BY ORDER OF THE
SECRETARY OF THE AIR FORCE

AIR FORCE MANUAL 11-246

20 MARCH 2020

Flying Operations

AIRCRAFT DEMONSTRATIONS (AC-130, MC-130, EC-130J, U-28, CV-22, CAA)

COMPLIANCE WITH THIS PUBLICATION IS MANDATORY

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This manual implements guidance in Air Force Policy Directive (AFPD) 11-2, *Aircrew Operations*; Air Force Instruction (AFI) 11-200, *Aircrew Training, Standardization/Evaluation, and General Operations Structure,* and AFI 11-209, *Air Force Aerial Events.* It provides guidance and procedures for Air Force performance of specific mission design series (MDS) single-ship aircraft demonstrations and mission capabilities demonstrations. Major Command (MAJCOM), field operating agencies (FOAs), and direct reporting units (DRUs) may supplement this manual. This manual applies to civilian employees and uniformed members of the Regular Air Force, Air Force Reserve and Air National Guard, unless explicitly otherwise provided. The authorities to waive wing/unit level requirements in this publication are identified with a Tier ("T-0, T-1, T-2, T-3") number following the compliance statement. Refer recommended changes and questions about this publication to the Office of Primary Responsibility (OPR) using the Air Force (AF) Form 847, *Recommendation for Change of Publication*; route AF Forms 847 from the field through the appropriate functionals chain of command. MAJCOMs, FOAs, and DRUs will coordinate their supplements with HQ AFSOC, Director of Operations, prior to publishing and forward one copy to HQ USAF/A3O-AO after publication. See AFI 33-360, *Publications and Forms Management*, 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 requestor's commander for non-tiered compliance items. Ensure all records created as a result of processes prescribed in this publication are maintained in accordance with Air Force Instruction 33-322, *Records Management and Information Governance Program,* and

disposed of in accordance with the Air Force Records Disposition Schedule located in the Air Force Records Information Management System.

SUMMARY OF CHANGES

This document has been substantially revised and needs to be completely reviewed. Major changes include Two Combat Air Advisor (CAA) profiles were added to this Air Force Manual (AFMAN) as well as additional tiering. 0 Redundant information with AFI 11-209 was removed and replaced “Adjusted Maximum Effort Takeoff” for the EC/MC-130J.

Chapter 1

DELEGATION/APPOINTMENT OF AUTHORITY

1.1. General Guidance. At the direction of United States Air Force Commander (USAF/CC) (or authorized representative). HQ AFSOC is the lead MAJCOM for the standardized flying procedures applicable to aircraft capabilities demonstrations for the following MDS aircraft: AC-130, MC-130, EC-130J, U-28, CV-22 and personnel serving as CAA.

1.2. Roles and Responsibilities.

1.2.1. MAJCOM/CC - Provide policy for the MAJCOM's demonstration program in accordance with (IAW) this publication.

1.2.2. MAJCOM/A3:

1.2.2.1. Provide supervisory direction over demonstrations.

1.2.2.2. Approve demonstration schedules, changes, or updates.

1.2.2.3. Approve uniquely tailored flight demonstration profiles. Submit approval documentation to the AFSOC/A3 IAW AFI 11-209_AFSOCSUP *Participation in Aerial Events* **Attachment 4**.

1.2.2.4. Approve narration scripts used to describe demonstration maneuvers to the viewing public.

1.2.3. AFSOC OC/SPDP:

1.2.3.1. Present the demonstration request to the AFSOC/A3 for approval at the weekly MAAP after Wing/CC approval.

1.2.4. Group/CC - Review all approved flyover profiles. Approval of all flyover profiles is delegated to the Wing/CC. This approval will be coordinated with AFSOC OC/SPDP for compliance with this regulations procedures.

1.2.5. AFSOC Mission Commander:

1.2.5.1. Directly communicate with the pilot or aircraft commander or should be able to relay information to the pilot or aircraft commander. In some cases, the senior member of the aerial control team is designated as the mission commander. In the event the senior member of the aerial control team is not the mission commander, then the mission commander may be one of the following:

1.2.5.1.1. The pilot in command for a single ship aerial event.

1.2.5.1.2. The flight lead for a multiple aircraft aerial event.

1.2.5.1.3. Ground-based military officer or a civilian acting as an air boss for an air show or other ceremony.

1.2.5.1.4. Senior enlisted military member working in the tower.

1.2.5.1.5. DoD-civilian airspace manager or civilian air traffic controllers with air traffic control (ATC) tower or rated pilot/navigator experience working in the control tower.

