

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



**AIR FORCE INSTRUCTION 11-2U-2,  
VOLUME 3**

**26 APRIL 2002**

***Flying Operations***

***U-2--OPERATIONS PROCEDURES***

**COMPLIANCE WITH THIS PUBLICATION IS MANDATORY**

---

**NOTICE:** This publication is available digitally on the AFDPO WWW site at:  
**<http://afpubs.hq.af.mil>**

---

OPR: HQ ACC/DOTR  
(Maj Gen Richard A. Mentemeyer)  
Supersedes AFI 11-2U-2V3, 1 March 2000

Certified by: HQ USAF/XOO (Maj Paul Cook)

Pages: 27  
Distribution: F

---

This volume implements AFD 11-2, *Aircraft Rules and Procedures*; AFD 11-4, *Aviation Service*; and AFI 11-202V3, *General Flight Rules*. It prescribes standard operational procedures for use by pilots who operate USAF U-2 aircraft. It does not apply to Air National Guard (ANG) or Air Force Reserve Command (AFRC) units or members.

Major commands (MAJCOM)/direct reporting units (DRU)/field operating agencies (FOA) are to forward proposed MAJCOM/DRU/FOA-level supplements to this volume to HQ AFFSA/ XOF, through HQ ACC/DOTR, for approval prior to publication in accordance with (IAW) AFD 11-2. Copies of MAJCOM/DRU/FOA-level supplements, after approved and published, will be provided by the issuing MAJCOM/DRU/FOA to HQ AFFSA/XOF, HQ ACC/DOTR, and the user MAJCOM/ DRU/FOA offices of primary responsibility. Field units below MAJCOM/DRU/FOA level will forward copies of their supplements to this publication to their parent MAJCOM/DRU/FOA office of primary responsibility for post publication review. **NOTE:** The terms DRU and FOA as used in this paragraph refer only to those units that report directly to HQ USAF.

Keep supplements current by complying with AFI 33-360V1, *Publications Management Program*. See paragraph **1.3.** of this volume for procedures on how and where to submit recommended changes to this publication.

**Records Disposition.** Ensure all records created by this AFI are maintained and disposed of IAW AFMAN 37-139, *Records Disposition Schedule*.

This volume contains references to the following multi-command and ACC publications that, until converted to departmental publications, may be obtained from the lead MAJCOM (ACC) publishing office.

AFI 11-418, *Operations Supervision*

ACCI 11-450, *Orientation Flight Program* (to be written into AFI 11-401/ACC Sup 1)

**SUMMARY OF REVISIONS**

This change incorporates Beale AFB supplement information; updated **Chapter 9**, to reflect Protection Levels versus Categories; added pre-flight briefing items, and changes wording for accuracy, clarity, and to reduce redundancy with other documents. A ( | ) indicates revisions from the previous edition.

<b>Chapter 1— INTRODUCTION</b>	<b>5</b>
1.1. General: .....	5
1.2. Deviations and Waivers: .....	5
1.3. Revisions. ....	5
1.4. Key Words and Definitions. ....	5
<b>Chapter 2— MISSION PLANNING</b>	<b>6</b>
2.1. Flight Manuals. ....	6
2.2. Checklists. ....	6
2.3. Local Aircrew Aids. ....	6
2.4. Mission Planning Responsibility. ....	6
2.5. Mission Planning Procedures. ....	6
2.6. Flight Crew Information File (FCIF) Procedures. ....	7
<b>Chapter 3— NORMAL OPERATING PROCEDURES</b>	<b>8</b>
3.1. Preflight: .....	8
3.2. Ground Visual Signals: .....	8
3.3. Taxi: .....	8
3.4. Runway Line Up: .....	8
3.5. Climbout. ....	9
3.6. Cruise: .....	9
3.7. Descent. ....	9
3.8. Stall Training: .....	9
3.9. Visual Flight Rule (VFR) Patterns: .....	9
3.10. Low Approaches. ....	9
3.11. Mobile Officer Control of Landings: .....	9
3.12. Touch and Go Landings: .....	10
3.13. No-Voice Landings. ....	10
3.14. Full Stop Landings. ....	10

3.15. Takeoff and Landing with Arresting Cables. ....	10
<b>Chapter 4— SIMULATED EMERGENCY PROCEDURES</b>	<b>11</b>
4.1. General. ....	11
4.2. Simulated Flameout Patterns (SFO): ....	11
4.3. No-Flap Patterns. ....	11
4.4. Simulated Emergency Pattern Full Stop Landings. ....	11
<b>Chapter 5— EMERGENCY PROCEDURES</b>	<b>12</b>
5.1. General. ....	12
5.2. Takeoff Aborts. ....	12
5.3. Air Aborts. ....	12
5.4. Hung Pogo Procedures. ....	12
5.5. Fuel Restrictions: ....	12
<b>Chapter 6— WEATHER RESTRICTIONS</b>	<b>13</b>
6.1. Ceiling and Visibility. ....	13
6.2. Maximum Steady State Surface Wind (Forecasted or Reported). ....	13
6.3. Crosswinds: ....	13
6.4. Tail Winds: ....	13
6.5. Turbulence. ....	13
6.6. Ice and Snow. ....	13
<b>Chapter 7— PHYSIOLOGICAL/CREW REST PROCEDURES</b>	<b>14</b>
7.1. General. ....	14
7.2. High Altitude Flights: ....	14
Table 7.1. High Altitude Flight Recovery Period. ....	14
7.3. Low Altitude Flights: ....	14
7.4. Crossing Time Zones. ....	15
7.5. Crew Rest: ....	15
7.6. Wear of Jewelry. ....	15
7.7. Exercise: ....	15
<b>Chapter 8— ORIENTATION FLIGHTS</b>	<b>16</b>
8.1. General. ....	16

