

**BY ORDER OF THE COMMANDER
AIR COMBAT COMMAND**

**AIR COMBAT COMMAND MANUAL
11-2BQM-167A, VOLUME 3**



6 MARCH 2025

Flying Operations

***BQM-167A—OPERATIONS
PROCEDURES***

COMPLIANCE WITH THIS PUBLICATION IS MANDATORY

ACCESSIBILITY: This publication is available for downloading or ordering on the e-Publishing website at www.e-Publishing.af.mil.

RELEASABILITY: There are no releasability restrictions on this publication.

OPR: 82 ATRS/CC

Certified by: ACC/A3T

Pages: 17

This publication implements Air Force Manual (AFMAN) 11-202, Volume 3, *Flight Operations*. It establishes effective and safe operations of the BQM-167A and the minimum Air Force operations procedures for personnel performing duties in the BQM-167A. This publication applies to all civilian employees and uniformed members of the Regular Air Force, the Air Force Reserve, and the Air National Guard who operate the BQM-167A. 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 Air Force Instruction (AFI) 33-322, *Records Management and Information Governance Program*, and are disposed in accordance with (IAW) the Air Force Records Disposition Schedule, which is located in the Air Force Records Information Management System. This publication may be supplemented at any level, but all supplements must be routed through the OPR of this publication to ACC/A3 for coordination prior to certification and approval. Refer recommended changes and questions about this publication to Air Combat Command Director of Operations (ACC/A3) through the Office of Primary Responsibility (OPR) using the Department of the Air Force (DAF) Form 847, *Recommendation for Change of Publication*; route DAF Forms 847 through the appropriate functional chain of command. Waiver authority for this volume is the 53d Weapons Evaluation Group Commander (53 WEG/CC) see [paragraph 1.3](#) for further detail. Requests for waivers must be submitted through the chain of command to the appropriate Tier waiver approval authority or if a non-tier requirement, to the publication OPR for consideration.

Chapter 1—GENERAL GUIDANCE	4
1.1. General.....	4
1.2. Responsibilities.....	4
1.3. Waiver Requests.....	4
Chapter 2—MISSION PLANNING	5
2.1. Responsibilities.....	5
2.2. Bird/Wildlife Aircraft Strike Hazard (BASH) Programs.....	5
2.3. Standards.....	5
2.4. Flight Material Preparation.....	5
2.5. Fuel Conservation.....	5
2.6. Briefing and Debriefing.....	5
2.7. Unit Developed Checklists.....	6
Chapter 3—NORMAL OPERATING PROCEDURES	7
3.1. Flight Lineup.....	7
3.2. Prelaunch Checks:.....	7
3.3. Launch:	7
3.4. Formation, General:	7
3.5. Low Altitude Operations:	7
3.6. Recovery:.....	7
3.7. Radio Procedures:	7
3.8. Fuel Requirements:	7
3.9. Radar Altimeter and Terrain Warning/Avoidance Systems:	7
3.10. Wind and Sea State Restrictions:	7
3.11. Airborne Interrogator Friend Foe (AIFF) Operation:	8
Chapter 4—INSTRUMENT PROCEDURES	9
4.1. General: N/A.....	9
Chapter 5—AIR-TO-AIR WEAPONS EMPLOYMENT	10
5.1. General: N/A.....	10
Chapter 6—AIR-TO-SURFACE WEAPONS EMPLOYMENT	11
6.1. General: N/A.....	11
Chapter 7—ABNORMAL OPERATING PROCEDURES	12
7.1. General:.....	12

ACCMAN11-2BQM-167AV3 6 MARCH 2025	3
7.2. Air Aborts:	12
7.3. Severe Weather Penetration.....	12
Attachment 1—GLOSSARY OF REFERENCES AND SUPPORTING INFORMATION	13
Attachment 2—FLIGHT BRIEFING GUIDE	16
Attachment 3—FLIGHT DEBRIEFING GUIDE	17

Chapter 1

GENERAL GUIDANCE

1.1. General. The BQM-167A flight manual and local operating procedures are the primary references for unmanned target operation.

