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AIR FORCE INSTRUCTION 11-2UH-1NV3

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FLYING OPERATIONS

UH-1N HELICOPTER OPERATIONS PROCEDURES

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This manual implements Air Force Policy Directive (AFPD) 11-2, *Aircrew Operations*; and Air Force Instruction (AFI) 11-200, *Aircrew Training, Standardization/Evaluation, and General Operations Structure*; expands upon Air Force Manual (AFMAN) 11-202V3, *Flight Operations* and is consistent with AFPD 11-4, *Aviation Service*. This is a specialized publication intended for use by Airmen who have graduated from technical training related to this publication. It establishes procedures for the operation of all UH-1N helicopters employed by the United States Air Force (USAF) to accomplish their respective missions. This manual applies to all civilian employees and uniformed members of the Regular Air Force, the Air Force Reserve, and those who are contractually obligated to comply with Department of the Air Force publications. This manual does not apply to the United States Space Force and the Air National Guard. Ensure all records created as a result of processes prescribed in this publication are maintained in accordance with Air Force Instruction 33-322, *Records Management and Information Governance Program*, and disposed of in accordance with the Air Force Records Disposition Schedule located in the Air Force Records Information Management System. Refer recommended changes and questions about this publication to the Office of Primary Responsibility (OPR) using the DAF Form 847, *Recommendation for Change of Publication*. Route DAF Forms 847 from the field through the appropriate functional chain of command. This publication may be supplemented at any level; all supplements must be routed to the user MAJCOM for coordination prior to certification and approval. The authorities to waive wing/unit level requirements in this publication are identified with a Tier ("T-0, T-1, T-2, T-3") number following the compliance statement. See Department of

the Air Force Manual (DAFMAN) 90-161, *Publishing Processes and Procedures*, for a description of the authorities associated with the tier numbers. Submit requests for waivers through the chain of command to the appropriate Tier waiver approval authority, or alternately, to the publication OPR for non-tiered compliance items. For the purpose of this manual including intent for tiered waiver authority levels, direct reporting units (such as the Air Force District of Washington [AFDW]) are considered a major command (MAJCOM). The use of the name or mark of any specific manufacturer, commercial product, commodity, or service in this publication does not imply endorsement by the Department of the Air Force.

SUMMARY OF CHANGES

This interim change revises AFMAN 11-2UH-1NV3 by (1) adding circadian rhythm, aircraft equipment, and obstacle clearance guidance in accordance with AFSAS recommendations, (2) updated instrument procedures guidance to clarify system capabilities and procedures, (3) updated low-level survey guidance and VFR chart building requirements, (4) updated policy and guidance to use of electronic flight bags, and (5) added alternate loading restraint guidance. A margin bar (|) indicates newly revised material.

Chapter 1

GENERAL GUIDANCE

1.1. Roles and Responsibilities. This manual and AFMAN 11-2UH-1NV3CL-1, *UH-1N Crew Briefing Guides/Checklists*, are used in conjunction with aircraft flight manuals, Flight Information Publications (FLIP), and referenced USAF publications to describe all UH-1N training, normal, and contingency operations.

1.1.1. Air Force Global Strike Command (AFGSC)/A3TO has overall responsibility for administration of this manual and associated checklists.

1.1.2. Throughout this AFMAN references are made to MAJCOM and Numbered Air Force (NAF) levels of responsibilities. Due to the diverse nature of the structure of UH-1N units, all references to a particular MAJCOM or NAF office are intended to mean that office or equivalent. MAJCOM supplements to this AFMAN will indicate if there is a different office of responsibility. **(T-2)**

1.1.3. For purposes of this AFMAN, AFDW is considered a MAJCOM.

1.1.4. Commanders. For AFGSC, the 582d Helicopter Group Commander (HG/CC) is equivalent to Operations Group Commander (OG/CC) and has all Wing Commander (WG/CC) authorities for all references within this AFMAN to the OG/CC and/or WG/CC. **(T-1)**

1.1.5. Pilot in Command Authority. The pilot in command is responsible for, and is the final authority for the operation of the aircraft. **(T-1)** Pilots will use best judgement to safely conduct flying operations. **(T-1)**

