

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

**AIR FORCE INSTRUCTION 11-2UV-18,
VOLUME 3**



19 MARCH 2015

Flying Operations

UV-18 OPERATIONS PROCEDURES

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RELEASABILITY: There are no releasability restrictions on this publication.

OPR: AETC/A3V

Certified by: USAF/A3O
(Brig Gen Giovanni K. Tuck)

Pages: 34

Supersedes: AFI11-2UV-18V3,
3 January 2012

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Chapter 1

GENERAL INFORMATION

1.1. Scope. This instruction outlines the procedures applicable to the safe operation of the UV-18. Along with the complementary references cited, this instruction prescribes standard operational procedures to be used by all pilots operating UV-18 aircraft. Units will provide local operating procedures in a supplement to this publication. (T-2).

1.2. Pilot's Responsibility. In conjunction with other governing directives, this instruction prescribes UV-18 procedures under most circumstances but is not to be used as a substitute for sound judgment or common sense. The pilot in command (PIC) is ultimately responsible for the safe and effective operation of the aircraft and will ensure all occupants of the aircraft comply with this directive.

1.3. Deviations. Do not deviate from the procedures and guidance in this publication except when necessary to preserve safety or protect lives. In that case, the PIC has ultimate authority and responsibility for the course of action to be taken and will take the appropriate action to safely recover the aircraft. Report all deviations without waiver through channels to the MAJCOM OPR. (T-2).

1.4. References. The primary references for UV-18 operations are this instruction and technical order (TO) 1U-18(V)B-1, *Flight Manual, USAF Series, UV-18 Aircraft*. Training units may develop phase manuals from the procedures contained in these documents. Phase manuals may be used to augment initial and mission qualification training. They may expand these basic procedures but will not be less restrictive. (T-2). Only maneuvers described in these references will be flown.

1.5. Waivers. Except where noted, the MAJCOM A3 is the waiver authority for this instruction. Submit waiver requests to the OPR. (T-2).

1.6. Crew Requirements:

1.6.1. The normal crew for the UV-18 aircraft is two qualified pilots, one of which must be aircraft commander certified in accordance with AFI 11-2UV-18, Volume 1, *UV-18 Aircrew Training*. (T-2). **Exception:** Single-pilot operations with an instructor pilot (IP) may be authorized by the operations group (OG) commander.

1.6.2. Parachuting operations require a fully qualified jumpmaster (JM) in accordance with AFI 11-410, *Personnel Parachute Operations*, and MAJCOM guidance. (T-2). The JM may perform a proficiency jump after all other jumpers have left the aircraft or in the last formation exiting the aircraft.

1.7. Maximum Flight Duty Period Flight Time. AFI 11-202, Volume 3, lists maximum flight duty periods. (T-2).

1.7.1. For normal operations, consider the UV-18 as a utility type aircraft.

1.7.2. When all missions in the flight duty period involve only point-to-point movement of the aircraft or passengers (no parachuting activities planned or performed), the UV-18 may be considered as a transport type aircraft.

1.7.3. Use of additional crewmembers to extend the flight duty period (augmented crew) is not authorized.

1.8. Clothing Requirements. AFI 11-301, *Aircrew Flight Equipment (AFE) Program*, prescribes minimum aircrew clothing requirements. In the absence of specific guidance, all aircrew members will wear flight suits and flight boots while operating the aircraft. (T-2).

1.8.1. Aircrew will carry flight gloves and appropriate seasonal flight clothing. Aircrew members will remove rings and scarves before performing aircrew duties.

1.8.2. Aircrew will wear flight gloves during the exterior inspection and during critical phases of flight.

1.9. Seatbelts and Shoulder Harnesses:

1.9.1. All occupants will have a designated seat with a seatbelt.

1.9.2. All crewmembers will wear seatbelts at all times while operating the aircraft. Aircrews will wear seatbelt and shoulder harnesses during critical phases of flight. (T-2).

1.9.3. Passengers will remain seated with seatbelts fastened during taxi, takeoff, landing, below 1,500 feet above ground level (AGL), and any other time as determined by the PIC. (**Exceptions:** During taxi, the designated passenger monitor [paragraph 3.11](#) may remove his or her seatbelt to handle unusual passenger situations. The passenger monitor will normally inform the pilot when removing the seatbelt is required. Designated JMs may remove their seatbelts above 500 AGL or power cutback, whichever occurs first, to perform required passenger cabin duties.)

1.9.4. When the air operable cargo (Lexan) door is open, passengers without a parachute will remain seated with their seatbelts fastened or be secured to the aircraft by an approved restraining device.

1.10. Oxygen Requirements. The PIC will ensure oxygen is supplied to passengers according to AFI 11-202, Volume 3, and AFI 11-409, *High Altitude Airdrop Mission Support Program*.

1.11. Cargo Restrictions:

1.11.1. Transportation of pets is not authorized.

1.11.2. Transportation of hazardous cargo is not authorized except as follows:

1.11.2.1. Only hazard class and division 1.4G (moderate fire, no blast) smoke grenades as defined in TO 11A-1-46, *Fire Fighting Guidance, Transportation and Storage Management Data*, may be transported. The item must be approved in AFI 11-410.

1.11.2.2. Explosive operations will only be conducted according to written instructions, approved by the unit commander, according to AFMAN 91-201, *Explosive Safety Standards*.

1.11.2.3. Only personnel trained according to AFI 91-202, *The US Air Force Mishap Prevention Program*, are authorized to handle explosive materials on the aircraft.

1.11.3. Explosives will not be stored on the aircraft.

1.12. Interfly. Interfly is defined in AFI 11-401, *Aviation Management*. Interfly is not authorized.

1.13. Aerial Events. Units will conduct aerial events in accordance with AFI 11-209, *Aerial Event Policy and Procedures*, and AFI 11-410. (T-2).

Chapter 2

MISSION PLANNING

2.1. Responsibilities. The individual pilots and the operations functions of the organizations jointly share responsibility of mission planning. The PIC is ultimately responsible for mission planning.

2.2. General Procedures. The aircrew will:

2.2.1. Accomplish sufficient flight planning to ensure safe mission accomplishment. (T-2). AFI 11-202, Volume 3, specifies minimum requirements.

2.2.2. Compute takeoff and landing data for each flight. (T-2). MAJCOM-approved tabulated data may be used when available.

2.2.3. Calculate single-engine service ceiling for flight over mountainous terrain (T-2) and:

2.2.3.1. On an instrument flight rules (IFR) flight plan, only operate the aircraft along routes where the single-engine service ceiling exceeds the minimum IFR altitude as defined by AFI 11-202, Volume 3. (T-2). **Note:** The minimum IFR altitude provides 2,000 feet of terrain clearance in designated mountainous terrain.

2.2.3.2. On a visual flight rules (VFR) flight plan, will not intentionally plan or fly a route over actual terrain less than 1,000 feet below the single-engine service ceiling. (T-2). For example, if single-engine service ceiling is calculated to be 14,000 feet mean sea level (MSL), pilots may not plan or fly over terrain higher than 13,000 feet MSL.