1.1.1. BQM-167A's are expendable assets, and no mission is so important as to risk human life or endanger other assets. Remote Pilots and Drone Mission Commanders (DMCs) may, in any situation that poses increased risk to manned aircraft or combat assets, consider a water recovery of the aircraft rather than a land recovery attempt.

1.1.2. The procedures contained in this chapter are designed to provide remote pilots with standard methods of operation under normal conditions for qualification training.

1.2. Responsibilities. This instruction prescribes procedures for operating BQM-167A Sub Scale Aerial Targets (SSATs) under most circumstances. It is not a substitute for sound judgment. Procedures not specifically addressed may be accomplished if they enhance safe and effective mission accomplishment.

1.2.1. X-Ray is the call sign/designation of the remote Pilot In Command. The X-Ray is responsible for coordinating mission planning, briefing, preflight checks, execution and coordination with the Target Control System (TCS) technician (call sign – "Whiskey") for SSAT mission parameters and maneuvers. The X-Ray executes emergency checklist procedures in the event of a SSAT malfunction/emergency, coordinates mission duties with the Yankee and handles UHF communication with controlling agencies. The X-Ray will ensure compliance with guidance in AFMAN 11-202V3.

1.2.2. Yankee is the call sign/designation for the remote operator who is responsible for assisting the X-Ray during preflight checks, monitoring SSAT performance through all phases of flight, assisting with emergency checklist procedures in the event of a SSAT malfunction/emergency, maintaining/documenting required paperwork and coordinating with recovery personnel. The Yankee may perform any preflight tasks prior to the T-3 Minute launch checklist.

1.3. Waiver Requests. The 53 WEG/CC is wavier authority for this manual and may be delegated to the 82d Aerial Targets Squadron Commander (82 ATRS/CC).

Chapter 2

MISSION PLANNING

2.1. Responsibilities. The responsibility for mission planning is shared jointly by all Remote Pilots. Remote Pilot personnel must accomplish sufficient flight planning to ensure safe mission execution. Reference Technical Order (TO) 21-BQM167A-1, *Flight Manual Air Force Subscale Aerial Target (AFSAT) USAF Series BQM-167A*, Section 8, Mission Planning, and AFMAN 11-202V3.

2.2. Bird/Wildlife Aircraft Strike Hazard (BASH) Programs.

2.2.1. Bird Watch Conditions are defined in Department of the Air Force Instruction (DAFI) 91-202, *The Department of the Air Force (DAF) Mishap Prevention Program*, and DAFI 91-212, *Bird/Wildlife Aircraft Strike Hazard (BASH) Management Program*. The 53 WEG/CC will determine local BASH procedures.

2.2.2. Remote Pilots should consider bird migratory patterns to minimize the potential of an in-flight bird strike. The Bird Avoidance Model (BAM) on United States Avian Hazard Advisory System (<http://www.usahas.com>) provides BASH information, including regionalized Continental United States (CONUS) bird migration, Portable Flight Planning System (PFPS) software overlay, and latest news. See DAFI 91-212 for additional information.

2.3. Standards. The 53 WEG/CC may publish and approve group or squadron standards. Operations Group Stan/Eval (OGV) will review all standards for AFI 11-series compliance prior to publication.

2.4. Flight Material Preparation.

2.4.1. MDC. Remote Pilots will review and verify all MDC's provided by agencies to ensure all profiles do not exceed aircraft parameters IAW TO 21-BQM167A-1.

2.4.2. All qualified Remote Pilots will have access to current and applicable checklists for every mission.

2.5. Fuel Conservation. Remote Pilots will manage aviation fuel as a limited commodity and precious resource, design procedures for optimal fuel use and efficiencies throughout all phases of mission execution.

2.6. Briefing and Debriefing.

2.6.1. All flight members will attend the briefing unless previously coordinated with unit/squadron supervisors. X-Ray 1 is responsible for presenting a logical mission brief to promote a safe and effective mission. Structure mission briefing to accommodate the capabilities of each Remote Pilot in the flight. Any item published in wing/group/squadron standards or AF publications and understood by all participants may be briefed as "standard".

2.6.2. X-Ray 1 must allow adequate time to discuss required briefing items depending on complexity of the mission and Remote Pilot capabilities, and start flight briefings at least 45 minutes before scheduled launch. Items may be briefed in any sequence, provided all are addressed. Reference **Attachment 2** for briefing guide.