1.2. Deviations and Waivers. The waiver authority for this manual is the MAJCOM/A3 unless otherwise indicated. When an operational necessity exists and time does not allow pursuit of a waiver through normal channels, the OG/CC has one-time waiver authority to this manual. Report all deviations without an approved MAJCOM waiver to the MAJCOM/A3 within 10 duty days of the occurrence. MAJCOM points of contact will forward a copy of waiver or details of circumstances to AFGSC/A3TO for information only. **(T-2)** Do not deviate from the policies and guidance in this manual except:

1.2.1. Aircraft Commanders (AC) may deviate from this directive as necessary to protect their crew and aircraft and/or to save lives.

1.2.2. When circumstances require, this publication provides guidance for helicopter operations under most circumstances, but it does not substitute for sound judgment. If within communications range of command and control agencies, deviations due to unusual circumstances should be pre-coordinated.

1.3. Supplements. MAJCOM supplements shall not be less restrictive than this manual and shall be in accordance with DAFMAN 90-161. **(T-2)**

1.4. Development of New Equipment and Procedures. Units desiring to use new or not previously approved equipment, to include mission equipment, must obtain individual MAJCOM, AFGSC and Warner-Robins Air Logistics Center (WR-ALC) approval via AF Form 1067, *Modification Proposal*, prior to testing and/or use. **(T-2)**

Chapter 2

GENERAL OPERATING GUIDANCE

2.1. General. AFGSC is the lead command for UH-1N operations and will coordinate manual changes and dissemination of revised information. Individual MAJCOMs may establish command and control guidelines in their supplements. **(T-2)**

2.2. Aircraft Commander Responsibility and Authority. For all flights, units will designate an AC on a flight authorization form, or equivalent, in accordance with DAFMAN 11-401, *Aviation Management*, as supplemented by MAJCOMs. **(T-2)** ACs are:

2.2.1. In command of all persons aboard the aircraft and vested with the authority necessary to manage their crew and accomplish the mission.

2.2.2. Responsible for the welfare of the crew and the safe accomplishment of the mission. This begins upon notification and terminates upon completion of the debrief. If the AC determines that conditions are not safe to prosecute the mission, the aircraft will not depart until the condition is adequately mitigated. **(T-2)**

2.2.3. The final mission authority and will make decisions not specifically assigned to higher authority. **(T-2)**

2.2.4. Charged with keeping the applicable commander informed concerning mission progress and/or difficulties.

2.2.5. The final authority for asking for and accepting waivers affecting the crew or mission.

2.2.6. Responsible for ensuring aircraft security when away from home station.

2.2.7. The focal point for interaction between aircrew and mission support personnel.

2.3. Flight Lead. Units will designate a Flight lead (FL) for all formation flights. **(T-2)** The FL is in charge of the entire formation and is responsible for mission accomplishment. Other than formation training, MAJCOMs may supplement what missions are considered formation and require a FL.

2.4. Mission Monitoring. Units will accomplish local and off-station mission monitoring in accordance with MAJCOM supplements and operations group policies. **(T-2)**

2.5. Support to Civil Authorities/Civilian Law Enforcement Agencies. Within the United States and its territories, request for helicopter support by civil authorities is handled in accordance with AFI 10-801, *Defense Support of Civil Authorities*. Defense Support of Civil Authorities operations are divided into three broad categories---domestic emergencies, designated law enforcement support, and other activities-and may overlap or be in effect simultaneously, depending upon the event. MAJCOMs operating outside of the United States and its territories may provide support in accordance with Combatant Command guidance and local directives.

2.5.1. Civil Search and Rescue (SAR). Units within the continental United States must have an Air Force Rescue Coordination Center (AFRCC) mission number prior to conducting an operational civil SAR mission. **(T-2)** This does not preclude a unit from preparing and posturing for a mission while waiting for the AFRCC number. An AFRCC mission number does not shift Operational Control and confirms the request meets specific criteria, but

units/ACs may withdraw support if the mission details have changed significantly. The AFRCC may be reached 24/7 at 1-800-851-3051 or DSN 523-5955. All civil SAR support will be in accordance with Department of Defense Instruction (DoDI) 3003.01, *DoD Support to Civil Search and Rescue (SAR)*. **(T-0)**, and AFPD 10-45, *Support to Civil Search and Rescue*. **(T-2)** Additional source documents for the national SAR system can be found at **https://www.dco.uscg.mil/Our-Organization/Assistant-Commandant-for-Response-Policy-CG-5R/Office-of-Incident-Management-Preparedness-CG-5RI/US-Coast-Guard-Office-of-Search-and-Rescue-CG-SAR/SAR-Publications**.