Chapter 2

DEMONSTRATION PROCEDURES

2.1. General. Aircraft demonstrations will be performed IAW aircraft technical orders, AFI 11-209, AFI/AFMAN 11-2MDS, Vol 1, MDS Aircrew Training, AFI/AFMAN 11-2MDS, Vol 3, MDS Operations Procedures, and AFI 11-202, Vol 3, *General Flight Rules*. **(T-1)**

2.2. The MAJCOM/A3 or equivalent. The MAJCOM/A3 or equivalent is the approval authority for all demonstrations. Requesting units must provide their MAJCOM/A3 with sufficient information with the proposed profile to permit evaluation by the established approval authority. **(T-2)** The required information includes a brief synopsis of what will take place and will, at a minimum, address the following:

2.2.1. Airspeeds and altitudes to be flown. **(T-2)**

2.2.2. Holding patterns. **(T-2)**

2.2.3. Ground tracks to be flown. **(T-2)**

2.2.4. Type of aircraft demonstration to be flown. If a demonstration includes use of pyrotechnics, include intended point of impact/detonation point and safety zone relative to the crowd line and show line. **(T-2)**

2.2.5. Aircrew qualifications.

2.2.6. On-scene ground supervisor and on-scene communications and control procedures.

2.2.7. If a rehearsal/practice run is planned, include date, time, location and participants.

2.3. Planned Demonstration. If a planned demonstration must deviate from established procedures the requesting units must address this in the approval documents provided to the MAJCOM/A3. **(T-2)**

2.4. MC-130 & EC-130J. MC-130 & EC-130J will fly the standard demonstration profiles as described in **Attachment 3**. **(T-2)**

2.5. CAA. CAA will perform the standard demonstration profiles as described in **Attachment 4. (T-2)**

2.6. The AC-130, U-28, and CV-22. The AC-130, U-28, and CV-22 do not have standard demonstration profiles established in this AFMAN. Profiles will be planned on an as needed basis as the requirement occurs. **(T-2)**

2.7. Demonstration Event. Following an aerial demonstration event, aircrew will submit an Aerial Demonstration Critique **Attachment 2** to the MAJCOM/A3. **(T-2)**

Chapter 3

AIRCREW QUALIFICATIONS AND CERTIFICATION PROCESS

3.1. General. Aircrews that fly demonstrations must be qualified and certified. Qualification is accomplished at each wing and group and certified by the MAJCOM/A3. **(T-2)**

Chapter 4

CRITIQUE AND REVIEW PROCESS

4.1. General. MAJCOM/A3 will implement procedures to critique airshow/aircraft demonstrations and review results at the headquarters level. **(T-2)** When an Aerial Control Team (ACT) is required by AFI 11-209, the ACT chief will critique the performance and forward results through channels to the appropriate MAJCOM Director of Operations. **(T-2)** When the presence of the ACT chief is not required, the on-scene ground supervisor will task the aircraft commander to conduct the critique. **(T-2)** The critique may also be accomplished by an additional airborne pilot or navigator. See **Attachment 2** for suggested critique format.

Chapter 5

APPROVAL PROCESS FOR PARTICIPATION IN AIRCRAFT DEMONSTRATIONS

5.1. General. AFI 11-209 and MAJCOM supplements describe the approval process for Air Force demonstration teams' participation in military and civilian events.

MARK D. KELLY, Lt Gen, USAF
Deputy Chief of Staff, Operations

Attachment 1

GLOSSARY OF REFERENCES AND SUPPORTING INFORMATION

References

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

AFI/AFMAN 11-2, MDS, Vol 1,*"MDS" Aircrew Training* (for applicable aircraft per **Para 1.1**)

AFI/AFMAN 11-2, MDS, Vol 3,*"MDS" Operations Procedures* (for applicable aircraft per **Para 1.1**).