2.6.3. The DMC will ensure an Operational Risk Management (ORM) assessment was accomplished and provided to the 82d Aerial Targets Squadron (82 ATRS) Top 3 prior to the brief.

2.6.4. X-Ray 1 will ensure all missions are debriefed. Reference [Attachment 3](#) for debriefing guide.

2.7. Unit Developed Checklists. Unit developed checklists used in lieu of flight manual checklists must contain all items, verbatim, in order unless specifically addressed in the flight manual.

Chapter 3

NORMAL OPERATING PROCEDURES

3.1. Flight Lineup. Determined by the DMC in coordination with the Mission Director for the Weapon System Evaluation Program (WSEP) or Project (Program Manager for a specific test customer).

3.2. Prelaunch Checks: IAW TO 21-BQM167A-1.

3.3. Launch: IAW TO 21-BQM167A-1 and 53d Weapons Evaluation Group Instruction (53 WEGI) 11-250, *Local Flying Procedures*.

3.4. Formation, General: X-Ray 1 will ensure contracts, roles and responsibilities of each flight member are established, briefed, executed and debriefed.

3.5. Low Altitude Operations:

3.5.1. Defined for BQM-167A operations as 5,000' Above Sea Level ASL/Above Ground Level (AGL) and below. Procedures IAW 53WEGI 11-250.

3.5.2. Any planned flight profile below 1,000' AGL/Above Water Level (AWL) requires a chase aircraft to verify accuracy and proper operation of the BQM-167A Radar Altimeter.

3.5.3. Any flight operations below 500' AWL/AGL require the remote pilot to utilize Radar Altitude Hold and automatic control modes to the maximum extent possible.

3.5.4. When experiencing task saturation, diverted attention, knock-it-off, or emergencies at low altitude (below 5000' AWL/AGL), Remote Pilots will immediately climb/maintain pre-briefed safe altitude (minimum 1,000' AGL).

3.5.5. Obstacle/Terrain Avoidance. If unable to ensure lateral separation from known vertical obstructions which are a factor to the route of flight, Remote Pilots will immediately direct a climb no later than (NLT) 3 NM prior to the obstacle to an altitude that ensures vertical separation.

3.6. Recovery: IAW TO 21-BQM167A-1 and 53WEGI 11-250.

3.7. Radio Procedures: Flight members must preface all communications with the complete flight call sign. Flight members must transmit only that information essential for mission accomplishment or safety of flight.

3.8. Fuel Requirements:

3.8.1. Bingo Fuel. A briefed fuel state which allows the drone to return to the point of intended recovery using pre-planned recovery parameters and arriving with normal recovery fuel as listed in paragraph.

3.8.2. Normal Recovery Fuel. IAW 53WEGI 11-250, *Air Operations*.

3.9. Radar Altimeter and Terrain Warning/Avoidance Systems: Collision and Terrain Avoidance procedures IAW TO 21-BQM167A-1.

3.10. Wind and Sea State Restrictions: IAW 53WEGI 11-250.

3.11. Airborne Interrogator Friend Foe (AIFF) Operation: SSAT Interrogation Friend or Foe (IFF) assignment is determined by rail designation (Rail 1: 6171, Rail 2: 6172, etc.)

Chapter 4

INSTRUMENT PROCEDURES

4.1. General: N/A

Chapter 5

AIR-TO-AIR WEAPONS EMPLOYMENT

5.1. General: N/A

Chapter 6

AIR-TO-SURFACE WEAPONS EMPLOYMENT

6.1. General: N/A

Chapter 7

ABNORMAL OPERATING PROCEDURES

7.1. General: Follow the procedures in this chapter when other than normal circumstances occur. These procedures do not supersede procedures contained in the flight manual. Pilots will:

7.1.1. Not accept a SSAT for flight with a malfunction which is addressed in the emergency/abnormal procedures section of the flight manual until appropriate corrective actions have been accomplished.

7.1.2. Once a malfunctioning aircraft system is isolated, do not use that system again unless it is useful in a degraded mode essential for recovery. Remote Pilots will not conduct ground or in-flight trouble-shooting after flight manual emergency procedures are complete.