2.2.4. Ensure all passengers are manifested in accordance with AFI 11-202, Volume 3. (T-2).

2.3. Briefings and Debriefings. The PIC is responsible for presenting a logical briefing that will promote safe, effective mission accomplishment. All pilots will attend the flight briefing. The PIC will structure the flight briefing to accommodate the capabilities of each pilot in the flight. (T-2). Copilots, JMs, and passengers will be briefed on their specific duties and responsibilities related to safe mission accomplishment to include in-flight discipline. (T-2). JM briefing requirements are specified in AFI 11-410.

2.3.1. **Minimum Briefing Times.** Begin briefings at least 30 minutes (single-ship) or one hour (formation) before scheduled takeoff. On subsequent flights with the same crew on the same day, the PIC must brief only those items that have changed from the previous flights. (T-2).

2.3.2. **Briefing Guides:**

2.3.2.1. Aircrews will refer to the appropriate briefing guides located in [Attachment 2](#) and Attachment 3, and brief applicable items before each mission. (T-2). **Note:** Briefing guides are reference lists of items that may apply to particular missions. The flight manual contains the passenger briefing guide.

2.3.2.2. Items listed may be briefed in any sequence. Those items covered by written squadron standards and understood by all participants may be briefed as standard. Each guide may be expanded as necessary to cover other important items of the flight. Brief

only those items applicable to the particular mission and in sufficient detail to prevent any misunderstanding between crewmembers.

2.3.3. **Alternate Missions.** If applicable, brief an alternate mission for each flight.

2.4. Maps and Charts. A local sectional and VFR terminal area charts (class B airspace) must be on board the aircraft. (T-2). When flying outside the local area, charts covering the route of flight must be on board the aircraft. (T-2). These charts must be appropriate for the type of mission flown. (T-2).

2.5. Required Documents. The following documents must be on board for flight (T-2):

2.5.1. Aircraft weight and balance.

2.5.2. Airworthiness certificate.

2.5.3. Aircraft registration.

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

2.5.5. Passenger manifest, if required (according to AFI 11-202, Volume 3).

2.5.6. TO 1U-18(V)B-1.

2.5.7. TO 1U-18(V)B-1CL-1, *Pilots Abbreviated Flight Crew Checklist, USAF Series UV-18B Aircraft*.

2.5.8. A unit-developed pilot aid according to [paragraph 2.6.2](#) of this instruction.

2.6. Unit-Developed Checklists and Pilot Aids:

2.6.1. According to AFI 11-215, *USAF Flight Manuals Program (FMP)*, when aircrew use unit-developed checklists in lieu of flight manual checklists, the checklists must contain, as a minimum, all items (verbatim and in order) listed in the applicable flight manual checklist. (T-2). Crewmembers will still carry a current flight manual checklist and have it immediately available on all flights.

2.6.2. Unit-developed pilot aids will include as a minimum, the following items (T-2):

2.6.2.1. Briefing guides.

2.6.2.2. Local radio frequencies.

2.6.2.3. Appropriate airfield diagrams, including aircraft arresting systems.

2.6.2.4. Emergency information, including impoundment procedures, emergency action checklists, lost communications procedures, and divert information.

2.6.2.5. Cross-country procedures, including command and control, aircraft security, and aircraft servicing.

2.6.2.6. Local training areas.

2.6.2.7. Stereo flight plans.

2.6.2.8. Other information deemed necessary by the local unit.

Chapter 3

NORMAL OPERATING PROCEDURES

3.1. Preflight:

3.1.1. Required Equipment:

3.1.1.1. An operable flashlight is required for all night operations.

3.1.1.2. Crews remaining off-station overnight will carry chocks, engine intake covers, propeller locks, tiedown straps, pitot tube covers, and a key to lock the doors.

3.1.2. Aircraft Systems. **Chapter 4** specifies the minimum equipment list.

3.1.2.1. **High Wind Exposure Inspection.** The aircraft requires maintenance inspection prior to flight if it has been subjected to high wind or jet blast according to the following:

3.1.2.1.1. With gust locks disengaged:

3.1.2.1.1.1. Winds with a mean velocity equal to or greater than 30 knots from any direction.

3.1.2.1.1.2. Jet blast from any direction.

3.1.2.1.2. With gust locks engaged:

3.1.2.1.2.1. Winds with a mean velocity equal to or greater than 48 knots within 25 degrees of aircraft nose-into-wind position.

3.1.2.1.2.2. Winds with a mean velocity equal to or greater than 39 knots from up to 90 degrees of aircraft nose-into-wind position.

3.1.2.1.2.3. Winds with a mean velocity equal to or greater than 30 knots from any other direction.

3.1.2.1.2.4. Jet blast from any direction. **Note:** A mean wind speed of 30 knots may involve occasional gusts in excess of 50 knots.

3.1.2.2. **Instrument Cockpit Check.** Complete an instrument cockpit check prior to initial takeoff on every sortie. **Exception:** An instrument cockpit check is not required when no instrument approaches are planned during a day local sortie.

3.1.3. **Foreign Object Damage (FOD).** To reduce the risk of FOD and personal injury during ground operations, personnel will:

3.1.3.1. Not approach an operating engine.

3.1.3.2. Avoid using excessive power, especially when backing.

3.1.3.3. Avoid prop or jet blast from other aircraft.

3.1.3.4. Ensure loose items are secure in the cockpit before opening the doors or windows.

3.1.4. **Minimum Runway Condition Reading (RCR).**

3.1.4.1. Do not operate the aircraft with an RCR less than 6, with braking action poor, or when the runway surface condition is “ice on runway.” **Note:** A runway surface condition reported as patchy (runway less than fully covered) is not restrictive when adequate unaffected runway is available.

3.1.4.2. Do not take off or land when the RCR is less than or equal to the crosswind component (steady state or gust).

3.1.4.3. Consult the flight information handbook’s RCR correlation chart for adjustments to landing distance with RCR below “dry.” (Flight information handbook located at the National Geospatial-Intelligence Agency: <https://aero.geointel.nga.mil/products/digitalaero/flip.cfm> after an account is established at <https://www.extranet.nga.mil/servlet/ShowHomepage>.) (**Note:** With braking action poor or RCR below 6, landing distance could be doubled, potentially exceeding 3,000 feet.)

3.2. Ground and Taxi Operations:

3.2.1. **Refueling Operations.** Personnel not actively involved in refueling will remain at least 50 feet away from an aircraft refueling operation. In addition, do not operate the engine, taxi, or radiate electromagnetic energy (radio, distance measuring equipment [DME], cell phones, or transponder operation) within the 50-foot safety zone.

3.2.2. **Visual Signals.** Pilots will ensure systems that could pose any danger to the ground crew are not activated before receiving proper acknowledgment from ground personnel. When ground intercom is not used, visual signals will be in accordance with AFI 11-218, *Aircraft Operation and Movement on the Ground*, and this instruction. The ground crew will repeat the given signal when it is safe to operate the system.

3.2.3. **Aircraft Start.** The PIC will:

3.2.3.1. Not start the engines without a fireguard. If an external fireguard is not available, a crewmember will act as the fireguard.

3.2.3.2. Not allow an individual who is not qualified or not in training leading to qualification to start engines or taxi the aircraft.

