were within hit criteria.

3.5.3.6.2. Multiple Weapon Events:

3.5.3.6.2.1. **Q.** Qualified within the applicable criteria in all events attempted. At least 50% of all bombs in each event were within hit criteria.

3.5.3.6.2.2. **Q-.** Minor errors in knowledge of weapons delivery procedures, attack parameters, weapons computations, or error analysis for the events performed. Less than Q criteria.

3.5.3.6.2.3. **U.** Demonstrated inadequate knowledge of weapons delivery procedures, attack parameters, weapons computations, or error analysis for the events flown. Unqualified in greater than 50% of all events attempted.

3.5.3.7. Area 133—Range/Airspace Procedures:

3.5.3.7.1. **Q.** Used proper procedures for entering and exiting the range. Range operations followed established procedures.

3.5.3.7.2. **Q-.** Minor deviations from established procedures for range entry, exit or operations.

3.5.3.7.3. **U.** Major deviations from established procedures for range entry, exit or operations.

3.5.3.8. Area 134—Air-to-Surface Sensor Operation:

3.5.3.8.1. **Q.** Correctly operated the sensor to acquire the target. Was able to properly search and set up the sensor display to permit weapons delivery.

3.5.3.8.2. **Q-.** Poor use of sensor hindered target identification degrading weapons delivery. Did not thoroughly understand system set-up procedures.

- 3.5.3.8.3. **U.** Improper search technique resulted in late or no target acquisition. Improper set-up of sensor created an unusable picture and prevented target identification or weapons delivery.
- 3.5.3.9. Area 139—Dynamic Targeting
- 3.5.3.9.1. **Q.** Effective coordination with outside agencies and contract execution within the flight resulted in prompt employment in accordance with the ROE, given restrictions or tactical situation.
- 3.5.3.9.2. **Q-.** Minor errors during contract execution or slow/confused coordination with outside agencies resulted in delayed employment in accordance with the ROE, given restrictions or tactical situation.
- 3.5.3.9.3. **U.** Major errors during contract execution or ineffective coordination with outside agencies resulted in employment outside the ROE, given restrictions or tactical situation.
- 3.5.4. Suppression of Enemy Air Defenses (SEAD):
- 3.5.4.1. Area 151--Electronic Threat/Order of Battle Management:
- 3.5.4.1.1. **Q.** Effective detection, analysis, and prioritization of factor threats. Efficient and timely use of available on or off-board systems to effectively detect, engage, and/or suppress threat emitters. Identified factor threats in accordance with pre-briefed tactical plan. Effectively reacted to pop-up threats or unplanned threats.
- 3.5.4.1.2. **Q-.** Slow to detect, prioritize, target, or suppress briefed or pop-up factor threat emitters. Inefficient use of on or off-board systems.
- 3.5.4.1.3. **U.** Failed to detect, prioritize, or target to effectively suppress factor threats. Incorrect identification of threats. Ineffective reactions to pop-up threats.
- 3.5.4.2. Area 153—Electronic Attack:
- 3.5.4.2.1. **Q.** Employment parameters and settings were correct.
- 3.5.4.2.2. **Q-.** Minor deviations noted in employment parameters.
- 3.5.4.2.3. **U.** Excessive deviations noted in employment parameters. Incorrect settings led to failure to achieve mission objectives.
- 3.5.5. Electronic Warfare:
- 3.5.5.1. Area 161--Degraded/Denied GPS:
- 3.5.5.1.1. **Q.** Properly adapted to degradation/loss of GPS. Mission accomplishment not affected.
- 3.5.5.1.2. **Q-.** Slow to adapt to or recognize degradation/loss of GPS systems. Mission accomplishment not affected.
- 3.5.5.1.3. **U.** Unable to adapt to degradation/loss of GPS systems. Mission accomplishment affected.
- 3.5.5.2. Area 162--Degraded/Denied Communications:

3.5.5.2.1. **Q.** Properly adapted to degradation/loss of Comm. Mission accomplishment not affected.