2.5.2. Posse Comitatus Act. Assistance to Civilian Law Enforcement Agencies. In general, military units are prohibited by law from participating in civil law enforcement activities (this does not include SAR requests from law enforcement agencies). See AFI 10-801 or consult with the Judge Advocate's office for more information. Units will report all requests for assistance and coordinate all requests from civilian law enforcement authorities through the appropriate chain of command. **(T-2)**

2.5.3. Utilization of Civilian Law Enforcement or Medical Personnel. Civilian law enforcement or medical personnel may be required to perform duties at an incident site. These duties may include death determination or human remains removal. If a mission requires transporting such personnel to an incident site, AC must understand that local and domestic laws (e.g., Posse Comitatus Act), host nation laws, or international laws may affect mission accomplishment. The AC should review or receive a briefing on applicable laws prior to deployment or recovery of civilian personnel. Approval Authority to carry civilian law enforcement or medical personnel on SAR or Medical Evacuation (MEDEVAC) missions may be delegated to the AC. If the AC determines passengers are essential for the successful completion of the mission, and they are unable to contact their controlling agency for approval, passengers may be carried on the segments of flight requiring their presence. Leave a copy of the passenger manifest with a responsible person in accordance with AFMAN 11-202V3.

2.5.4. Human Remains. Rescue personnel should not normally remove human remains from crash or incident sites. Units will leave the decision to remove the remains from a site solely to the local authorities. **(T-2)** Except as per **paragraph 2.5.4.1**, units will not commit resources to the removal of human remains until the mission approval and/or releasing authority (normally the Wing/Group Commander) has been informed and approved the request. **(T-2)** The AC is responsible for the safety of resources and should not jeopardize them for the recovery of human remains. **(T-3)** The AC is responsible for compliance with all directions given by local civil authorities concerning the proper removal and handling of remains in that jurisdiction **(T-3)** Written authorization from the proper local authorities should be received prior to removal; however factors such as accessibility to the area, weather conditions, darkness, etc. may preclude the practicality of receiving written authorization from local authorities. In such cases, a verbal authorization may be accepted if followed by a written authorization. (See **Attachment 2,** Example Authorization to Remove Human Remains.)

2.5.4.1. Exceptional Cases. In extreme situations where time is critical and communications are impossible, the AC may remove remains and deliver them to the proper authorities if given authorization from the appropriate civil official. This procedure is authorized only if conditions already make it impossible to obtain timely approval from the mission approval and/or releasing authority. Whenever this procedure is employed, the

AC shall request and comply with all directions given by local civil authorities concerning the proper removal and handling of remains in that jurisdiction. **(T-3)**

2.6. Passenger Guidance. The UH-1N is a utility aircraft and is utilized through a variety of mission sets, including passenger transport. DoDI 4515.13, *Air Transportation Eligibility*, and DAFMAN 11-401 contain guidance on passenger airlift and orientation flights. Units must ensure compliance with these publications for passenger transport covered by their provisions **(T-2)** The following guidance addresses passenger transport not covered by the provisions of DoDI 4515.13 and DAFMAN 11-401.

2.6.1. Passengers may be flown on UH-1N aircraft during the normal course of exercise and contingency operations of the unit. MAJCOMs will detail the approval authority of these passengers in a supplement to this AFMAN.

2.6.2. Direct Mission Support denotes a mission where passengers are flown for specific purposes in support of Department of Defense (DoD) missions (e.g., missile site support) where helicopter airlift is specifically needed to accomplish the mission. This does not include routine point-to-point travel of a passenger. MAJCOMs will detail the approval authority of these missions in a supplement to this AFMAN.