7.1.3. X-Ray Remote Pilot is primarily responsible for handling in-flight emergencies. The Yankee will provide checklist assistance at the request of the pilot in command.

7.2. Air Aborts: Determined by the DMC in coordination with the X-Ray, WSEP Mission Director and/or Project.

7.3. Severe Weather Penetration. Not Authorized.

DAVID G. SHOEMAKER, Major General, USAF
Director of Operations

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

53 WEGI 11-250, *Air Operations*, 1 July 2022

AFI 33-322, *Records Management and Information Governance Program*, 23 March 2020

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

DAFI 91-202, *The Department of the Air Force (DAF) Mishap Prevention Program*, 20 March 2020

DAFI 91-212, *Bird/Wildlife Aircraft Strike Hazard (BASH) Management Program*, 13 April 2023

DAFMAN 90-161, *Publishing Processes and Procedures*, 18 October 2023

TO 21-BQM167A-1, *Flight Manual Air Force Subscale Aerial Target (AFSAT) USAF Series BQM-167A*, 1 June 2007

Prescribed Forms

None

Adopted Forms

DAF Form 847, *Recommendation for Change of Publication*

Abbreviations and Acronyms

ACC—Air Combat Command

AFI—Air Force Instruction

AFMAN—Air Force Manual

AFR—Air Force Reserve

AGL—Above Ground Level

AIFF—Airborne Interrogator Friend Foe

ASL—Above Sea Level

AWL—Above Water Level

BAM—Bird Avoidance Model

BASH—Bird Aircraft Strike Hazard

CC—Commander

CONUS—Continental United States

CT—Continuation Training

DAFI—Department of the Air Force Instruction

DAFMAN—Department of the Air Force Manual
DMC—Drone Mission Commander
DRU—Direct Reporting Unit
FOA—Forward Operating Agency
GRDCS—Gulf Range Drone Control System (Tyndall AFB)
IAW—In Accordance With
IFF—Interrogation Friend or Foe
MAJCOM—Major Command
MDC—Mission Data Card
NM—Nautical Mile(s)
NLT—No Later Than
OGV—Operations Group Stan/Eval
OPR—Office of Primary Responsibility
ORM—Operational Risk Management
PFPS—Portable Flight Planning System
SII—Special Interest Item
SSAT—Sub Scale Aerial Target
Stan/Eval—Standardization and Evaluations
TCS—Target Control System
TO—Technical Order
UHF—Ultra High Frequency
USAF—United States Air Force
WEGI—Weapons Evaluation Group Instruction
WSEP—Weapon System Evaluation Program

Office Symbols

53 WEG/CC—53rd Weapons Evaluation Group Commander
82 ATRS/CC—82d Aerial Targets Squadron Commander
ACC/A3—ACC Director of Operations
ACC/A3T—ACC Flight Operations Division
ACC/A3TO—ACC Flight Operations and Training Branch
AF/A3O—Air Force Current Operations Directorate

Terms

Aircrew—For the purpose of this manual, aircrew is defined as any current and qualified, rated officer performing BQM-167A Remote Pilot duties and a current and qualified

Certification—Procedure used to document competency in a particular task. Not interchangeable with “qualification,” which requires AF Form 8/AF Form 8a, Certification of Universal Aircrew Qualification documentation.

Continuation Training (CT)—Training to maintain proficiency and improve aircrew capabilities to perform unit missions not flown in formal syllabus missions, tests, or evaluations.

Currency—A measure of how frequently and/or recently a task is completed. Currency requirements should ensure the average aircrew member maintains a minimum level of proficiency in a given event.

Emergency Procedures Evaluation (EPE)—A flight, simulator, or verbal evaluation used to evaluate EPs and systems knowledge.

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

Mission Qualification Training (MQT)—Training required to achieve a basic level of competence in unit’s primary tasked missions.

Mission Sortie—A live flight mission flown in training or operational missions.

Proficiency—Demonstrated ability to accomplish tasked event expediently, safely and accurately.

Situational Emergency Procedures Training (SEPT)—A discussion and review of abnormal/EPs and aircraft systems operations/limitations based on realistic scenarios.