8.2. Policy: .....	16
8.3. Responsibilities: .....	16
8.4. Mission Profiles. ....	16
8.5. Sensitive Information. ....	16
<b>Chapter 9— U-2 AIRCRAFT SECURITY</b>	<b>17</b>
9.1. General. ....	17
9.2. Security. ....	17
9.3. Air Force Installation Security Program. ....	17
9.4. En Route Security: .....	17
9.5. Primary Mission Equipment (PME). ....	18
<b>Chapter 10— OPERATIONAL REPORTS AND FORMS</b>	<b>19</b>
10.1. AF Form 457, USAF Hazard Report. ....	19
10.2. AF Form 651, Hazardous Air Traffic Report (HATR). ....	19
10.3. MAJCOM-Approved Form, USAF Aircraft Mishap Report Worksheet (Aircraft and Personnel Mishaps): .....	19
10.4. Reports of Violations. ....	20
10.5. Petroleum, Oil, and Lubricants (POL)--Aviation Fuels Documentation. ....	21
10.6. MAJCOM-Approved Form, Aircraft Commander's Report on Services and Facilities.	21
<b>Attachment 1— GLOSSARY OF REFERENCES AND SUPPORTING INFORMATION</b>	<b>22</b>

## Chapter 1

### INTRODUCTION

#### 1.1. General:

1.1.1. In conjunction with other governing directives, this volume prescribes procedures for U-2 aircraft under most circumstances, but it is not a substitute for sound judgment. This volume provides guidelines for U-2 aircraft operations and applies to U-2 aircrews and all management levels concerned with operation of the U-2 aircraft. It is both a compilation of information from aircraft flight manuals, flight information publications (FLIP), and Air Force directives, as well as an original source document for many areas. Basic source directives have precedence in the case of any conflicts, revisions, and matters of interpretation.

1.1.2. Air Combat Command (ACC) Flight Operations Division (HQ ACC/XOF) has overall responsibility for administration of this volume.

1.1.3. Copies will be current and available to planning staffs from headquarters to aircrew level.

#### 1.2. Deviations and Waivers:

**1.2.1. Deviations.** Do not deviate from the policies and guidance in this volume under normal circumstances with the following exceptions:

1.2.1.1. If an urgent requirement or aircraft emergency dictates otherwise, in which case the pilot in command, or instructor, will take the appropriate action to safely recover the aircraft.

1.2.1.2. When a controlling source publication changes, that publication takes precedence until the change is incorporated herein. After a change is made to a controlling source, a change to this volume will be distributed in a timely manner.

**1.2.2. Waivers.** Waiver authority is the parent MAJCOM/DO unless otherwise directed in this volume. If appropriate, waiver approval and coordination should be published in the mission concept of operations (CONOPS).

**1.3. Revisions.** Submit proposed changes to this volume through appropriate channels to HQ ACC/DOTR according to AFI 11-215, *Flight Manuals Program (FMP)*. Use AF Form 847, **Recommendation for Change of Publication**. HQ USAF/XO is the approval authority for interim changes (IC) and revisions to this instruction.

**1.4. Key Words and Definitions.** See **Attachment 1** of this volume for additional terms.

1.4.1. "Will" and "shall" indicate a mandatory requirement.

1.4.2. "Should" is normally used to indicate a preferred, but not mandatory, method of accomplishment.

1.4.3. "May" indicates an acceptable or suggested means of accomplishment.

1.4.4. "Note" indicates operating procedures, techniques, etc., considered essential to emphasize.

## Chapter 2

### MISSION PLANNING

**2.1. Flight Manuals.** All U-2 pilots will be issued unclassified flight manuals and are personally responsible for maintaining knowledge of flight manual procedures.

**2.2. Checklists.** Each crewmember will have and refer to appropriate checklists during flight operations to ensure accomplishing required actions.

**2.3. Local Aircrew Aids.** Locally developed aircrew aids are authorized. Guidance is published in AFI 11-202V2, *Aircrew Standardization/Evaluation Program*, paragraph **6.3.** (as supplemented).

**2.4. Mission Planning Responsibility.** The mission pilot is ultimately responsible for proper mission planning.

2.4.1. Commanders will employ Operational Risk Management (ORM) procedures to ensure that operations do not exceed established risk levels.

2.4.2. Commanders will ensure all mission planning materials are current and command guidance is followed. Squadron and Forward Operating Location (FOL) operations officers will ensure adequate mission planning time is scheduled prior to flight.

2.4.3. For operational reconnaissance and Higher Headquarters (HHQ) directed sorties, responsibility for determining mission objectives, sensor selection, route of flight, country clearances, etc., is shared between operations and intelligence functions at the wing level or above. HHQ missions include deployment, redeployment, reconnaissance operations, Operational Readiness Inspections (ORI), and PDM input/output. Exercise missions flown in support of higher headquarters directed exercises, for example GREEN FLAG, COPE THUNDER, FLEETEX, as well as, exercise support to classified users are also considered HHQ missions.

**2.5. Mission Planning Procedures.** Mission planning must be sufficient to ensure safe and successful mission accomplishment. Areas covered will include, at a minimum, fuel requirements, chart preparation, mission objectives, threat study (when applicable), departure and arrival procedures, and communication procedures.

**2.5.1. Map/Chart Preparation.** All mission materials (other than FLIP) will be placed on boards to ease handling in the pressure suit. Annotate restricted/prohibited areas, route of flight, and emergency airfields along the route of flight. Known threats to the U-2 will be depicted.

**2.5.2. Pre-flight Briefings.** Pilots are responsible for briefing the mobile officer prior to each flight. For all flights, the briefing will include:

2.5.2.1. Emergency airspeeds for use immediately after takeoff and the assistance desired from the mobile.

2.5.2.2. Visual Search Responsibilities:

2.5.2.2.1. Departure/Enroute/Recovery.

2.5.2.2.2. High Density Traffic Areas.

2.5.2.3. Mid-Air Collision Avoidance from:

2.5.2.3.1. Other military aircraft.

2.5.2.3.2. Civilian aircraft.

**2.5.3. Training Flights.** Do not accomplish any simulated emergencies without pre-briefing the mobile.

**2.5.4. High Altitude Training Flights and Operational Missions.**

2.5.4.1. Pre-brief: 1) mission objectives; 2) sensor operation (if configured); 3) recovery plan; and 4) airfield ground movement.