3.2.3.3. Ensure the area around the propellers is clear and that all passengers are properly seated before starting engines.

3.2.4. **Minimum Spacing and Taxi Interval.** Comply with the minimum taxi clearances in AFI 11-218. In addition:

3.2.4.1. UV-18 formations will taxi with a minimum of 100 feet (staggered) or 250 feet (in trail).

3.2.4.2. Maintain at least 100 feet of spacing behind single-engine light aircraft.

3.2.4.3. Maintain at least 250 feet of spacing behind multi-engine or jet aircraft.

3.2.4.4. Maintain a minimum of 500 feet behind taxiing helicopters.

3.2.5. **Wind Limitations.** Ground operations will not be conducted when surface winds exceed 35 knots (steady state or gusting).

3.2.6. **Taxi Speed.** Maximum taxi speed is 25 knots. Taxi across any lowered web barriers below the maximum taxi speed.

3.2.7. **Reverse Taxi.** Reverse taxi will only be accomplished by certified crewmembers. Use a marshaller or spotters to clear the area behind the aircraft during reverse taxi.

3.2.8. **Engine Runup:**

3.2.8.1. Full engine runups are required only on the first flight of the day.

3.2.8.2. The pilot not flying (PNF) will guard the brakes during static engine runup checks to prevent undetected aircraft movement and remain vigilant for other traffic.

3.2.9. **Crew Seat Changes.** Crew seat changes on the ground will not be done with the engines running unless there is a pilot (or engine run qualified maintenance specialist) at the controls at all times to guard the brakes. Seat changes with only two crewmembers on board will not be done with the engines running.

3.2.10. **Engine Running On-Load/Off-Load (ERO).** EROs may be accomplished with squadron commander approval. Units will provide specific ERO guidance. (T-3).

3.3. **Takeoff and Landing:**

3.3.1. **Runway:**

3.3.1.1. The minimum runway required for normal UV-18 operations (takeoff or landing) is 3,000 by 40 feet of useable, hard surface. Do not consider runway prior to above-ground aircraft arresting cables as useable for takeoff. Do not consider runway after above-ground aircraft arresting cables as useable for landing, but it is available for taxi. The OG commander may approve operations on shorter runways when the takeoff and landing distances do not exceed 80 percent of the useable runway.

3.3.1.2. Do not takeoff over a raised web barrier unless the minimum runway and the planned rate of climb will clear the barrier by 35 feet.

3.3.1.3. Intersection takeoffs are approved as long as the useable runway remaining is 3,000 feet or greater. When aircrews use less than the entire runway for takeoff, base takeoff data calculations on the actual runway remaining from the point where takeoff starts.

3.3.2. **Gross Weight.** The maximum gross weight for takeoff must not exceed 12,500 pounds.

3.3.3. **Minimum Rate of Climb:**

3.3.3.1. For VFR departures, ensure a positive single-engine rate of climb.

3.3.3.2. For IFR departures, comply with AFI 11-202, Volume 3, and AFMAN 11-217, Volume 1, *Instrument Flight Procedures*.

3.3.4. **Weather Requirements:**

3.3.4.1. For an IFR takeoff, existing weather must be at or above compatible IFR landing minimums at the departure airfield.

3.3.4.2. For IFR landings, pilots will use a 200-foot ceiling and 1/2-mile visibility (runway visual range of 2,400 feet) or published minimums (whichever is higher) to

determine IFR landing minimums. **Exception:** An IP may fly approaches to published approach minimums. When an IP is at a set of controls, the crew may fly approaches to the IP's minimums.

3.3.5. **Minimum Runway Spacing.** Reduced same runway separation is authorized in accordance with AFI 13-204, Volume 3, *Airfield Operations Procedures and Programs*.

3.3.6. **Crosswind Limitations.** The maximum crosswind limit for takeoff and landing is 23 knots for IPs and 18 knots for all other pilots. Pilots will use the maximum crosswind (including gusts) to determine if winds exceed pilot or aircraft limits for takeoff or landing.

3.3.7. **Touch-And-Go Landings.** Do not perform touch-and-go landings with the airoperable cargo (Lexan) door open.

3.3.8. **Flaps:**

3.3.8.1. Perform takeoffs using 10 degrees of flaps except during no-flap takeoff demonstrations when required by a training syllabus.

3.3.8.2. Full-flap landings will only be flown to a full stop or a stop-and-go.

3.4. **Fuel Requirements.** Declare minimum fuel or emergency fuel to the controlling agency any time it becomes apparent an aircraft will land at the base of intended landing (or alternate if required) with less than the required fuel reserve.

3.4.1. With 300 pounds or less, declare minimum fuel.

3.4.2. With 200 pounds or less, declare emergency fuel.

3.5. **Minimum Altitudes:**

3.5.1. Perform all portions of stalls, slow flight, unusual attitude recoveries, abnormal flight recoveries, minimum controllable airspeed demonstrations, and formation confidence maneuvering exercises above 2,000 feet AGL.

3.5.2. The minimum altitude for parachute operations is 2,500 feet AGL.

3.5.3. Only practice formation lost wingman procedures above 2,000 feet AGL.

3.5.4. The minimum altitude for in-flight propeller feathering demonstrations is 2,000 feet AGL.

3.5.5. The minimum altitude for reducing power after takeoff is 400 feet AGL, or higher as required for obstacle clearance.

3.5.6. The minimum altitude for seat changes is 1,000 feet AGL. Change seats only during a noncritical phase of flight.

3.6. **In-Flight Weather Requirements:**

3.6.1. If lightning or thunderstorms are reported within 10 nautical miles (nm) of the area of operation, ensure the aircraft is not exposed to hail, lightning, windshear, or microbursts. Cease jump operations and traffic pattern operations with lightning within 5 nm.

3.6.2. Without weather radar (**Table 4.1**):

3.6.2.1. Maintain visual meteorological conditions (VMC) in areas of forecast thunderstorms.

3.6.2.2. Flight into areas of actual thunderstorms is prohibited.

3.6.3. Flight into areas of known or forecast icing conditions greater than moderate is prohibited.

3.6.4. Flight into areas of known or reported turbulence greater than moderate is prohibited.

3.6.5. Conduct all stalls, slow flight, unusual attitude recoveries, minimum controllable airspeed demonstrations, and all formation operations in day, VMC.

3.6.6. Minimum ceiling for jump operations is 2,500 feet AGL. Conduct all jump operations in VMC and do not allow jumpers to exit the aircraft into or through a cloud.

3.7. IP-Required Maneuvers. The following maneuvers are only allowed if an IP is at a set of controls:

3.7.1. Power-on stalls.

3.7.2. Traffic pattern stalls.

3.7.3. All simulated single-engine training, including propeller feathering demonstrations, approaches, and landings.

3.7.4. No-flap takeoffs.

3.7.5. Minimum controllable airspeed demonstrations.

3.7.6. Touch-and-go landings.

3.7.7. Full-flap landings.

3.8. Instrument and Navigation Procedures:

3.8.1. **IFR Departure Planning.** Aircrews will comply with the departure planning guidance in AFI 11-202, Volume 3. Use of special departure procedures to meet one-engine climb performance requirements is not authorized.