AFI 11-200, *Aircrew Training, Standardization/Evaluation and General Operations Structure*, 21 September 2018

AFI 11-202, Vol 3, *General Flight Rules,* 10 August 2016

AFI 11-209, *Participation in Aerial Events,* 22 May 2018

AFI 11-209_AFSOCSUP, *Participation in Aerial Events,* 22 Jul 19

AFI 33-360, *Publications and Forms Management,* 1 Dec 2015

AFMAN 33-363, *Management of Records,* 1 March 2008

AFSOCMAN 11-219, Vol 3, *Combat Aviation Advisor Operations Procedures*, 5 February 2020

Adopted Forms

AF Form 847, *Recommendation for Change of Publication*

Abbreviations and Acronyms

ACT——Aerial Control Team

AF—Air Force

AFI——Air Force Instruction

AFMAN——Air Force Manual

AFPD—Air Force Policy Directive

AFSOC——Air Force Special Operations Command

AFPD——Air Force Policy Directive

AGL——Above Ground Level

CAA——Combat Air Advisor

DRU——Direct Reporting Units

FOA——Field Operating Agency

HQ——Headquarters

IAW——In Accordance With

MAJCOM——Major Command

MDS——Model Design Series

OPR——Office of Primary Responsibility

USAF——United States Air Force

USAF/CV——United States Air Force Vice Commander

Terms

Aerial Demonstration–—A generic phase that includes demonstration team participation in military or civilian events.

Aircraft Demonstration—An aerial demonstration in which an aircraft conducts maneuvers usually associated specifically to the airframe being shown. The purpose is to illustrate the unique flying of the aircraft.

Assault Landing Demonstration—An aerial demonstration, illustrating a technique used for landing on short runways. The aircraft is flown at a speed slightly above aircraft stall speed at a steeper than normal approach path. After touchdown, maximum engine reverse thrust and braking are applied to stop the aircraft. Also known as Maximum Performance Landing or Max Effort Landing.

Assault Takeoff Demonstration—An aerial demonstration, illustrating a takeoff technique used for departing short runways employing maximum takeoff power and climb rate for the aircraft. Also referred to as a Maximum Performance Takeoff, Maximum Effort Takeoff, or an Adjusted Maximum Effort takeoff for EC/MC-130J.

Profile—Narrative outlining aircraft maneuvers planned for an aerial demonstration.

Tilt-Rotor Air-to-Air Refueling Demonstration—A formation of aircraft demonstrating tilt-rotor air refueling in the pre-contact position.

Attachment 2

AERIAL DEMONSTRATION CRITIQUE

AERIAL DEMONSTRATION CRITIQUE

SHOW LOCATION: _____

ESTIMATED ATTENDANCE EACH DAY: _____/_____/_____

DATE OF DEMONSTRATION: _____ TYPE OF AIRCRAFT: _____

CAPABILITIES DEMONSTRATED: _____

_____

_____

_____

AIRCRAFT COMMANDER: _____ UNIT ASSIGNED: _____

FAA ISSUES: UNSAT / SAT PRESHOW ISSUES: UNSAT / SAT

AIRSHOW SUPPORT: UNSAT / SAT RECOMMEND ATTEND IN FUTURE: YES / NO

REMARKS (explain above responses, UNSAT or NO answers require comments):

_____ _____

OBSERVERS SIGNATURE OBS PRINTED NAME / UNIT / DUTY PHONE #

AFTER ACTION COORDINATION:

AIRCRAFT UNIT CC REVIEW	_____	_____
	INITIALS	DATE
WING/GROUP CC REVIEW	_____	_____
	INITIALS	DATE
MAJCOM/A3 REVIEW	_____	_____
	INITIALS	DATE

Attachment 3

MC-130 AND EC-130J STANDARD PROFILES 1 THRU 4

A3.1. Profile 1: This airdrop profile is an aircraft demonstration beginning with an aircraft already airborne. The aircrew approaches the airfield at drop altitude for a single-ship airdrop. Over the airfield drop zone, paratroopers are released in a static line jump. The paratroopers land and gather up their gear while the MC/EC-130 climbs to 4,500' above ground level (AGL) to set up for a random steep approach. A random steep approach is then flown and terminated in an assault landing to demonstrate short field landing capability. The MC/EC-130 then maneuvers to a designated point, giving consideration to the demonstration of the reverse capability of the C-130, and the paratroopers board via the ramp. The aircraft then performs a maximum effort takeoff, departing the air show area. The procedures in this profile are general guidelines and the aircrew may adjust them, for cause, to accommodate the requirements of the jump team or paratroopers, to accommodate the kind of equipment (material) to be airdropped (heavy equipment or container delivery system), or to accommodate the unique requirements of the event or site at which the event takes place. In no circumstances will aircrews deviate from applicable AFI 11-2MDS, Vol 3. **(T-2)**