2.5.4.2. High Flight Fuel Reserve Requirements. For high flight missions plan to have the AFI 11-202V3, *General Flight Rules* requirement or at Beale AFB the following fuel reserves at the initial approach fix (IAF), **whichever is higher**:

2.5.4.2.1. Summer – 275 gallons

2.5.4.2.2. Winter - 425 gallons

2.5.4.2.3. HHQ Directed – 200 gallons

2.5.4.3. Squadron operations officers will make the determination when to change between summer and winter reserve requirements based on seasonal conditions. The change will be implemented through the Flight Crew Information File (FCIF) Volume 1, Part B.

**2.6. Flight Crew Information File (FCIF) Procedures.** Review FCIF (Volume 1, Part B) before all missions or ground aircrew duties and update the FCIF currency record with the latest FCIF item number and crewmembers initials.

## Chapter 3

### NORMAL OPERATING PROCEDURES

#### 3.1. Preflight:

**3.1.1. General.** The pilot must review the aircraft forms, including weight and balance. The pilot is responsible for knowing the aircraft condition prior to acceptance for flight. Confirm fuel load and fuel dip with the crew chief.

**3.1.2. Low Flights.** The pilot will normally accomplish the aircraft preflight, to include the exterior inspection. The mobile officer may perform the exterior inspection if conditions warrant.

**3.1.3. High Flights.** The mobile officer will perform the interior inspection to include checking inertial navigation system (INS) destination points/emergency airfields/bulls eyes. The mobile officer will also review the aircraft forms and perform the exterior inspection.

#### 3.2. Ground Visual Signals:

3.2.1. Comply with AFI 11-205, *Aircraft Cockpit and Formation Flight Signals*; and AFI 11-218, *Aircraft Operation and Movement on the Ground*.

**3.2.2. Prior to Engine Start.** Verify intercom operation with the crew chief and rear cockpit (if applicable). If unable with the crew chief, use visual signals.

3.2.3. Establish radio contact with the mobile officer and ground controller prior to engine start (N/A for communication-out launches).

#### 3.3. Taxi:

3.3.1. Taxi after receiving "ground crew clear" from mobile officer and taxi clearance from ATC.

3.3.2. If unable to make a turn, stop, then follow mobile's instructions for pushing the aircraft. Close coordination with the mobile officer is necessary to push an aircraft safely. Do not actuate control surfaces, run up the engine, or roll forward until cleared by mobile officer.

3.3.3. Do not taxi with a wing tip contacting the runway or taxiway when electronic warfare system (EWS) wing tip receivers are installed.

#### 3.4. Runway Line Up:

**3.4.1. Intersection Takeoffs.** Avoid performing intersection takeoffs if the stopping distance is critical and using the entire runway is operationally feasible. On training sorties do not perform intersection takeoffs if the takeoff ground distance and abort stopping distance exceed the available runway remaining.

**3.4.2. Locations with Crowned Runways.** Do not line up on runway centerline with fuel loads less than R-6 unless operationally necessary. The pogo(s) may fall out on crowned runways when the pins are removed.

#### 3.4.3. Takeoffs Without Both Pogos.

3.4.3.1. Pilots with less than 300 hours in the U-2 will takeoff with at least one pogo installed.

3.4.3.2. At light fuel loads (R-3 or less), a hand launch is permissible.

**3.4.4. Before Takeoff Checks.** Do not run-up power until receiving takeoff clearance and getting a "thumbs up" or verbal "ground crew clear" from the mobile.

**3.5. Climbout.** On all takeoffs, including touch and go's, do not initiate a turn until reaching a minimum of 400 feet above ground level (AGL).

### **3.6. Cruise:**

3.6.1. Fly the indicated mach number (IMN) recommended by the classified dash one performance charts based on aircraft configuration and mission objectives.

3.6.2. Minimum airspeed above FL600 is no-flap T-speed plus 10 knots.

**3.7. Descent.** Descents from operational altitudes should normally be made in the reverse of the climb airspeed schedule. Use caution not to exceed flight manual airspeed limits. Do not descend at maximum airspeeds unless mission tactics or training requirements dictate.

### **3.8. Stall Training:**

3.8.1. Accomplish stall training in visual meteorological conditions (VMC) below FL 400 and at least 8000' above the ground or undercast deck. Ensure the stall strips are extended and fuel balance is checked. Recover immediately if any unusual stall characteristics develop.

3.8.2. Stall training will only be accomplished on functional check flight (FCF) training sorties or with a TU-2S qualified instructor pilot (IP) on board.

3.8.3. Intentional stalls from nose high attitudes and accelerated stalls are prohibited.

### **3.9. Visual Flight Rule (VFR) Patterns:**

**3.9.1. Closed Patterns.** Airspeed during the closed pattern will be no lower than 90 KIAS or no-flap T + 10, whichever is higher. Do not exceed 130 KIAS during the pattern under normal conditions.

**3.9.2. Night VFR Patterns.** Night overhead patterns should be flown as locally published. Visual glide path guidance is required for night VFR patterns.

**3.10. Low Approaches.** Initiate low approach, missed approach, or go-around at 10' or above unless performing the landing attitude demonstration in the TU-2S.

### **3.11. Mobile Officer Control of Landings:**

3.11.1. The mobile officer will chase all landings unless safety considerations preclude chase or when conducting mobile officer training from a static position.

3.11.2. Static position mobile officer training should only be accomplished under the following conditions:

3.11.2.1. Day

3.11.2.2. Visibility 2 statute miles or better

3.11.2.3. Crosswinds <10 knots

3.11.2.4. An IP in the aircraft being monitored

3.11.2.5. The mobile officer must be in a position to clearly view the final approach, touchdown, and rollout/ takeoff phases

3.11.3. If the mobile officer will not be chasing the aircraft, has to discontinue chase, or loses sight of the aircraft, inform the pilot by transmitting "Call Sign, Mobile, Negative Chase." This call may include a short explanation, if warranted.