3.8.2. **Approach Category.** To determine instrument approach minimums, pilots will consider the UV-18 a category "A" aircraft. **Exception:** When circling requires an approach flown above 90 knots indicated airspeed (KIAS), higher category minimums apply.

3.8.3. **Global Positioning System (GPS).** Two GPS systems are available for use in the UV-18.

3.8.3.1. The Chelton Flight Logic electronic flight instrumentation system (EFIS)-SV EFIS equipment using the Chelton Flight Systems (CFS) Beta-3 GPS/WAAS receiver is certified in accordance with Federal Aviation Administration (FAA) Technical Standard Order (TSO) C-146a, *Stand-alone Airborne Navigation Equipment Using the Global Positioning System (GPS) Augmented by the Wide Area Augmentation System (WAAS)*. The EFIS meets the requirements of RTCA DO-229C, *Minimum Operational Performance Standards for Global Positioning System/Wide Area Augmentation System Airborne Equipment*, Class Gamma 1.

3.8.3.1.1. This equipment complies with FAA Advisory Circular (AC) 20-138a, *Airworthiness Approval of Global Navigation Satellite System (GNSS) Equipment*, for navigation using GPS and WAAS (including "GPS", "or GPS", and "area navigation (RNAV)" approaches), and approach procedures with vertical guidance (including

“LNAV/VNAV” and localizer performance with vertical guidance [“LPV”]). Based on compliance with TSO C146a, this equipment also complies with FAA AC 90-100a, *U.S. Terminal and En Route Area Navigation (RNAV) Operations*, for navigation on (U.S. RNAV routes), (Q-routes and T-routes), departure procedures, and standard terminal arrivals.

3.8.3.1.2. Approved instrument approaches (with an asterisk in the database) may be flown to LNAV, LNAV/VNAV, or LPV minimums when WAAS or fault detection and exclusion (FDE) is available (no GPS caution flags displayed) and such minimums are published. In actual IMC, GPS instrument approaches will not continue beyond the final approach fix when WAAS or FDE is not available.

3.8.3.2. The Bendix King KLN 90B GPS is considered a mission enhancement system IAW AFI 11-202, Volume 3, and is approved for VFR en route operations only.

3.8.4. **Vertical Navigation (VNAV) Systems.** Use of the CFS GPS/WAAS VNAV functions is approved for IFR during en route, terminal area, and nonprecision approach operations. This system is certified in accordance with FAA TSO C-146a. Instrument approaches are restricted to no lower than LNAV minimums when vertical deviation symbology is not displayed.

3.8.5. **Simulated Instrument Flight.** Use of vision restricting devices to simulate instrument meteorological conditions (IMC) is not authorized.

3.8.6. **Holding Airspeed.** Use 120 KIAS (two-engine) or 100 KIAS (single-engine) for holding.

3.9. Night Procedures:

3.9.1. Aircrews will ensure that all required exterior and interior lights are operational. Perform an instrument cockpit check prior to all night flying.

3.9.2. The landing lights may be used to provide additional illumination for taxi.

3.9.3. Aircrews will only perform 10 degree flap takeoffs.

3.9.4. For all night operations, do not file to a destination other than a home station unless there is an operable straight-in approach with glidepath guidance. A visual descent path indicator, precision approach guidance system, or GPS/WAAS VNAV guidance from a published RNAV (GPS) approach constitutes acceptable glidepath guidance.

3.10. Formation Procedures:

3.10.1. **Maximum Size.** The maximum formation size is three aircraft. Larger formations and dissimilar formations require OG commander approval.

3.10.2. Lead Change:

3.10.2.1. Do not initiate a lead change unless the aircraft assuming the lead is in a position from which the lead change can be safely initiated and visual contact maintained.

3.10.2.2. The minimum altitude for a lead change within a formation is 500 feet AGL.

3.10.3. Takeoff:

3.10.3.1. Minimum interval between aircraft on a formation takeoff is 15 seconds with the previous aircraft airborne.

3.10.3.2. A two-ship echelon lineup requires a runway greater than 80 feet wide.

3.10.3.3. A three-ship echelon lineup requires a runway greater than 120 feet wide.

3.10.3.4. When the runway width prevents echelon lineup, line up in trail with 300 feet of spacing minimum between aircraft. If runway length precludes lining up with spacing on the runway, the wingmen will remain clear of the runway until the previous aircraft has started takeoff roll.

3.10.4. **Approach and Landing.** Formation approaches and landings are not authorized. (**Exception:** When an aircraft malfunction requires a chase aircraft, the minimum altitude for the chase aircraft is 500 feet AGL.)

3.10.5. **Formation Maneuvers:**

3.10.5.1. In pre-jump position, limit maneuvering to approximately 30 degrees of bank or 10 degrees of pitch (up or down).

3.10.5.2. In route position, the maximum bank angle is 45 degrees.

3.10.5.3. In echelon position, the maximum bank angle is 45 degrees.

3.10.5.4. In jump position, the minimum spacing between aircraft during jump operations is 100 feet lateral spacing and 150 feet vertical spacing. Limit maneuvering to approximately 20 degrees of bank.

3.10.5.5. When an unusual situation requires a chase aircraft, the chase aircraft will fly no closer than route position unless required for observation of the supported aircraft.

3.10.6. **Lost Wingman Procedures.** Formation flight into weather conditions other than VMC is not authorized.

3.10.6.1. **Wingman Procedures (Number Two).** If the formation inadvertently enters weather and the number two loses sight of the leader, the wingman will simultaneously transition to instruments, inform lead, and perform the following procedures:

3.10.6.1.1. If the formation is in straight flight (climbing, descending or level), turn away from lead using 15 degrees of bank for 15 seconds. Then, reverse the turn to resume the previous course. Obtain a separate clearance, if required.

3.10.6.1.2. If the formation is turning (climbing, descending or level) and the wingman is:

3.10.6.1.2.1. Outside the turn, reverse the direction of the turn using 15 degrees bank for 15 seconds. Then, roll out and continue straight ahead to ensure separation before resuming the turn.

3.10.6.1.2.2. Inside the turn, momentarily reduce power to ensure nose-tail separation and inform lead to roll out of the turn. Maintain angle of bank to ensure lateral separation. Lead may resume the turn only when separation is ensured.

3.10.6.2. **Wingman Procedures (Number Three).** If the formation inadvertently enters the weather and number three loses sight, the wingman will simultaneously transition to instruments, inform lead, and perform the following procedures:

3.10.6.2.1. If the formation is in straight flight (climbing, descending, or level), turn away from lead using 30 degrees of bank for 30 seconds. Then, reverse the turn to resume the previous course. Obtain a separate clearance, if required.

3.10.6.2.2. If the formation is turning (climbing, descending, or level) and the wingman is:

3.10.6.2.2.1. Outside the turn, reverse the direction of the turn using 30 degrees bank for 30 seconds. Then, roll out and continue straight ahead to ensure separation before resuming the turn.