Specialized Training—Training in specialized tactics, weapons systems, or flight responsibilities such as FL, instructor, FE. This training may be conducted in MQT or CT, as required.

Squadron Supervisor—Any of the following: SQ/CC, SQ/DO, Assistant Operations Officer (ADO), flight commander or person specifically designated by the SQ/CC. Except for SQ/CC, SQ/DO, and ADO, appointment must be endorsed by the OG/CC, and certification will be documented on unit LoX.

Target Control System (TCS)—either Gulf Range Drone Control System (GRDCS) at Tyndall AFB, or White Sands Missile Range (WSMR) Integrated Target System (WITS) at Holloman AFB.

Training Cycle—The training cycle is aligned on an annual cycle from 1 October – 30 September.

Xray—Target Control System (TCS) Sub-Scale Aerial Target (SSAT) primary remote pilot for SSAT missions.

Yankee—Assistant remote pilot for unmanned SSAT missions.

Attachment 2

FLIGHT BRIEFING GUIDE

Table A2.1. Subscale Coordination Briefing Guide.

<p><u>X-RAY will provide the TCS operators with:</u></p> <ul style="list-style-type: none"> <input type="checkbox"/> Drone numbers, rail numbers and launch sequence. <input type="checkbox"/> Profile description <input type="checkbox"/> Formation description (e.g. slots, spacing, track altitude, airspeeds, etc.) <input type="checkbox"/> Maneuvers (type, G, degree of turn, sequence, etc.) <input type="checkbox"/> Countermeasures (type, rate, number of items, etc.) <p><u>X-RAY will brief the Yankee to check the following during the launch phase:</u></p> <ul style="list-style-type: none"> <input type="checkbox"/> Ensure GRDCS Console Operators are aware of launch time. <input type="checkbox"/> Check correct throttle positions prior to launch <input type="checkbox"/> From T-0 to departure of 2905A observe altitude, airspeed and engine operation providing feedback to the X-Ray <input type="checkbox"/> Be prepared to help X-Ray with appropriate response in the event of an emergency 	<p><u>X-RAY will brief the Yankee to check the following during the mission phase:</u></p> <ul style="list-style-type: none"> <input type="checkbox"/> Route and cruise parameters en-route to the IP <input type="checkbox"/> Appropriate modes are set (AH, SHOT, Maneuvers, etc.) <input type="checkbox"/> Review actions to be taken at the execution calls (Countermeasures, offsets, etc.) <input type="checkbox"/> Review appropriate maneuver termination and emergency responses to missile hit. <p><u>X-RAY will brief the Yankee to check the following during the recovery phase:</u></p> <ul style="list-style-type: none"> <input type="checkbox"/> Obtain recovery winds. <input type="checkbox"/> Check altitude and recovery speed. <input type="checkbox"/> Monitor drone performance and check appropriate modes are set. <input type="checkbox"/> After touchdown give range and bearing to Recovery Personnel and pass fuel remaining along with any other pertinent data. <p><u>X-Ray will brief the Mike:</u></p> <ul style="list-style-type: none"> <input type="checkbox"/> Drone status and any changes as they become known.
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Attachment 3

FLIGHT DEBRIEFING GUIDE

Table A3.1. Subscale Debriefing Guide.

<ul style="list-style-type: none"><input type="checkbox"/> <u>Pre-Launch Checks and Procedures</u><ul style="list-style-type: none"><input type="checkbox"/> Launch<input type="checkbox"/> Departure / Enroute Procedures<input type="checkbox"/> General:<ul style="list-style-type: none"><input type="checkbox"/> SIIs<input type="checkbox"/> Radio Procedures<input type="checkbox"/> CRM<input type="checkbox"/> <u>Mission Accomplishment/Analysis</u><ul style="list-style-type: none"><input type="checkbox"/> Mission Reconstruction<input type="checkbox"/> Mission Support<input type="checkbox"/> Employment Results<input type="checkbox"/> Execution Errors<input type="checkbox"/> Lessons Learned<input type="checkbox"/> Recommendations for Improvement<input type="checkbox"/> <u>Comments/Questions</u>