### **3.12. Touch and Go Landings:**

3.12.1. All touch and go landings will be supervised by an instructor (either in the mobile vehicle or in the aircraft).

3.12.2. Minimum runway length for touch and go landings is 6,000 ft.

3.12.3. The landing zone for all U-2 landings is the first third of the runway. Initiate the takeoff phase of touch and go landings no later than 4,000 ft remaining.

3.12.4. Do not perform touch and go landings with primary mission equipment (PME) on the aircraft. The EWS and line-of-sight data link are not considered PME for the purpose of touch and go landings. However, touch and go landings should be limited with EWS or data link equipment installed. If PME is loaded, aircraft will stop straight ahead on the runway and taxi clear once pogos are installed.

3.12.5. Do not perform touch and go landings on snow or ice covered runways.

**3.13. No-Voice Landings.** All landings will be given altitude calls unless the pilot asks for a no-voice landing. No-voice landings are not considered simulated emergency procedures and may be flown on any pattern/ landing (except operational/HHQ sorties) with the following restrictions:

3.13.1. Will not be flown with greater than 10 knots of crosswind.

3.13.2. Will not be flown when the runway is snow, slush, or ice covered.

3.13.3. Will not be flown when an emergency exists, or a precautionary landing is being made.

**3.14. Full Stop Landings.** Computed landing distance will not exceed 80 percent of the available runway.

**3.15. Takeoff and Landing with Arresting Cables.** U-2 aircraft may takeoff or land on a runway with arresting gear provided it can be safely accomplished between the barriers.

## Chapter 4

### SIMULATED EMERGENCY PROCEDURES

**4.1. General.** Practice simulated emergencies under day VMC only. Simulated emergencies will only be practiced by Instructor Pilots or under the supervision of an IP in the aircraft or mobile vehicle.

**4.2. Simulated Flameout Patterns (SFO):**

4.2.1. Do not practice SFOs from the initial takeoff leg of the pattern.

4.2.2. Enter all SFOs from a stabilized pitch attitude and power setting.

4.2.3. SFO patterns will be flown from a high or low key point as described in the flight manual, but may begin from other positions at altitudes above those points.

**4.3. No-Flap Patterns.** Practice no-flap landings without the use of trim (simulating hydraulic pressure loss) are authorized provided the trim setting used is within the normal flight range (one unit nose down to two units nose up).

**4.4. Simulated Emergency Pattern Full Stop Landings.** If a full stop landing from a simulated emergency pattern is necessary due to training or other requirements, the parameters for a normal full stop landing must be followed (touch and go restrictions apply).

## Chapter 5

### EMERGENCY PROCEDURES

**5.1. General.** This chapter contains procedures to be followed when emergencies or abnormal conditions occur. They do not supersede or replace flight manual procedures or sound judgment.

**5.2. Takeoff Aborts.** If hot brakes are experienced or suspected, declare an emergency and do not taxi.

**5.3. Air Aborts.** Comply with U-2S-1 Flight Manual procedures and operating location guidance.

**5.4. Hung Pogo Procedures.** In the event of a hung pogo, the pilot should avoid flying over populated areas and avoid making abrupt pitch and power changes. Declare an emergency and comply with U-2S-1 Flight Manual procedures and local guidance. Descend no lower than 1000' AGL during attempts to dislodge the pogo. If unable to dislodge the pogo:

**5.4.1. Aircraft T-Speed Greater Than 78.6 KIAS (Greater Than 24,300 lb Aircraft).** Conditions permitting, proceed to the local hung pogo fuel dump area and adjust aircraft gross weight as required for landing.

**5.4.2. Aircraft T-Speed Less Than 78.6 KIAS (Less Than 24,300 lb Aircraft).** Perform a hung pogo landing IAW U-2S-1 Flight Manual procedures. After landing, stop straight ahead. If the pogo drops during landing, terminate the emergency, and have the aircraft inspected for damage. If no damage is evident, it is permissible to re-launch using the opposite side pogo or hand launch procedures. If the pogo does not drop, terminate the mission.

#### **5.5. Fuel Restrictions:**

5.5.1. Declare **minimum fuel** whenever usable fuel at touchdown will be less than **125 gallons**.

5.5.2. Declare **emergency fuel** whenever usable fuel at touchdown will be less than **50 gallons**.

5.5.3. After landing, shut down the engine whenever sump quantity indications become unreliable (usually less than 25 gallons) regardless of fuel depicted on the counter. Do not allow the engine to flame out.

## Chapter 6

### WEATHER RESTRICTIONS

**6.1. Ceiling and Visibility.** Fully qualified pilots comply with AFI 11-202V3, Chapters 7 and 8, (as supplemented) ceiling and visibility criteria for filing, takeoff, and landing. For student training and interview sorties, comply with syllabus restrictions.

**6.2. Maximum Steady State Surface Wind (Forecasted or Reported).** 30 knots for training sorties, due to parachute canopy size and the hazards associated with being dragged. Maximum surface wind (forecasted or reported) for operational or HHQ directed sorties is 40 knots.

**6.3. Crosswinds:**

- 6.3.1. Maximum recommended crosswind component for dry or wet runway operations is 15 knots.
- 6.3.2. Maximum crosswind component for touch and go landings is 12 knots.
- 6.3.3. Maximum crosswind component is 9 knots for operations with loose snow on the runway, and 5 knots for ice on the runway (runway RCR 5).

**6.4. Tail Winds:**

- 6.4.1. Maximum tail wind component for takeoffs and full stop landings is 10 knots.
- 6.4.2. Maximum tailwind component for touch & go landings is 5 knots.

**6.5. Turbulence.** U-2 sorties will not fly into areas of forecast or reported severe turbulence, nor will they remain in areas where actual moderate or higher turbulence is encountered.