3.10.6.2.2.2. Inside the turn, momentarily reduce power to ensure nose-tail separation and inform lead to roll out of the turn. Increase angle of bank by 15 degrees to ensure lateral separation. Lead may resume the turn only when separation is ensured.

3.10.6.3. **Lead Procedures.** Lead will immediately perform the appropriate procedure, acknowledge the lost wingman's radio call, and transmit lead's aircraft attitude which the wingman will acknowledge. Lead should transmit other parameters such as heading, altitude, and airspeed as necessary to aid in maintaining safe separation. Air traffic control (ATC) may also assist in ensuring positive separation.

3.10.7. **Knock-It-Off (KIO) Procedures.** Any flight member may make a "knock it off" call to terminate maneuvering. When a dangerous situation is developing, flight members will be directive first. All participants will acknowledge a KIO by repeating the call. Aircrews will use KIO procedures to terminate maneuvering when a dangerous situation is developing. It may also be used when training is complete.

3.11. Passenger Transport Procedures:

3.11.1. When carrying passengers, the PIC will designate an additional crewmember or a JM as a passenger (PAX) monitor. The PAX monitor will:

3.11.1.1. Ensure all passengers are briefed according to the TO 1U-18(V)B-1CL-1 passenger briefing guide.

3.11.1.2. Remain on headset unless authorized to remove the headset by the PIC.

3.11.1.3. Give passengers directions during emergencies.

3.11.2. If no jump operations are planned, the air operable cargo door (Lexan) will remain closed.

3.11.3. When the Lexan door is open, passengers without a parachute will remain seated with their seatbelts fastened or be secured to the aircraft by an approved restraining device.

3.11.4. If passengers remain on board after all jumpers have left the aircraft:

3.11.4.1. A qualified JM or an additional aircrew passenger will ensure the Lexan door is closed and secured, and will land with the aircraft. **Exception:** If all remaining

passengers are JMs, rated aircrew, or career enlisted aviators, the Lexan door may remain open for landing with all passengers seated and their seatbelts fastened.

3.11.4.2. Coordinate with the JM or additional aircrew passenger to ensure all appropriate automatic activation devices (AAD) are off and all passengers are secure for landing. Do not exceed a 1,000 feet per minute descent rate until all appropriate AADs are turned off.

3.11.4.3. The aircrew will plan for the additional weight when returning to land with passengers on board.

3.12. Simulated Emergency Procedures: (Note: Practice no-flap landings are not emergency procedures.)

3.12.1. IP will brief all airborne simulated emergencies before flight.

3.12.2. Conduct simulated emergency training only during day VMC.

3.12.3. Do not practice simulated emergencies in-flight without an operable interphone.

3.12.4. Do not practice compound or multiple simulated emergencies in-flight.

3.12.5. Do not practice simulated emergency procedures with jumpers on board.

3.12.6. Do not compound simulated single-engine circling approaches or low closed patterns with any other simulated malfunctions.

3.12.7. Fly all simulated single-engine landings to a full stop or stop-and-go landing. During simulated single-engine landings, IPs will ensure both prop levers are returned to full increase prior to crossing the runway threshold. Pilots will not select reverse thrust during landing roll.

3.12.8. IPs will ensure the aircraft does not descend below 300 feet AGL during practice single-engine go-arounds.

3.13. Nontowered Airfield (NTA) Operations:

3.13.1. With the OG commander's approval, aircrews may conduct operations at nontowered, public- use airfields as follows:

3.13.1.1. Night NTA operations require operations supervisor approval.

3.13.1.2. Formation NTA operations require operations supervisor approval. Night formation NTA operations are not authorized.

3.13.1.3. Winds must be within limits for each runway to which the aircrew operates as best as can be determined with available information.

3.13.1.4. In the event a landing is required at an NTA, the unit will ensure fire or crash recovery (according to AFPAM 32-2004, *Aircraft Fire Protection for Military Operations Other Than War (MOOTW)*) and maintenance personnel, as appropriate to the situation, are available for the subsequent launch.

3.13.1.5. Aircrews will monitor the published common traffic advisory frequency and make all radio calls and position reports recommended in the Aeronautical Information Manual (AIM) (available at: http://www.faa.gov/airports_airtraffic/air_traffic/publications/atpubs/aim/).

3.13.1.6. Instrument approaches, rectangular patterns (as depicted in the AIM), and emergency procedures may be flown. Do not fly overhead patterns.

3.13.1.7. Fly instrument approaches under an IFR clearance, unless waived in accordance with AFI 11-202, Volume 3.

3.13.1.8. Weather restrictions for instrument approaches are as listed in paragraph 3.3.4 of this instruction.

3.13.1.9. If the aircrew is approaching the airfield on an IFR clearance and not intending to fly an instrument approach, weather conditions must permit a VFR descent from the appropriate IFR en route altitude.

3.13.1.10. Aircrews will immediately notify the operations supervisor if any hazardous conditions exist at an NTA that would prevent normal operations.

3.13.2. Each OG commander will approve and require a training program to prepare aircrews to operate in the NTA environment. As a minimum, the program will include a discussion of all applicable codes of federal regulations, advisory circulars, and AIM references on NTA operations. Training will emphasize standard civilian radio phraseology.

3.14. Functional Check Flights (FCF):

3.14.1. Do not conduct an FCF with other type missions except FCF continuation training or FCF upgrade training flights. All FCF requirements will be accomplished by an FCF pilot or a pilot in training status with an FCF IP on board.

3.14.2. The OG commander may waive a complete FCF and authorize an FCF to check only systems disturbed by maintenance, inspection, or modification.

3.14.3. Maneuvers not in accordance with TO 1U-18(V)B-6CF-1, *Functional Check Flight Procedures*, will not be flown or practiced on FCF missions.

3.15. Mandatory Advisory Calls. Mandatory advisory calls while in IMC, or simulated IMC, for the PNF are as follows: (**Note:** Minimum descent altitude (MDA) and decision height (DH) are determined using the guidance in paragraph 3.3.4 of this instruction.)

3.15.1. Nonprecision Approaches:

3.15.1.1. "One hundred feet" above MDA.

3.15.1.2. "Minimums" at MDA.

3.15.1.3. "Continue" when the runway environment is in sight.

3.15.1.4. "Go-around" at missed approach point if the runway environment is not in sight or the aircraft is not in a safe position to land.

3.15.2. Precision Approaches:

3.15.2.1. "One hundred feet" above DH.

3.15.2.2. "Land" at DH if the runway environment is in sight and the aircraft is in a position for a safe landing.

3.15.2.3. "Go-around" at DH if the runway environment is not in sight or if the aircraft is not in a position for a safe landing.

3.15.3. Climb-Out or Descent:

- 3.15.3.1. Transition altitude or transition level.
- 3.15.3.2. One thousand feet above or below assigned altitude.
- 3.15.3.3. One thousand feet above initial approach fix altitude or holding altitude.
- 3.15.3.4. One hundred feet above procedure turn and final approach fix altitude.

3.16. Transfer of Aircraft Control. Both pilots must know at all times who has control of the aircraft. In all cases, the pilot assuming control of the aircraft will state, "I have the aircraft" and will shake the yoke. The pilot relinquishing control will state, "You have the aircraft." Once assuming control of the aircraft, maintain control until relinquishing it as stated above.