3.5.5.2.2. **Q-**. Slow to adapt to or recognize degradation/loss of Comm systems. Mission accomplishment not affected.

3.5.5.2.3. **U.** Unable to adapt to degradation/loss of Comm systems. Mission accomplishment affected.

3.5.5.3. Area 163--Degraded/Denied Datalink:

3.5.5.3.1. **Q.** Properly adapted to degradation/loss of Datalink. Mission accomplishment not affected.

3.5.5.3.2. **Q-**. Slow to adapt to or recognize degradation/loss of Datalink systems. Mission accomplishment not affected.

3.5.5.3.3. **U.** Unable to adapt to degradation/loss of Datalink systems. Mission accomplishment affected.

3.6. EPE Criteria.

3.6.1. General:

3.6.1.1. Reference expanded criteria in graded areas above for the following criteria:

3.6.1.1.1. Area 29--Aircraft General Knowledge.

3.6.1.1.2. Area 37--Cockpit/Crew Resource Management.

3.6.1.1.3. Area 82—Aerospace Control Alert (ACA) Tasking (Air Defense Units).

3.6.1.2. Area 301--Emergency Procedures/Aircraft Malfunctions (General):

3.6.1.2.1. **Q.** Recognized and analyzed malfunction in a timely manner. Displayed correct, immediate response to emergency situations. Effectively used checklist.

3.6.1.2.2. **Q-**. Slow to recognize and/or analyze malfunction. Response to certain required steps in emergency procedures was slow/confused. Used the checklist when appropriate, but slow to locate required data and implement guidance.

3.6.1.2.3. **U.** Unable to analyze problems or take corrective action. Did not use checklist and/or lacked acceptable familiarity with its arrangement or contents.

3.6.1.3. Area 302—Checklist Usage

3.6.1.3.1. **Q.** Effectively used checklist. Effectively coordinated with other flight members or crew members (if applicable) without misunderstanding.

3.6.1.3.2. **Q-**. Slow to use proper checklist. Coordinated with other flight members or crew members (if applicable) with minor exceptions.

3.6.1.3.3. **U.** Failed to follow checklist procedures or used incorrect checklist. Breakdown in coordination with other flight members (or crewmembers, if applicable) precluded mission accomplishment or jeopardized safety.

3.6.1.4. Area 305--Weapons System Operation:

- 3.6.1.4.1. **Q.** Displayed thorough knowledge of aircraft weapons systems capabilities, limitations, and backups/workarounds in event of malfunctions.
- 3.6.1.4.2. **Q-.** Displayed deficiencies in depth of knowledge or comprehension of aircraft weapons systems capabilities, limitations, and backups/workarounds in event of malfunctions which would not preclude successful mission accomplishment.
- 3.6.1.4.3. **U.** Displayed insufficient knowledge or comprehension of aircraft weapons systems capabilities, limitations, and backups/workarounds in event of malfunctions which could preclude successful mission accomplishment.
- 3.6.1.5. Area 306--Weapons Employment and Switchology:
 - 3.6.1.5.1. **Q.** Displayed thorough knowledge of aircraft weapons systems effects, tactics and switchology, when employing weapons in degraded modes of operation.
 - 3.6.1.5.2. **Q-.** Displayed deficiencies in depth of knowledge or comprehension of aircraft weapons systems effects, tactics and switchology, when employing weapons in degraded modes of operation, which would not preclude successful mission accomplishment.
 - 3.6.1.5.3. **U.** Displayed insufficient knowledge or comprehension of aircraft weapons systems effects, tactics and switchology, when employing weapons in degraded modes of operation, which could preclude successful mission accomplishment.
- 3.6.2. **Pre-Takeoff.** The following items are graded using the same criteria as Area 301.
 - 3.6.2.1. Area 321--Hydraulic Emergency Procedures/Aircraft Malfunctions (Pre-Takeoff).
 - 3.6.2.2. Area 331--Electrical Emergency Procedures/Aircraft Malfunctions (Pre-Takeoff).
 - 3.6.2.3. Area 341--Fuel Emergency Procedures/Aircraft Malfunctions (Pre-Takeoff).
 - 3.6.2.4. Area 351--Environment Control System (ECS)/Oxygen Emergency Procedures/Aircraft Malfunctions (Pre-Takeoff).
 - 3.6.2.5. Area 361--Engine/Auxiliary Power Unit (APU) Emergency Procedures/Aircraft Malfunctions (Pre-Takeoff).
 - 3.6.2.6. Area 371--Avionics Emergency Procedures/Aircraft Malfunctions (Pre-Takeoff).
 - 3.6.2.7. Area 381--Weapons Emergency Procedures/Aircraft Malfunctions (Pre-Takeoff).
 - 3.6.2.8. Area 391--Flight Control System (FLCS) Emergency Procedures/Aircraft Malfunctions (Pre-Takeoff).
 - 3.6.2.9. Area 401—Brakes/Landing Gear Emergency Procedures/Aircraft Malfunctions (Pre-Takeoff).
 - 3.6.2.10. Area 411--Emergency Procedures/Aircraft Malfunctions (Pre-Takeoff).
- 3.6.3. **Takeoff.** The following items are graded using the same criteria as Area 301.
 - 3.6.3.1. Area 421--Hydraulic Emergency Procedures/Aircraft Malfunctions (Takeoff).
 - 3.6.3.2. Area 431--Electrical Emergency Procedures/Aircraft Malfunctions (Takeoff).