**6.6. Ice and Snow.** Do not perform touch and go landings on snow or ice covered runways.

## Chapter 7

### PHYSIOLOGICAL/CREW REST PROCEDURES

**7.1. General.** This chapter discusses the special physiological stresses experienced by pilots flying long duration missions in the full pressure suit and outlines crew rest and duty day limitations to reduce the stresses and increase safety.

#### 7.2. High Altitude Flights:

**7.2.1. Prebreathing.** A minimum of 60 minutes prebreathing of 100% oxygen is required for U-2 high altitude flights prior to traffic pattern departure.

**7.2.2. Flights During Normal Duty Hours.** Pilots will not be scheduled any additional activities for the remainder of the duty period.

**7.2.3. Landing After 1930 Local Time.** Pilots are excused from duty for 13 hours after actual landing time or 12 hours after completion of post flight duties, whichever is later.

**7.2.4. Mobile Officers.** Mobile officers will have a 12-hour duty day. A crew duty day extension for the pilot applies to the mobile officer and SOF as well.

**7.2.5. Recovery Period.** Adhere to the following recovery times (turn times). 9 OG/CC may waive these times only after careful consideration of the pilot's recent duty history, the importance of the mission, and AFI 11-202V3, Chapter 9 restrictions. These limits should not normally be waived for training sorties at Beale AFB or FOLs.

**Table 7.1. High Altitude Flight Recovery Period.**

HIGH FLIGHT DURATION	TO HIGH FLT	TO LOW FLT
< 2.5 hrs	13 hrs	13 hrs
2.5 hrs to < 6.5 hrs	36 hrs	18 hrs
6.5 to < 9.0 hrs	48 hrs	36 hrs
9.0 hrs or longer	48 hrs	48 hrs

**NOTE:** Times are landing to takeoff, except for high flights < 2.5 hours, for which the 13-hour recovery period is from landing to start of official duties.

**7.2.6. Aborted Flights of Less Than 2.5 Hours Duration.** May be re-launched with the same pilot. Carefully consider the circumstances of the original abort, the mission to be accomplished, and the condition of the pilot. If a backup pilot is used instead, the original pilot may perform mobile officer duties.

**7.2.7. Flights 9.0 Hours or Longer.** The first 24-hr period following landing will be compensatory time off (CTO). The second 24 hour period will be ground duties only (GDO). Supervisors may perform SOF duties at their discretion if basic AFI 11-418 (as supplemented) crew rest provisions are met.

#### 7.3. Low Altitude Flights:

**7.3.1. Flight During Normal Duty Hours.** Complete the remainder of the normal duty day.

**7.3.2. Flights Landing After 1930 Local Time.** Both the pilot and mobile officer are excused from duty for 13 hours after the actual landing time, or 12 hours after completion of post flight duties, whichever is later.

**7.3.3. Successive Low Flights.** A minimum of 3 hours will be scheduled between flights, landing to takeoff (e.g. U-2 to U-2, U-2 to companion trainer, or companion trainer to U-2).

**7.4. Crossing Time Zones.** All crew members deploying to locations that require crossing more than three time zones must have a minimum of 48 hours at the FOL prior to their first flight to allow circadian rhythm synchronization. This provision may be waived by the 9OG/CC and does not apply to BUSY RELAY ferry flights.

**7.5. Crew Rest:**

7.5.1. Crew rest facilities will be in a climatically controlled, quiet, and at an easily accessible location. At TDY locations, accommodations will be inspected by the FOL commander to determine compliance.

7.5.2. U-2 pilot high altitude flight preparation must consider availability of a pre-flight meal. The importance of pre-flight nutrition cannot be over emphasized because of its possible detrimental impact on the mission. Unit commander will ensure adequate facilities are available for mission pilot and mobile officer (backup pilot) pre-flight meals. Each operating location may vary, but as a minimum, cooking facilities should be available.

**7.6. Wear of Jewelry.** Jewelry, to include watches, will not be worn under the pressure suit.

**7.7. Exercise:** Avoid heavy exercise for 12 hours after high flights due to increased susceptibility to decompression sickness (DCS).

## Chapter 8

### ORIENTATION FLIGHTS

**8.1. General.** U-2 orientation flights will be conducted IAW AFI 11-401, *Flight Management*; ACCI 11-450, *Orientation Flight Program*; this volume, and unit supplements.

#### **8.2. Policy:**

8.2.1. Orientation flights will be limited to those individuals who must possess a firsthand knowledge of the U-2 program.

8.2.2. Approval authority for various categories of passengers is defined in ACCI 11-450.

#### **8.3. Responsibilities:**

**8.3.1. Coordination.** HQ ACC/XOOA is the single point of contact for coordinating all U-2 orientation flights requiring COMACC or higher approval.

**8.3.2. 9RW/CC.** Responsible for hosting orientation recipients as necessary.

**8.3.3. 9OG/CC.** Design and administer the orientation flight program.

**8.4. Mission Profiles.** For distinguished visitor (DV) flights, a high mission profile should be planned. For incentive and familiarization flights, a high or low mission profile may be planned, as appropriate.

**8.5. Sensitive Information.** Certain information about the U-2 platform and sensor capabilities is classified. If appropriate, establish “ground rules” or “rules of engagement” and emphasize this during the orientation. If necessary, a non-disclosure statement will be completed before the flight. 9RW/PA is the OPR for non-disclosure statements.

## Chapter 9

### U-2 AIRCRAFT SECURITY

**9.1. General.** This chapter provides guidance on aircraft security. AFI 31-101, *Air Force Installation Security Program*, and specific MAJCOM security publications contain additional guidance.

**9.2. Security.** The U-2 is designated a Protection Level (PL) 3 resource. It is designated a PL2 resource when Special Compartmented Information (SCI) configured, or on alert as the result of Emergency War Order (EWO)/Single Integrated Operations Plan (SIOP) tasking, or when deployed outside the Continental United States (CONUS), Alaska, and Hawaii. Aircraft security at non-US military installations is the responsibility of the controlling agency.