2.6.3. Restrictions. Aircrew will not perform simulated emergency procedures with passengers onboard. **(T-2)** Passengers will be restrained by the safest means possible while still enabling the supported passenger to accomplish their mission. **(T-2)** The AC will ensure passengers are given a safety briefing and are familiar with the mission profile and events before the flight. **(T-2)**

2.6.4. Manifests. Units/aircrew will manifest and brief all passengers in accordance with Technical Order (T.O.) 1H-1(U)N-1CL-1, *Pilot's Flight Crew Checklist*, DAFMAN 11-401, *Aviation Management,* and MAJCOM guidance. **(T-2)**

2.6.5. When passengers are in the cargo compartment, aircrew will ensure the cargo doors remain closed during flight unless an aircrew member is also in the cabin. **(T-3)** Unit commanders may authorize aircrew to open the cargo doors if a valid need exists and the passengers are thoroughly briefed on cabin personnel and equipment security.

2.7. Mission Essential Personnel (MEP). Refer to DAFMAN 11-401 and MAJCOM Supplement.

Chapter 3

AIRCREW COMPLIMENT AND MANAGEMENT

3.1. Primary Crewmembers. Crewmembers occupying a primary duty position during flight must be UH-1N qualified and current for the mission events to be flown, conducting training/re-currency for that crew position/mission in accordance with AFMAN 11-2UH-1NV1, *Helicopter Aircrew Training,* or designated as a supervisory flyer in accordance with DAFMAN 11-401. **(T-2)**

3.1.1. Instructor Training Requirements. One instructor is required for each duty position requiring student flight training. Instructors are responsible for the actions of their students. **(T-2)**

3.1.2. MAJCOM supplements will specify operational missions on which training is allowed and provide waiver authority guidance for other operational missions. **(T-2)**

3.1.3. Functional check flight (FCF) certified crewmembers maintaining basic aircraft qualification that are non-current or unqualified for operational/special mission items may perform FCFs.

3.1.4. After completion of the Key Staff Course (see AFMAN 11-2UH-1NV1), supervisory flyers, as designated in DAFMAN 11-401, may fly on all mission profiles approved by their MAJCOM. Only supervisory flyers who are rated pilots are allowed to access the flight controls.

3.2. Interfly. An interfly is the exchange and/or substitution of aircrews and aircraft between MAJCOMs. The OG/CC (or equivalent) of the unit possessing the aircraft is the approval authority for MAJCOM interflys. Secondary method of training approval as outlined in AFMAN 11-2UH-1NV1 fulfills the requirements for an interfly approval.

3.2.1. Interfly approval is not required for:

3.2.1.1. 413 FLTS aircrew.

3.2.1.2. High-Altitude Army National Guard Aviation Training Site (HAATS) training.

3.3. Intrafly. An intrafly is the exchange and/or substitution of aircrew members from separate units under the same MAJCOM. The OG/CC possessing the aircraft is approval authority for intrafly between units.

3.4. Minimum Crew. The minimum crew required for flight defined in T.O. 1H-1(U)N-1, *USAF Series UH-1N Helicopter,* is one pilot. MAJCOMs will supplement the minimum crew required for all mission profiles flown by their assigned units, including waiver authority. MAJCOMs will ensure minimum crew requirements are set to minimize risk to safety of flight and mission accomplishment in all conditions that may be reasonably encountered. At no time will personnel not authorized per DAFMAN 11-401 manipulate flight controls. **(T-2)**

3.5. Maximum Flight Duty Period. in accordance with AFMAN 11-202V3 and MAJCOM supplements.

3.6. Predeparture Crew Rest. Medical personnel called to duty for urgent SAR/MEDEVAC missions with less than 12 hours of crew rest can perform lifesaving duties. Because Medical

Technicians are Operation Support Flyers (OSF) performing in-flight medical care, no crew rest is required for urgent SAR/MEDEVACs. Medical Technicians require adequate crew rest to conduct flying training. **(T-2)**

3.7. Circadian Rhythm. Squadron operations officer approval is required for any scheduled aircrew show time changes greater than six hours within the following two calendar days. **(T-2)**

Chapter 4

MISSION PREPARATION

4.1. Responsibilities. The responsibility for mission planning/preparation is shared jointly by the individual aircrew members and the operations and intelligence functions of the organization.