3.17. Post Flight. After flight, aircrews will:

- 3.17.1. Complete AFTO Form 781 and notify maintenance of discrepancies.
- 3.17.2. Ensure the wheel chocks, and if wind conditions warrant, control locks are installed before leaving aircraft.

Chapter 4

OPERATING RESTRICTIONS

4.1. Minimum Equipment List. **Table 4.1** contains the minimum operational equipment and systems considered essential for safe flight. Any item the PIC considers essential to mission completion will be fixed or corrected prior to flight. Consult squadron supervisors for additional guidance, if necessary.

4.2. Waivers. The OG commander may waive the requirements of **Table 4.1** for an operational necessity.

Table 4.1. UV-18 Minimum Equipment List.

I T E M	A	B	C	D
Equipment	Installed	Required	Remarks	
1	Communication radios	2 VHF 1 UHF	1 VHF	Any 2 suitable radios required for jump operations.
2	Passenger address	1	0	Oral announcement by a JM suffices.
3	Fire extinguishers	2	1	Accessible to passengers and crew.
4	Wing tank system	1	0	Applies to aircraft with wing tanks only.
5	Hydraulic low pressure light (if installed)	1	0	Monitor hydraulic pressure closely on the hydraulic gauges.
6	Bleed air/heat	-	-	Required for any forecast or reported icing conditions and for remaining over night.
7	All icing systems	1	0	Required for any forecast or reported icing conditions and for remaining over night.
8	Landing lights	2	1	Do not operate in the "Pulse" position.
9	Cockpit and instrument lights	-	-	Sufficient lighting to illuminate instruments is required for night flights.
10	Wing inspection lights	2	0	Required for any forecast or reported icing conditions and for remaining over night.

I T E M	A	B	C	D
	Equipment	Installed	Required	Remarks
11	Passenger lights (fasten seatbelts and no smoking)	1	0	Required if carrying jumpers or passengers unless a JM or additional crewmember is on headset.
12	JM lights red and green	1	0	Note 2.
13	Standby attitude indicators	2	1	
14	Standby airspeed indicators	2	1	
15	Standby altimeter	2	1	
16	Automatic direction finder (ADF)	1	0	Required if destination or alternate approach requires ADF.
17	VOR/ILS (VHF Nav)	2	1	Two required for cross-country or remain overnight.
18	Distance Measuring Equipment (DME)	1	0	Without DME, CFS GPS must be operational. Note 1.
19	CFS GPS	1	1	Note 1.
20	Weather radar	1	0	Required for flights near areas of forecast or actual thunderstorms.
21	Automatic feathering	1	0	Note 3.
22	Flight data recorder	1	0	Note 4.
23	CVR	1	0	Note 4.
24	Air data computer	1	1	
25	Attitude and Heading Reference System (AHRS)	1	1	
26	EFIS screens	3	2	Note 5.
27	Datalink weather	1	0	Without Datalink Weather, the radar must be operational for Night, IFR, or off-station sorties.
28	Traffic Collision Avoidance System (TCAS)	1	1	

I T E	A	B	C	D
	Equipment	Installed	Required	Remarks
29	Terrain Awareness and Warning System (TAWS)/Radar Altimeter	1	0	Required for night, IMC, low-level navigation, or off-station sorties.

Notes:

1. Required for IFR flight. See TO 1U-18(V)B-1 for functions lost with this failure.
2. Required if mission includes jump operations and if interphone cannot be used.
3. When automatic feathering is inoperative, an IP must accomplish the takeoff. Review the appropriate manual feathering procedures before takeoff and use if necessary. Climb gradient will be affected, calculate climb data using the Autofeather Inoperative (Propeller Windmilling) charts in TO 1U-18(V)B-1.
4. Required for passenger/jumper carrying missions.
5. Applies to screen failure only. All three screens must be functional to depart the home station. For remaining screens, all EFIS functions and all standby instruments must be operational. Prior to departure, install an operable unit in the pilot position.

Chapter 5

PARACHUTING OPERATIONS

5.1. General. This chapter describes procedures for conducting parachute operations (wind drift indicator [WDI] and personnel airdrops). Coordination between the PIC, the JM, and the drop zone control officer (DZCO) is the key to successful parachuting operations.

5.2. Drop Zone (DZ) Requirements. Conduct all training jumps in DZs that are surveyed and approved according to AFI 11-410. (T-2).

5.3. Air Operable Cargo (Lexan) Door Procedures:

5.3.1. The Lexan door will remain closed below 1,500 feet AGL.

5.3.2. The pilot will authorize opening the Lexan door. The initial clearance to open the door is valid for all jump operations on that sortie, unless the PIC directs the JM to keep the door closed.

5.3.3. Only a qualified JM or an additional aircrew member may open the door.

5.4. Wind Drift Indicator (WDI) Drop Procedures:

5.4.1. The JM will determine the WDI drop altitude (normally 3,000 feet AGL; 2,000 feet AGL minimum).

5.4.2. Pilots will fly WDI drop passes as coordinated with the JM (normally 80 to 85 KIAS with 10 degrees of flaps).

5.4.3. The pilot will turn on the green jump clearance light prior to the WDI drop and the red jump clearance light immediately after the WDI drop.

5.4.4. Units will publish procedures for monitoring the WDI during its descent. (T-3).

5.4.5. After the WDI drop, the JM will brief proposed jump runs to the pilot.

5.5. Personnel Airdrop Procedures:

5.5.1. The JM will coordinate the airdrop airspeed with the pilot. The maximum airdrop airspeed is 140 KIAS.

5.5.2. The JM will determine the airdrop altitude (paragraph 3.5.2). The maximum airdrop altitude is 17,500 feet MSL.

5.5.3. The pilot will coordinate final jump run approval with the DZCO.

5.5.4. The red jump clearance light will be red at all times until clearance is received from the DZCO. Once cleared for the drop, the pilots will turn on the green jump clearance light prior to the airdrop and the red jump clearance light immediately after the airdrop.

5.5.5. The pilots will adjust the airdrop pattern to maintain adequate intervals between personnel airdrops. Units will determine the minimum intervals between each type of airdrop.

5.5.6. On the jump run final, the pilots will make heading corrections as requested by the JM using the interphone or the directional command steering lights. Make heading corrections using rudder only.

5.5.7. Static line personnel airdrops are not authorized.

5.6. Negative Drop Procedures:

5.6.1. Turn on the red jump clearance light and terminate an airdrop any time:

5.6.1.1. An unsafe condition develops.

5.6.1.2. The JM directs a go-around. Notify the DZCO.

5.6.1.3. The DZCO cancels the drop clearance. Notify the JM.

5.6.1.4. Another aircraft becomes a conflict with the flight or the jumpers.

5.6.1.5. The pilots or JM determine that jumpers will not land within the DZ.

5.6.2. If the aircraft is on final for a jump run, the pilot will bank the aircraft to the right and call “negative drop” on the interphone.

5.7. Communications:

5.7.1. The pilots will notify the appropriate ATC facility prior to conducting parachuting operations. Report the highest airdrop altitude.