**9.3. Air Force Installation Security Program.** The following security procedures will implement AFI 31-101 requirements for U-2 aircraft:

9.3.1. When designated PL3, the aircraft is parked in an established restricted area and afforded protection IAW AFI 31-101.

9.3.2. When designated PL3 and no permanent or established restricted area parking space is available, establish a temporary restricted area consisting of a raised rope barrier, entry control point, and posted with restricted area signs. Provide security response teams IAW AFI 31-101. Portable security lighting will be provided during the hours of darkness if sufficient permanent lighting is not available.

9.3.3. When designated PL2, the U-2 may be parked inside a permanent restricted area containing PL1 or 2 resources with no additional security measures. If parked within an area containing only PL3 resources or if parked outside a permanent PL2 restricted area, security must be enhanced to meet criteria in AFI 31-101 for temporary PL2 restricted areas.

9.3.4. At non-US military installations, the host base must provide security commensurate with PL2 requirements IAW AFI 31-101. The pilot determines the adequacy of local security capabilities to provide aircraft security. If he determines security to be inadequate, the aircraft will depart to a station where adequate security is available.

9.3.5. The security forces must be given advance notice of all visits to the aircraft.

9.3.6. Security support is a continual requirement and is not negated by the presence of aircrew or ground crewmembers. Security force support terminates only after the aircraft taxis.

9.3.7. Security force personnel are not responsible for securing classified material. This is the responsibility of maintenance and operational personnel IAW AFI 31-101 and AFI 31-401, *Information Security Program*.

#### **9.4. En Route Security:**

9.4.1. The planning agency must coordinate with the execution agency to ensure adequate en route security is available.

9.4.2. Unescorted entry is granted to aircrew members and support personnel assigned to the mission who possess their home station AF Form 1199, **USAF Restricted Area Badge**, supported by an Entry

Authority List (EAL). Aircrew members and assigned crew chiefs are authorized escort authority. Escort authority must be annotated on the EAL.

9.4.3. Personnel not identified in paragraph **9.4.2.** must be escorted within the area.

**9.5. Primary Mission Equipment (PME).** Secure classified equipment and documents in a properly marked, secured, sensor equipped, and windowless facility or room designated as PL4 or higher. Owner/user personnel control entry into the room using measures commensurate with the PL designation of the area IAW AFI 31-101 and AFI 31-401.

## Chapter 10

### OPERATIONAL REPORTS AND FORMS

**10.1. AF Form 457, USAF Hazard Report.** See AFI 91-202, *The US Air Force Mishap Prevention Program*. The Air Force hazard reporting system provides a means for Air Force personnel to alert supervisors and commanders to hazardous conditions requiring prompt corrective action.

**10.2. AF Form 651, Hazardous Air Traffic Report (HATR).** See AFI 91-202. The Air Force HATR program provides a means for personnel to report all near midair collisions and alleged hazardous air traffic conditions.

**10.3. MAJCOM-Approved Form, USAF Aircraft Mishap Report Worksheet (Aircraft and Personnel Mishaps):**

10.3.1. Notify the appropriate authorities of any mishap involving aircraft or crew.

10.3.2. Report damage to the aircraft or injury to the crew. Also, report any damage or injury to another organization's equipment or personnel resulting from the movements or actions of an ACC aircraft or crew.

10.3.3. Physiological mishaps.

10.3.4. Engine flameout, failure, or required shutdown, after engine start with intent for flight, regardless of damage.

10.3.5. Loss of thrust sufficient to preclude maintaining level flight at a safe altitude.

10.3.6. Engine case penetration by shrapnel from internal engine component failure.

10.3.7. Engine case rupture or burn-through, engine bay fire, or massive fuel leakage.

10.3.8. Flight control malfunction resulting in an unexpected, hazardous change of flight attitude, altitude, or heading. When making the AFTO 781A, **Maintenance Discrepancy and Work Document**, entry, include the flag words "reportable flight control malfunction."

10.3.9. Malfunction of landing gear when difficulty is experienced using emergency system or procedures.

10.3.10. In-flight loss of all pitot-static instrument indications or all gyro-stabilized attitude or directional indications.

10.3.11. Spillage or leakage of radioactive, toxic, corrosive, or flammable material from aircraft that, in the judgment of the reporting individual, is significant hazard to the crew or aircraft (e.g., Hydrazine).

10.3.12. Human factors related situation. Examples include: misinterpretation of instruments, crew overload (tactile, aural, and visual input at a rate too fast to permit reasonable decisions based on the data received), too many actions required in a short period of time, or confusion of controls. Anonymous reports of such situations are acceptable.

10.3.13. All cases of departure from intended takeoff and landing surface onto a surface not designed to normally support takeoff or landing loads.

10.3.14. All in-flight fires regardless of damage.

10.3.15. All bird strikes regardless of damage.

10.3.16. Any occurrence that does not meet the established criteria for a reportable mishap but, in the judgment of the reporting individual, needs to be emphasized in the interest of safety.

10.3.17. Report mishaps as soon as possible to the following offices using the following precedence:

10.3.17.1. MAJCOM flying safety officer (FSO).

10.3.17.2. Any FSO.

10.3.17.3. Nearest command center

10.3.17.4. Base operations.

**NOTE:** In all cases, retain a copy of all relevant information and turn it into a home station safety officer.

10.3.18. Complete all appropriate areas of the form. Provide as much detail as possible.

**10.4. Reports of Violations.** Violations identified in AFI 11-202V3, *General Flight Rules*, alleged navigation errors including overwater position errors exceeding 24 nms, border and air traffic control violations will be reported.