A3.2. Profile 2: This ground-to-ground profile is an aircraft demonstration and begins with a single MC/EC-130 executing an assault takeoff (EC-130J and MC-130J will use Adjusted Maximum Effort procedures in place of Maximum Effort takeoffs) followed by a climb to 500' AGL over the runway. The MC/EC-130 then maneuvers back toward the airfield, setting up for a random shallow approach. A random shallow approach is then flown and terminated in an assault landing, demonstrating short field landing capability. After landing the MC-130 backs to a designated point to demonstrate reverse taxi capability, (engine running) offloads a Humvee and driver (if applicable) and then exits the runway. The procedures in this profile are general guidelines and the aircrew may adjust them, for cause, to accommodate the requirements of the event or of the site at which the event takes place. In no circumstances will aircrews deviate from applicable AFI 11-2MDS, Vol 3. **(T-2)**

A3.3. Profile 3: This air-to-ground profile is an aircraft demonstration and begins with a MC-130 already airborne. As the MC-130 approaches the airfield, the aircrew executes a random shallow approach to an assault landing. The aircrew then conducts a reverse taxi maneuver on the runway and (engine running) offloads a Humvee and driver (if applicable). Finally, the aircrew executes an assault takeoff and departs. The procedures in this profile are general guidelines and the aircrew may adjust them, for cause, to accommodate the requirements of the event or of the site at which the event takes place. In no circumstances will aircrews deviate from applicable AFI 11-2MDS, Vol 3. **(T-2)**

A3.4. Profile 4: Note : Profile 4 Synopsis not applicable for EC-130. Recommended MC-130 Tanker Air Refueling Demonstration Profile. This is a helicopter/tilt-rotor air refueling demonstration and begins with all aircraft involved already airborne and in formation. If simultaneous air refueling demonstrations is planned, both helicopters should be in the observation position with all air refueling checklists completed. The MC-130 will begin the demonstration flyover at the pre-briefed airspeed and altitude IAW directives and local limitations. The MC-130 will direct, via radio or light signals, for receiver to move into pre-contact position no later than 2 minutes from the demonstration location. Receiver will remain in pre-contact position throughout the demonstration. Under no circumstances will receiver make contact, wet or dry, during the

demonstration. After passing the demonstration area, the MC-130 will direct the receiver to the observation position via radio or light signals. Formation break up after the demonstration will be as briefed. The procedures in this profile are general guidelines and the aircrew may adjust them, for cause, to accommodate the requirements of the event or of the site at which the event takes place. In no circumstances will aircrews deviate from applicable AFI 11-2MDS, Vol 3. **(T-2)** (**Note:** Simultaneous Tilt-rotor Air-to-Air Refueling demonstration are not permitted).

Attachment 4

CAA AIRCRAFT STANDARD PROFILES

A4.1. Airdrop Profile: This profile is for airdrop from a CAA aircraft and begins with the aircraft already airborne. The aircraft approaches the designated drop area (drop area in this case can be airfield, stadium, runway, etc.) at drop altitude. Jumpers or bundles are released and the aircraft returns to their intended point of landing. The procedures in this profile are general guidelines and the aircrew may adjust them, for cause, to accommodate the requirements of the jump team or paratroopers, (i.e. making a pass over the drop zone for a streamer drop) or to accommodate the unique requirements of the event or site at which the event takes place. In no circumstances will aircrews deviate from applicable *AFI 11-2MDS, Vol 3* or *AFSOCI 11-219, Vol 3, Additional/Supplemental Aircraft Operations Procedures*. **(T-2)**

A4.2. Short Field Take Off and Landing Profile: This ground to ground profile is an aircraft capabilities demonstration and begins with CAA aircraft executing a short-field take off. Once airborne the aircraft climbs to at least 500’ AGL and maneuvers for, and executes, a short field landing. The procedures in this profile are general guidelines and the aircrew may adjust them, for cause, to accommodate the requirements of the event or of the site at which the event takes place. In no circumstances will aircrews deviate from applicable AFI 11-2MDS, Vol 3 or AFSOCI 11-219, Vol 3 guidance. **(T-2)**