- 3.6.3.3. Area 441--Fuel Emergency Procedures/Aircraft Malfunctions (Takeoff).
 - 3.6.3.4. Area 451--Environment Control System (ECS)/Oxygen Emergency Procedures/Aircraft Malfunctions (Takeoff).
 - 3.6.3.5. Area 461--Engine/APU Emergency Procedures/Aircraft Malfunctions (Takeoff).
 - 3.6.3.6. Area 463--Abort.
 - 3.6.3.7. Area 471--Avionics Emergency Procedures/Aircraft Malfunctions (Takeoff).
 - 3.6.3.8. Area 481--Weapons Emergency Procedures/Aircraft Malfunctions (Takeoff).
 - 3.6.3.9. Area 491--Flight Control System (FLCS) Emergency Procedures/Aircraft Malfunctions (Takeoff).
 - 3.6.3.10. Area 501—Brakes/Landing Gear/ Emergency Procedures/Aircraft Malfunctions (Takeoff).
 - 3.6.3.11. Area 511--Emergency Procedures/Aircraft Malfunctions (Takeoff).
- 3.6.4. In-Flight.
- 3.6.4.1. Reference expanded criteria in graded areas above for the following criteria:
 - 3.6.4.1.1. Area 94--Threat Reactions.
 - 3.6.4.1.2. Area 99--Signature Management.
 - 3.6.4.2. The following items are graded using the same criteria as Area 301.
 - 3.6.4.2.1. Area 521--Hydraulic Emergency Procedures/Aircraft Malfunctions (In-Flight).
 - 3.6.4.2.2. Area 531--Electrical Emergency Procedures/Aircraft Malfunctions (In-Flight).
 - 3.6.4.2.3. Area 541--Fuel Emergency Procedures/Aircraft Malfunctions (In-Flight).
 - 3.6.4.2.4. Area 551--Environment Control System (ECS)/Oxygen Emergency Procedures/Aircraft Malfunctions (In-Flight).
 - 3.6.4.2.5. Area 561--Engine/APU Emergency Procedures/Aircraft Malfunctions (In-Flight).
 - 3.6.4.2.6. Area 571--Avionics Emergency Procedures/Aircraft Malfunctions (In-Flight).
 - 3.6.4.2.7. Area 581--Weapons Emergency Procedures/Aircraft Malfunctions (In-Flight).
 - 3.6.4.2.8. Area 591--Flight Control System (FLCS) Emergency Procedures/Aircraft Malfunctions (In-Flight).
 - 3.6.4.2.9. Area 601—Brakes/Landing Gear/Emergency Procedures/Aircraft Malfunctions (In-Flight).
 - 3.6.4.2.10. Area 611--Emergency Procedures/Aircraft Malfunctions (In-Flight).
 - 3.6.4.3. Area 614--Unusual Attitude Recoveries.