4.1.1. Flight lead/aircraft commanders (or designated crewmember) are responsible for:

4.1.1.1. Overall mission planning, route study, navigation, personnel recovery planning and mission execution.

4.1.1.2. Verifying go/no-go status for all crewmembers.

4.1.1.3. Assess risk management and mitigate appropriately for the flight using MAJCOM guidance.

4.1.1.4. Presenting a logical briefing that promotes safe, effective mission accomplishment. The AC is responsible for ensuring appropriate mission/event briefings are completed prior to accomplishment. **(T-2)** Mission elements/events may be modified and briefed airborne as long as flight safety is not compromised. ACs will ensure changes are acknowledged by all flight members/crewmembers. **(T-2)** Mission brief should incorporate measureable and attainable desired learning objectives for all training events.

4.1.1.5. Briefing flight responsibilities, proper formation position (minimum rotor separation), aircraft unique capabilities, tactics, limitations and requirements for each phase of flight when conducting formation.

4.1.1.6. Conducting a thorough debrief with both aircrew and the appropriate agencies immediately after the return of teams or aircrews from a sortie.

4.2. Weather:

4.2.1. Wind Restrictions. Aircrew will discontinue flight when wind velocity exceeds:

4.2.1.1. Training/Exercise Sorties: Forty knots steady-state. **(T-3)**

4.2.1.2. Operational Sorties: in accordance with T.O. 1H-1(U)N-1. **(T-3)**

4.2.2. Visual Flight Rules (VFR) Training/Exercise Weather Minimums. For operational flights, aircrew will comply with the weather minimums in AFMAN 11-202V3. **(T-2) Note**: The below weather minimums do not apply to hover and air taxi operations at the aerodrome. Aircrew will comply with the following criteria for training/exercise flights:

4.2.2.1. Day: minimum of 500 foot ceilings and 1 statute mile visibility. **(T-3)**

4.2.2.2. Night aided: minimum of 500 foot ceilings and 2 statute miles visibility. **(T-3)**

4.2.2.3. Night unaided: minimum of 1000 foot ceilings and 2 statute miles visibility. **(T-3)**

4.2.2.4. Air-to-surface: Follow AFI 11-214, *Air Operations Rules and Procedures*, weather minimums for all live-fire, blank, or dry weapons employment training.

4.2.3. Instrument Flight Rules (IFR). In addition to AFMAN 11-202V3, the following applies:

4.2.3.1. Crews will check navigation equipment for the planned flight profile prior to takeoff. **(T-2)**

4.2.3.2. The AN/ASN-175 Cargo Utility Global Positioning System (GPS) Receiver (CUGR) is not considered a "suitable" Area Navigation (RNAV) system under Federal Aviation Administration (FAA) Advisory Circular (AC) 90-108, *Use of Suitable RNAV Systems on Conventional Routes and Procedures*. The CUGR is not authorized as a primary instrument for IFR. **(T-2)** It may be used to assist in maintaining situational awareness (SA) on conventional routes and procedures in accordance with AFMAN 11-202V3. **Note:** GPS data from the CUGR is utilized by the Integrated Data Acquisition Recorder (IDAR) to aid in mishap/maintenance investigations. Crews should ensure that the CUGR remains powered on during flight.

4.2.3.3. Aircraft modified by Time Compliance Technical Orders (TCTO) 1H-1(U)N-771, *Installation of the Helicopter Terrain Awareness Warning System/Traffic Collision Avoidance Device (HTAWS/TCAD) on UH-1N Helicopters*, or 1H-1(U)N(I)-505, *Installation of Helicopter Terrain Awareness Warning Traffic Collision Avoidance Device (HTAWS/TCAD) (Block 1) UH-1N Helicopters*, meet the requirements in Technical Standard Order-C146a and AC 20-138D, *Airworthiness Approval of Positioning and Navigation Systems*. The GNS-530 is approved for use during all phases of flight as the primary means of navigation.