5.7.2. In-flight communications with a DZCO is required during all parachuting operations. A DZCO clearance is required before WDI or personnel airdrop.

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Deputy Chief of Staff of Operations

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

- AFPD 11-2, *Aircrew Operations*, 19 January 2012
- AFI 11-2UV-18, Volume 1, *UV-18 Aircrew Training*, 28 June 2010
- AFI 11-200, *Aircrew Training, Standardization/Evaluation, and General Operations Structure*, 19 January 2012
- AFI 11-202, Volume 3, *General Flight Rules*, 22 October 2010
- AFI 11-209, *Aerial Event Policy and Procedures*, 4 May 2006
- AFI 11-215, *USAF Flight Manuals Program (FMP)*, 22 December 2008 (incorporating Change 1, 28 October 2010)
- AFMAN 11-217, Volume 1, *Instrument Flight Procedures*, 22 October 2010
- AFI 11-218, *Aircraft Operation and Movement on the Ground*, 28 October 2011
- AFI 11-301, Volume 1, *Aircrew Flight Equipment (AFE) Program*, 25 February 2009
- AFI 11-401, *Aviation Management*, 10 December 2010
- AFI 11-409, *High Altitude Airdrop Mission Support Program*, 1 December 1999
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- AFI 13-204, Volume 3, *Airfield Operations Procedures and Programs*, 1 September 2010
- AFPAM 32-2004, *Aircraft Fire Protection for Exercises and Contingency Response Operations*, 21 April 2010
- AFMAN 33-363, *Management of Records*, 1 March 2008
- AFMAN 91-201, *Explosives Safety Standards*, 12 January 2011
- AFI 91-202, *The US Air Force Mishap Prevention Program*, 5 August 2011
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- TO 11A-1-46, *Fire Fighting Guidance, Transportation and Storage Management Data*, 15 November 2004
- DoD Flight Information Publications, *Flight Information Handbook Aeronautical Information Manual (AIM)*, 9 February 2012
- FAA Advisory Circular 20-138C, *Airworthiness Approval of Positioning and Navigation Systems*, 5 August 2012

FAA Advisory Circular 90-100A. *U.S. Terminal and En Route Area Navigation (RNAV) Operations*, 1 March 2007

FAA TSO C-146a, *Stand-alone Airborne Navigation Equipment Using the Global Positioning System (GPS) Augmented by the Wide Area Augmentation System (WAAS)*, 19 February 2002

Adopted Forms

DD Form 175, *Military Flight Plan*

AF Form 847, *Recommendation for Change of Publication*

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

Abbreviations and Acronyms

AAD—automated activation devices

ADF—automatic direction finder

AFE—aircrew flight equipment

AGL—above ground level

AHRS—attitude and heading reference system

AIM—Aeronautical Information Manual

ATIS—automated terminal information service

ATC—air traffic control

CFS—Chelton Flight Systems

DH—decision height

DME—distance measuring equipment

DZ—drop zone

DZCO—drop zone control officer

EFIS—electronic flight instrumentation system

ERO—engine running on-load or off-load

FAA—Federal Aviation Administration

FCF—functional check flight

FCIF—flight crew information file

FDE—fault detection and exclusion

FOD—foreign object damage

FSS—flight service station

GPS—global positioning system

GNSS—global navigation satellite system

IFR—instrument flight rules

ILS—instrument landing system
IMC—instrument meteorological conditions
IP—instructor pilot
JM—jumpmaster
KIAS—knots indicated airspeed
KIO—knock it off
L/R—left/right
MAJCOM—major command
MDA—minimum descent altitude
MSL—mean sea level
NOTAM—notice to airman
NTA—nontowered airfield
nm—nautical miles
OG—operations group
OPR—office of primary responsibility
PAX—passenger
PIC—pilot in command
PNF—pilot not flying
RCR—runway condition reading
RNAV—area navigation
SID—standard instrument departure
TAWS—terrain awareness and warning system
TCAS—traffic collision avoidance system
TO—technical order
TSO—technical standard orders
UHF—ultra high frequency
VFR—visual flight rules
VHF—very high frequency
VMC—visual meteorological conditions
VOR—VHF omnidirectional range
WAAS—wide area augmentation system
WDI—wind drift indicator

Terms

Aeronautical Information Manual—The Federal Aviation Administration’s official guide to basic flight information and ATC procedures.

Air Almanac—Issued annually, the almanac contains astronomical data for use in navigation. It is available from the Government Printing Office. A suitable calculator is available from the US Naval Observatory at <http://aa.usno.navy.mil/publications/docs/aira.php>.

Bingo Fuel—A pre-briefed fuel state that allows the aircraft to return to the base of intended landing or an alternate using normal recovery procedures.

Critical Phases of Flight—Periods of time during takeoff, landings, actual jump operations, and all emergency procedures.

Cross-Country—Flights to or from other than home stations. This includes the outbound and return legs of a deployment.

Day—The period of time between the beginning of morning civil twilight and the end of evening civil twilight as defined in the Air Almanac. All maneuvers normally accomplished during normal daylight hours may be performed within this period.

Home Station—An airfield where the aircrew usually operates day-to-day missions and aircraft maintenance is available. This includes deployed locations during a deployment.

Joker Fuel—A prebriefed fuel needed to terminate an event and transition the next mission phase.

Knots—Nautical miles per hour.

Night—The time between the end of evening civil twilight and the beginning of morning civil twilight, as published in the Air Almanac, converted to local time.

Pass—A group of parachutists that exit the aircraft between the release point and completion of jump run.

Stereo Flight Plan—A precoordinated flight plan that the pilot may file without the use of the DD Form 175, *Military Flight Plan*. Stereo flight plans and filing procedures must be coordinated with the local base operations function and all air traffic control facilities involved.

Attachment 2
SINGLE-SHIP BRIEFING GUIDE

A2.1. Time Hack.**A2.2. Mission Data:**

- A2.2.1. Call sign and tail number.
- A2.2.2. Flight authorization and aircraft commander (left/right [L/R] seat).
- A2.2.3. Mission objectives.
- A2.2.4. Mission requirements.
- A2.2.5. Station, start, takeoff, and landing times.
- A2.2.6. Weather and status (takeoff, en route, drop zone, recovery, landing, alternates).
- A2.2.7. Flight plans and passenger manifests.
- A2.2.8. Fuel and oxygen requirements (joker and bingo).
- A2.2.9. Notices to airmen (NOTAM) review.
- A2.2.10. Go/no-go (currencies, flight crew information files [FCIF], and read files).
- A2.2.11. Required publications.

A2.3. Ground Operations:

- A2.3.1. Walkaround.
- A2.3.2. Preflight duties (de-ice check, instrument cockpit check, automated terminal information service (ATIS), clearance).
- A2.3.3. Engine start.
- A2.3.4. Airfield restrictions and taxi procedures (reverse taxi).
- A2.3.5. Cargo security.
- A2.3.6. Passenger loading and unloading and manifest changes.
- A2.3.7. Ground delays and spare aircraft.

A2.4. Takeoff and Departure:

- A2.4.1. Takeoff (runway, cables, barriers, flaps).
- A2.4.2. Avionics.
- A2.4.3. Departure (altitude, route, obstacles, Trouble T, standard instrument departure (SID)).