- 3.6.4.3.1. **Q.** Smooth, positive recovery to level flight with correct recovery procedures.
- 3.6.4.3.2. **Q-.** Slow to analyze attitude, or erratic in recovery to level flight. Correct recovery procedures used.
- 3.6.4.3.3. **U.** Unable to determine attitude. Improper recovery procedures were used.
- 3.6.4.4. Area 615-- AFMAN 11-202V3 Procedures/Heads-Up Display (HUD)-Out Approach/Use of Standby Instruments.
 - 3.6.4.4.1. **Q.** Performed approach in accordance with directives, published procedures and techniques outlined in the TO and AFMAN 11-202V3. Maintained proper/briefed AOA. Maintained desired glide path with only minor deviations.
 - 3.6.4.4.2. **Q-.** Performed approach with minor deviations to directives, published procedures and techniques outlined in the TO and AFMAN 11-202V3. Slow to correct to proper/briefed AOA. Did not always maintain desired glide path control.
 - 3.6.4.4.3. **U.** Performed procedures with major deviations to directives, published procedures and techniques outlined in the TO and AFMAN 11-202V3. Failed to attain and/or maintain proper/briefed AOA. Displayed erratic glide slope control.
- 3.6.4.5. Area 616--Alternate/Divert Airfields.
 - 3.6.4.5.1. **Q.** Made proper divert decision and correctly performed initial divert execution actions.
 - 3.6.4.5.2. **Q-.** Slow to make divert decision and/or slow to correctly perform initial divert execution actions.
 - 3.6.4.5.3. **U.** Failed to make proper divert decision and/or correctly perform initial divert execution actions.
- 3.6.5. **Landing.** The following items are graded using the same criteria as Area 301.
 - 3.6.5.1. Area 631--Hydraulic Emergency Procedures/Aircraft Malfunctions (Landing).
 - 3.6.5.2. Area 641--Electrical Emergency Procedures/Aircraft Malfunctions (Landing).
 - 3.6.5.3. Area 651--Fuel Emergency Procedures/Aircraft Malfunctions (Landing).
 - 3.6.5.4. Area 661--Environment Control System (ECS)/Oxygen Emergency Procedures/Aircraft Malfunctions (Landing).
 - 3.6.5.5. Area 671--Engine/APU Emergency Procedures/Aircraft Malfunctions (Landing).
 - 3.6.5.6. Area 681--Avionics Emergency Procedures/Aircraft Malfunctions (Landing).
 - 3.6.5.7. Area 691--Weapons Emergency Procedures/Aircraft Malfunctions (Landing).
 - 3.6.5.8. Area 701--Flight Control System (FLCS) Emergency Procedures/Aircraft Malfunctions (Landing).
 - 3.6.5.9. Area 711—Brakes/Landing Gear Emergency Procedures/Aircraft Malfunctions (Landing).

3.6.5.10. Area 721--Emergency Procedures/Aircraft Malfunctions (Landing).

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

AFI 11-200, *Aircrew Training, Standardizations, and General Operations Structure*, 3 May 2022

AFI 33-322, *Records Management and Information Governance Program*, 28 July 2021

AFMAN 11-202V2 ACC Supplement *Aircrew Standardization/Evaluation Program*, 19 August 2022

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

AFMAN 11-290 ACC Supplement, *Cockpit/Crew Resource Management Program*, 10 June 2022