4.2.3.3.1. The GNS-530 is authorized as an alternate means of navigation on conventional routes, procedures, and on the final approach segment of a conventional instrument approach procedure based on a Very High Frequency (VHF) Omni-directional Range (VOR), Tactical Air Navigation (TACAN), or Non-directional Radio Beacon (NDB) navigation aids in accordance with AFMAN 11-202V3.

4.2.3.3.2. For flight plan purposes, GNS-530-equipped aircraft have the following navigational equipment:

4.2.3.3.2.1. B–Localizer precision with vertical guidance (LPV) (approach with vertical guidance [APV] with satellite-based augmentation system [SBAS]).

4.2.3.3.2.2. D–Distance Measuring Equipment (DME).

4.2.3.3.2.3. G–Global Navigation Satellite System (GNSS).

4.2.3.3.2.4. R–Performance Based Navigation (PBN) Approved.

4.2.3.3.2.5. S–Standard (VOR, VHF radio telephone, instrument landing system).

4.2.3.3.2.6. T–TACAN.

4.2.3.3.2.7. U–Ultra High Frequency (UHF).

4.2.3.3.2.8. Z–Other. Specify NAV/SBAS in Item 18 of DD Form 1801, *DoD International Flight Plan*.

4.2.3.3.3. For flight plan purposes, GNS-530-equipped aircraft have the following PBN categories: B2–RNAV 5 GNSS, C2–RNAV 2 GNSS, D2–RNAV 1 GNSS, O2–RNP 1 GNSS, S1–RNP APCH.

4.2.3.3.4. For flight plan purposes, aircraft equipped with the APX-119 transponder set, modification TCTO 1H-1(U)N-792, *Installation of APX-119 Automatic Dependent Surveillance Broadcast (ADS-B) System with Mode 5 on UH-1N Helicopters Including UH-1N Block 1,* have the following surveillance categories:

4.2.3.3.4.1. B1–Automatic Dependent Surveillance-Broadcast (ADS-B) "out" with dedicated 1090 MHz.

4.2.3.3.4.2. E–Mode S including aircraft identification, pressure-altitude, and extended squitter.

4.2.3.3.4.3. If operating Mode 3A/C only, modify the equipment category to "C".

4.2.3.4. IFR Training Flights. Aircrew will not take off unless weather is equal to or greater than published approach minimums (ceiling and visibility), but no less than 1/2 mile (2,400 runway visual range [RVR]) at the departure airfield for scheduled takeoff time plus one hour. **(T-2)**

4.2.3.5. IFR Operational Flights.

4.2.3.5.1. Without a departure alternate, aircrew will not take off unless weather at the departure airfield is equal to or above the published visibility required for the appropriate aircraft category for an available approach. **(T-2)**

4.2.3.5.2. With a departure alternate, aircrew will not take off unless weather at the departure airfield is equal to or above one-half the published visibility minimum required for the appropriate aircraft category, but no less than 1/4 mile (1,200 RVR) for an available approach. **(T-2)** Weather must be equal to or above published visibility minimum if aircrew use a COPTER approach at the departure airfield. **(T-2)** Pilots will select the departure alternate using the following criteria: **(T-2)**

4.2.3.5.2.1. Departure alternate should be within one hour flying time. **(T-2)**

4.2.3.5.2.2. Weather en route to the departure alternate permits flight within aircraft limitations and complies with AFMAN 11-202V3, Selecting an Alternate, Helicopter criteria. The aircraft must be capable of maintaining minimum en route altitudes (MEA) or minimum obstruction clearance altitude (MOCA), (whichever is higher) to the alternate if an engine fails. **(T-2)**

4.2.3.5.3. Life or Death Missions**.** The wing commander (or equivalent) determines if a mission is a life or death situation. During these missions, aircrew may take off if the visibility is sufficient to taxi to the takeoff area. The AC ensures an appropriate course of action is available (and briefed) in the event of an emergency after takeoff. **(T-3)**

4.3. Adverse Weather:

4.3.1. If adverse weather is encountered, the AC will take immediate action to avoid further flight in hazardous conditions by either diverting or landing. **(T-2)**