A2.5. Enroute Procedures:

- A2.5.1. Opening flight plan flight service station (FSS).
- A2.5.2. In-flight checks.
- A2.5.3. Navigation and communications (routing, altitude and terrain avoidance).

A2.6. Arrival:

- A2.6.1. Airfield description (active or available runways, cables, barriers).
- A2.6.2. Instrument approach review.
- A2.6.3. VFR pattern.
- A2.6.4. Touch-and-go procedures.

A2.7. In-flight:

- A2.7.1. Operating area (location, controlling agency, nearest divert airfields).
- A2.7.2. Specific maneuvers (entry and parameters).
- A2.7.3. Minimum altitudes.
- A2.7.4. Communications.

A2.8. Drop Zone:

- A2.8.1. Drop zone controlling agency (frequency, checking, clearance).
- A2.8.2. Jumpmaster directions.
- A2.8.3. WDI procedures.

A2.9. Emergency Procedures:

- A2.9.1. Ground egress and passenger procedures.
- A2.9.2. Aborts procedures.
- A2.9.3. Takeoff emergencies and emergency return (VMC or IMC).
- A2.9.4. Emergency and divert airfields.
- A2.9.5. General aircraft malfunctions and crew coordination.
- A2.9.6. Oxygen malfunctions and physiological incidents.
- A2.9.7. Communications failures (interphone and radios).
- A2.9.8. Jumpmaster emergencies (unintentional smoke, inadvertent parachute deployment).
- A2.9.9. Simulated emergencies (planned emergency procedures, rules of engagement, and restrictions).

A2.10. Additional Items:

- A2.10.1. Special interest items.
- A2.10.2. Operational risk management (score, risks, mitigation, approval).
- A2.10.3. Crew resource management.
 - A2.10.3.1. Crosswind controls (taxiing and landing).
 - A2.10.3.2. Instrument monitoring and required calls.
- A2.10.4. Transfer of aircraft control.
- A2.10.5. Clearing and areas of potential conflict.

A2.10.6. Communications (checklists, radio procedures).

A2.10.7. Wake turbulence and spacing.

A2.10.8. Weight and balance.

A2.10.9. Night procedures.

A2.10.10. Alternate mission.

A2.10.11. Debrief plan.

A2.10.12. Personal equipment (clothing, jewelry and scarves removed, etc.).

A2.10.13. Electronic devices (cell phones, pagers, etc.).

A2.10.14. Sign out and step.

A2.11. Questions.

A2.12. Passenger and Jumpmaster Briefings.

Attachment 3**FORMATION BRIEFING GUIDE****A3.1. Time Hack.****A3.2. Mission Data/Line-up Card:**

- A3.2.1. Call sign and tail number.
- A3.2.2. Flight authorization and aircraft commander (L/R seat).
- A3.2.3. Flight lead or deputy.
- A3.2.4. Mission objectives.
- A3.2.5. Mission requirements.
- A3.2.6. Step, start, takeoff, and landing times.
- A3.2.7. Weather and status (takeoff, en route, drop zone, recovery, landing, alternates).
- A3.2.8. Flight plans and passenger manifests.
- A3.2.9. Fuel and oxygen requirements (joker and bingo).
- A3.2.10. NOTAMS review.
- A3.2.11. Go/no-go (currencies, FCIF, and read files).
- A3.2.12. Required publications.

A3.3. Ground Operations:

- A3.3.1. Check-in (ATIS, clearance, frequency).
- A3.3.2. Engine start (cart).
- A3.3.3. Airfield restrictions and taxi procedures (taxi interval).
- A3.3.4. Cargo security.
- A3.3.5. Passenger loading and unloading and manifest changes.
- A3.3.6. Engine runups.
- A3.3.7. Communications setup (COM 1, 2, 3).
- A3.3.8. Ground delays and spare aircraft.

A3.4. Takeoff and Departure:

- A3.4.1. Takeoff (runway, cables, barriers, flaps).
- A3.4.2. Lineup/interval (3-ship or 2-ship).
- A3.4.3. Departure (altitude, route, obstacles, Trouble T, SID).
- A3.4.4. Rejoins after takeoff (airspeed).

A3.5. En Route Procedures:

- A3.5.1. Opening flight plan (FSS).

A3.5.2. In-flight checks.

A3.5.3. Navigation and communications (routing, altitude, and terrain avoidance).

A3.6. Arrival:

A3.6.1. Airfield description (active or available runways, cables, barriers).

A3.6.2. Recovery (routing, altitudes, and airspeeds).

A3.6.3. Flight splitup (planned or weather).

A3.6.4. Patterns and landings (entry, spacing, turns, configurations, landing roll).

A3.6.5. After landing (check-in, taxi back).

A3.7. In-flight:

A3.7.1. Operating area (location, controlling agency, nearest divert airfields).

A3.7.2. Specific maneuvers (entry and parameters).

A3.7.2.1. Formation confidence maneuvering.

A3.7.2.2. Pitchouts and rejoins (air speeds and bank angles).

A3.7.2.3. Overshoot.

A3.7.2.4. Practice lost wingman.

A3.7.3. Collision avoidance/breakout.

A3.7.4. Lost sight.

A3.7.5. Visual signals.

A3.7.6. Wake turbulence.

A3.7.7. Position changes.

A3.7.8. Minimum altitudes.

A3.7.9. Communications (interplane, pilot flying, and PNF).

A3.8. Drop Zone:

A3.8.1. Drop zone controlling agency (frequency, checking, clearance).

A3.8.2. Jumpmaster directions.

A3.8.3. WDI procedures.

A3.8.4. Jump position.

A3.8.5. Radio calls (bell, green light, red light).

A3.8.6. Negative drops.

A3.9. Emergency Procedures:

A3.9.1. Ground egress and passenger procedures.

A3.9.2. Aborts procedures.

- A3.9.3. Takeoff emergencies and emergency return (VMC or IMC).
- A3.9.4. Emergency and divert airfields.
- A3.9.5. Formation positions and mutual support.
- A3.9.6. Knock-it-off procedures.
- A3.9.7. Communications failures (interphone and radios).
- A3.9.8. Mid air collision (altitude, separation/controllability check/chase ship).
- A3.9.9. Lost wingman procedures.
- A3.9.10. Jumpmaster emergencies (unintentional smoke, inadvertent parachute deployment).

A3.10. Additional Items:

- A3.10.1. Special interest items.
- A3.10.2. Operational risk management (score, risks, mitigation, approval).
- A3.10.3. Crew resource management.
- A3.10.4. Clearing and areas of potential conflict.
- A3.10.5. Communications (checklists, radio procedures).
- A3.10.6. Wake turbulence and spacing.
- A3.10.7. Alternate or single-ship missions (fallout plan).
- A3.10.8. Debrief plan.
- A3.10.9. Personal equipment (clothing, jewelry, and scarves removed, etc.).
- A3.10.10. Electronic devices (cell phones, pagers, etc.).
- A3.10.11. Sign out and step.

A3.11. Questions.

A3.12. Individual Crew Briefings.