AFPD 11-2, *Aircrew Operations*, 1 January 2019

AFTTP 3-1.1, *General Planning and Employment Considerations*, 12 July 2016

AFTTP 3-3. F-22A, *Tactical Employment F-22A*, 12 November 2021

DAFMAN 90-161, *Publishing Processes and Procedures*, 15 April 2022

TO 1F-22A-1, *Flight Manual—F-22A*, 11 October 2022

Forms Adopted

AF Form 8, *Certificate of Aircrew Qualification*

AF Form 4031, *CRM Skills Training/ Evaluation Form*

AFTO Form 781, *ARMS Aircrew/Mission Flight Data Document*

DAF Form 847, *Recommendation for Change of Publication*

Abbreviations and Acronyms

A/A—Air-to-Air

A/S—Air-Surface

AAMD—All Aspect Missile Defense

ACA—Aerospace Control Alert

ACT—Air Combat Training

ACC—Air Combat Command

ACM—Air Combat Maneuvering

AF—Air Force

AFI—Air Force Instruction

AFMAN—Air Force Manual

AFPD—Air Force Policy Directive
AFR—Air Force Reserve
AFTTP—Air Force Tactics, Techniques, and Procedures
AHC—Aircraft Handling Characteristics
AIM—Air Intercept Missile
AOA—Angle of Attack
APU—Auxiliary Power Unit
ARMS—Aviation Resource Management System
ASR—Airport Surveillance Radar
ATC—Air Traffic Control
AWACS—Airborne Warning and Control System
BFM—Basic Fighter Maneuver
BIT—Built-in Test
BMC—Basic Mission Capable
BVR—Beyond Visual Range
C2—Command and Control
CNI—Communication, Navigation, and IFF
CRM—Cockpit Resource Management
DAF—Department of the Air Force
DAFMAN—Department of the Air Force Manual
DCA—Defensive Counter Air
DOC—Designed Operational Capability
DRU—Direct Reporting Unit
EA—Electronic Attack
ECS—Environment Control Systems
EP—Electronic Protection
EPE—Emergency Procedures Evaluation
EW—Electronic Warfare
EXCM—Expendable Countermeasures
FE—Flight Examiner
FLCS—Flight Control System
FLIP—Flight Information Publications

FOA—Field Operating Agency
FSD—Flight Series Data
FTU—Formal Training Unit
GCI—Ground Control Intercept
GPS—Global Positioning System
HUD—Heads Up Display
IFF—Identification, Friend, or Foe
IFR—Instrument Flight Rules
ILS—Instrument Landing System
INS—Inertial Navigation System
INSTM—Instrument
MAJCOM—Major Command
MAP—Missed Approach Point
MDA—Minimum Descent Altitude
MSN—Mission
MTC—Mission Training Center
NAF—Numbered Air Force
NM—Nautical Mile(s)
OG/CC—Operations Group Commander
OGV—Operations Group Standardization/Evaluation
OPR—Office of Primary Responsibility
PAR—Precision Approach Radar
PGM—Precision-Guided Munition
QUAL—Qualification
ROE—Rules of Engagement
SEAD—Suppression of Enemy Air Defenses
SORN—System of Records Notice
TACAN—Tactical Air Navigation
TEM—Threat and Error Management
TOT—Time on Target
TTT—Time to Target
USAF—United States Air Force

VDP—Visual Descent Point

VFR—Visual Flight Rules

VUL—Vulnerability Period

WIC—Weapons Instructor Course

WTT—Weapons and Tactics Trainer

WVR—Within Visual Range

Office Symbols

ACC/A3TV—Air Combat Command Standardization and Evaluation Branch

AF/A3T—Air Force Training and Readiness Directorate

AF/A3TF—Air Force Total Force Aircrew Management

Terms

Joker (Fuel)—A pre-briefed fuel state needed to terminate an event and proceed with the remainder of the mission.

Bingo (Fuel)—A pre-briefed fuel state that allows the aircraft to return to the base of intended landing or alternate, if required, using preplanned recovery parameters, and arriving with normal recovery fuel as listed below.