10.4.1. Use the following format and include:

10.4.1.1. Factual circumstances

10.4.1.2. Investigation and analysis

10.4.1.3. Findings and conclusions

10.4.1.4. Recommendations

10.4.1.5. Actions taken

10.4.1.6. Attachments to include:

10.4.1.6.1. Notification of incident

10.4.1.6.2. Crew orders

10.4.1.6.3. Statement of crewmembers (if applicable)

10.4.1.6.4. Documenting evidence (logs, charts, etc.)

10.4.2. Send the original investigation report within 45 days to the appropriate MAJCOM.

10.4.3. The following OPREP-3 reporting procedures for all aircraft notified of navigational errors exceeding 24 nms will be reported under AFMAN 10-206, *Operational Reporting*:

10.4.3.1. The aircraft commander (or agency receiving notification) documents the circumstances surrounding the incident (report content below) and submits an OPREP-3 report. If notification is received while airborne, this report should be submitted at the first point of landing through their command center or request submission through the local host command post. Address record reports to the appropriate MAJCOM, USAF Washington DC/XOORF, and intermediate command levels.

**10.4.3.2. Report Content:**

- 10.4.3.2.1. Name and location of unit submitting report.
- 10.4.3.2.2. Operation nickname or type of occurrence (Type of event state: "Navigation position error").
- 10.4.3.2.3. Mission identification number.
- 10.4.3.2.4. For follow-up reports, reference to all previous reports.
- 10.4.3.2.5. Date, time (Zulu), and location (i.e., ARTCC area) of event or incident.
- 10.4.3.2.6. Analysis of public relations factors involved and estimate of news media reaction.
- 10.4.3.2.7. Description of all known facts and circumstances. Include aircraft type and tail number, unit (wing or squadron assignment of crew), home base, route of flight, point of alleged deviation, miles off course, any known circumstances concerning the event/incident, and weather conditions at time and place of incident.

**10.5. Petroleum, Oil, and Lubricants (POL)--Aviation Fuels Documentation.** Procedures are established for correct documentation and processing of forms and invoices, program oversight and personnel responsibilities. Reference AFI 23-202, *Buying Petroleum Product, and Other Supplies and Services Off Station*, MAJCOM specific decentralization procedures, and AFMAN 23-110V1PT3, *Air Force Stock Fund and DPSC Assigned Item Procedures*. Purchase of aviation fuel not complying with this volume may become the financial responsibility of the purchaser.

**10.6. MAJCOM-Approved Form, Aircraft Commander's Report on Services and Facilities.** Use this form to report that services rendered or conditions encountered were unsatisfactory or detrimental to efficient air mobility operations; services rendered or procedures used are worthy of adoption for all MAJCOM organizations; or a performance rendered by a person (or persons) was commendable and deserves recognition. Attempt to solve problems by contacting appropriate supervisors including the senior commander if conditions and situation warrant. Deliver the completed form to the command post, senior representative or next en route command post.

CHARLES F. WALD, Lt General, USAF  
DCS/Air & Space Operations

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

AFSTP 3-1V27, *Tactical Employment--U-2*  
AFMAN 10-206, *Operational Reporting*  
AFPD 11-2, *Aircraft Rules and Procedures*  
AFPD 11-4, *Aviation Service*  
AFI 11-2U-2V1, *U-2--Aircrew Training*  
AFI 11-2U-2V2, *U-2--Aircrew Evaluation Criteria*  
AFI 11-202V1, *Aircrew Training*  
AFI 11-202V2, *Aircrew Standardization/Evaluation Program*  
AFI 11-202V3, *General Flight Rules*  
AFI 11-205, *Aircraft Cockpit and Formation Flight Signals*  
AFI 11-215, *Flight Manuals Program (FMP)*  
AFMAN 11-217V1, *Instrument Flight Procedures*  
AFMAN 11-217V2, *Instrument Flight Procedures*  
AFI 11-218, *Aircraft Operations and Movement on the Ground*  
AFI 11-290, *Cockpit/Crew Resource Management Training Program*  
AFI 11-401, *Flight Management*  
AFI 11-403, *Aerospace Physiological Training Program*  
AFI 11-418, *Operations Supervision*  
ACCI 11-450, *Orientation Flight Program* (to be written into AFI 11-401/ACC Sup 1)  
AFI 14-105, *Unit Intelligence Mission and Responsibilities*  
AFMAN 23-110V1PT3, *Air Force Stock Fund and DPSC Assigned Item Procedures*  
AFI 23-202, *Buying Petroleum Products, and Other Supplies and Services Off Station*  
AFI 31-101, *Air Force Installation Security Program*  
AFI 31-401, *Information Security Program*  
AFI 33-360V1, *Publications Management Program*  
AFMAN 37-139, *Records Disposition Schedule*  
AFI 71-101V2, *Criminal Investigations, Counterintelligence, and Protective Service Matters*  
AFI 91-202, *The US Air Force Mishap Prevention Program*

*AFI 91-301, Air Force Occupational and Environmental Safety, Fire Prevention and Health (AFOSH) Program*

*AFM 171-190V2G, Air Force Operations Resource Management System*

*JP 1-02, DOD Dictionary of Military and Associated Terms*

*T.O. 1U-2S-1, Utility Flight Manual*

*Senior Year Program Security Classification Guide*

***Abbreviations and Acronyms***

**ACC**—Air Combat Command

**ACCI**—Air Combat Command Instruction

**AFI**—Air Force Instruction

**AFMAN**—Air Force Manual

**AFTO**—Air Force Technical Order

**AFTTP**—Air Force Tactics, Techniques, and Procedures

**AGL**—Above Ground Level

**ARTCC**—Air Route Traffic Control Center

**ATC**—Air Traffic Control

**CFIC**—Combat Flight Instructor Course

**CONOPS**—Concept of Operations

**CONUS**—Continental United States

**CTO**—Compensatory Time Off

**DH**—Decision Height

**DOD**—Department of Defense

**DP**—Destination Point

**DV**—Distinguished Visitor

**EAL**—Entry Authority List

**ESRT**—External Security Response Team

**EWO**—Emergency War Order

**EWS**—Electronic Warfare System

**FAF**—Final Approach Fix

**FAR**—Federal Aviation Regulation

**FCF**—Functional Check Flight

**FCIF**—Flight Crew Information File

**FL**—Flight Level  
**FLIP**—Flight Information Publications  
**FOL**—Forward Operating Location  
**FSO**—Flying Safety Officer  
**FTU**—Formal Training Unit  
**GCC**—Graduated Combat Capability  
**GDO**—Ground Duties Only  
**HAT**—Height Above Touchdown  
**HATR**—Hazardous Air Traffic Report  
**HHD**—Higher Headquarters Directed  
**HHQ**—Higher Headquarters  
**IAF**—Initial Approach Fix  
**IAW**—In Accordance With  
**IC**—Interim Changes  
**IFF**—Identification Friend or Foe  
**IFR**—Instrument Flight Rules  
**IMC**—Instrument Meteorological Conditions  
**IMN**—Indicated Mach Number  
**INS**—Inertial Navigation Set/System  
**IP**—Instructor Pilot  
**IQT**—Initial Qualification Training  
**ISRT**—Internal Security Response Team  
**JP**—Joint Publication  
**KIAS**—Knots Indicated Airspeed  
**KTAS**—Knots True Airspeed  
**MAJCOM**—Major Command  
**N/A**—Not Applicable  
**NAF**—Numbered Air Force  
**OCONUS**—Outside Continental United States  
**OG/CC**—Operations Group Commander  
**OPR**—Office of Primary Responsibility  
**ORM**—Operational Risk Management

**PL**—Protection Level

**PME**—Primary Mission Equipment

**RCR**—Runway Condition Reading

**SFO**—Simulated Flameout Pattern

**SIOP**—Single Integrated Operations Plan

**SOF**—Supervisor of Flying

**TACAN**—Tactical Air Navigation system

**TDZ**—Touchdown Zone

**TDY**—Temporary Duty

**VFR**—Visual Flight Rule

**VMC**—Visual Meteorological Conditions

**VOL**—Volume

### *Terms*

**Administrative Control**—Direction or exercise of authority over subordinate or other organizations in respect to administration and support, including organization of Service forces, control of resources and equipment, personnel management, unit logistics, individual and unit training, readiness, mobilization, demobilization, discipline, and other matters not included in the operational missions of the subordinate or other organizations. Also called ADCON.

**Combatant Command**—A unified or specified command with a broad continuing mission under a single commander established and so designated by the President, through the Secretary of Defense and with the advice and assistance of the Chairman of the Joint Chiefs of Staff. Combatant commands typically have geographic or functional responsibilities.

**Combatant Command (Command Authority)**—Nontransferable command authority established by title 10 ("Armed Forces"), United States Code, section 164, exercised only by commanders of unified or specified combatant commands unless otherwise directed by the President or the Secretary of Defense. Combatant command (command authority) cannot be delegated and is the authority of the combatant commander to perform those functions of command over assigned forces involving organizing and employing commands and forces, assigning tasks, designating objectives, and giving authoritative direction over all aspects of military operations, joint training, and logistics necessary to accomplish the missions assigned to the command. Combatant command (command authority) should be exercised through the commanders of subordinate organizations. Normally this authority is exercised through subordinate joint force commanders and service and/or functional component commanders. Combatant command (command authority) provides full authority to organize and employ commands and forces, as the combatant commander considers necessary to accomplish assigned missions. Operational control is inherent in combatant command (command authority). Also called COCOM.

**Execution**—Command-level approval for initiation of a mission or portion thereof after due consideration of all pertinent factors. Execution authority is restricted to designated command authority.

**Fuel Reserve**—Amount of usable fuel carried beyond that required to complete the flight as planned.

**Mission (DOD)**—1. The task, together with the purpose, that clearly indicates the action to be taken and the reason therefore. 2. In common usage, especially when applied to lower military units, a duty assigned to an individual or unit; a task. 3. The dispatching of one or more aircraft to accomplish one particular task. JP 1-02

**Operational Control (DOD)**—Command authority that may be exercised by commanders at any echelon at or below the level of combatant command. Operational control is inherent in combatant command (command authority) and may be delegated within the command. When forces are transferred between combatant commands, the command relationship the gaining commander will exercise (and the losing commander will relinquish) over these forces must be specified by the Secretary of Defense. Operational control is the authority to perform those functions of command over subordinate forces involving organizing and employing commands and forces, assigning tasks, designating objectives, and giving authoritative direction necessary to accomplish the mission. Operational control includes authoritative direction over all aspects of military operations and joint training necessary to accomplish missions and assigned to the command. Operational control should be exercised through the commanders of subordinate organizations. Normally this authority is exercised through subordinate joint force commanders and Service and/or functional component commanders. Operational control normally provides full authority to organize commands and forces and to employ those forces as the commander in operational control considers necessary to accomplish assigned missions; it does not, in and of itself, include authoritative direction for logistics or matters of administration, discipline, internal organization, or unit training. Also called OPCON. See also combatant command; combatant command (command authority); tactical control. JP 1-02

**Primary Mission Aircraft Inventory (PMAI)**—Aircraft authorized for performance of the operational mission. The PMAI forms the basis for allocation of operating resources to include manpower, support equipment, and flying-hour funds. The operating command determines the PMAI required to meet their assigned missions. PMAI also includes test and training requirements.

**Squadron Supervisor**—Squadron Commander, Operations Officer, Assistant Operations Officers, and selected senior Flight Commanders.

**Tactical Control**—Command authority over assigned or attached forces or commands, or military capability or forces made available for tasking, that is limited to the detailed and, usually, local direction and control of movements or maneuvers necessary to accomplish missions or tasks assigned. Tactical control is inherent in operational control. Tactical control may be delegated to, and exercised at any level at or below the level of combatant command. Also called TACON.

**Tactical Deception**—Any activity designed to mislead the enemy operational commander by manipulating, distorting, or falsifying evidence, thereby inducing the enemy to act in a manner favorable to our interests or desires.

*Addresses*

HQ AFFSA/XOF

1535 Command Dr, Suite D-309

Andrews AFB MD 20762-7002

HQ ACC/DOTR and DOTV

205 Dodd Blvd, Suite 101

Langley AFB VA 23665-2789