4.3.2. No mission requires a helicopter to penetrate a thunderstorm. Aircrew may fly into areas of known or forecast thunderstorms if visual meteorological conditions (VMC) are maintained and thunderstorm activity is avoided by a minimum of 5 nautical miles (NM). **(T-2)** Aircrew will not fly into rain shafts beneath cumulonimbus clouds. **(T-2)**

4.4. Fuel Planning:

4.4.1. For all flights, aircrew will plan to arrive at the destination with a minimum of 200 pounds of reserve fuel. **(T-2)**

4.4.2. In addition to landing at the destination with the required reserve fuel, when flying IFR and using visibility-only criteria for the approach or when destination weather may be unreliable, aircrew will plan to use no less than 250 pounds of fuel for descent, approach, and missed approach. **(T-2)**

4.5. Altitude Restrictions. Aircrew will conduct all operations at or above 300 feet above ground level (AGL) except when lower altitudes are required for takeoff, departure, arrival, landing, operational missions, training flights in approved areas, approved exercise missions, or when directed lower by a FAA/National Aeronautical Charting Office (NACO) helicopter route chart. **(T-2)**

4.5.1. For unaided night flight, aircrew will maintain an en route altitude of 500 feet above highest obstacle (AHO) within 5 NM of the flight path unless directed lower by a FAA/NACO Helicopter Route Chart. **(T-3)**

4.5.2. Operational Searches. Altitudes are determined by the AC.

4.5.3. Training Searches. For search training below 300 feet AGL, aircrew must be in a surveyed low level area. **(T-3)** Aircrew will conduct day and NVG search training no lower than 100 feet AHO. Aircrew will not conduct night unaided search training. **(T-3)**

4.5.4. **Low-Level.** Flight below 300 feet AGL is considered low-level. Published FAA/NACO helicopter routes are not considered low-level.

4.5.4.1. For en route operations over land, aircrew will fly no lower than 50 feet AHO. **(T-2)**

4.5.4.2. During en route flight over water, aircrew will fly no lower than 50 feet Above Water Level (AWL) during the day or 150 feet AWL at night with NVGs. **(T-2)**

4.5.5. Compute a minimum safe altitude (MSA) for each leg of a route as required by AFMAN 11-202V3. **(T-3)** For flights conducted in a designated low-level area, one MSA may be computed for the planned area of operation. To compute an MSA, add 1,000 feet (2,000 feet in mountainous terrain) to the elevation of the highest obstruction to flight within 5 NM of the route centerline and round up to the next 100-foot increment. **Note:** The MSA fulfills the emergency route abort altitude requirements in AFMAN 11-202V3.

4.6. Low-Level Flight. Aircrew will only conduct low-level training in a surveyed low-level flight area. **(T-2)** Specific geographical areas such as missile complexes and operational areas may be designated as low-level flight areas. **WARNING:** During low-level flight, pay close attention to the possibility that wires may be draped across a valley while the supporting poles are not visible from low-level navigation altitudes. Units will establish defined boundaries and meet the following requirements prior to any low-level flight:

4.6.1. Established low-level surveyed routes or Low Altitude Tactical Navigation areas. MAJCOMs will establish guidance in accordance with DAFMAN 13-201, *Airspace Management*. **(T-2)**

4.6.2. DELETED.

4.6.3. If a route or area has been inactive or flight operations have not been conducted in 12 months or greater, units will conduct a resurvey before any low-level training flights are conducted in the area. **(T-2)** MAJCOMs may determine additional criteria for area size, activity, and tracking requirements.

4.7. Illumination and NVG Requirements. WARNING: Lack of sufficient illumination may prevent NVG contour operations in otherwise VMC conditions. **WARNING:** NVGs worn in very low illumination conditions can lead to induced motion illusions and spatial disorientation.

4.7.1. NVG operations at any altitude require sufficient illumination to safely identify terrain and hazards commensurate with aircraft speed and altitude.

4.7.2. The AC is the decision authority for determining sufficient illumination exists to complete the mission.

4.7.3. Due to increased risk, units will establish an additional level of Operational Risk Management (ORM) for training or operational flights during periods of low effective illumination. **(T-2)** Low effective illumination is defined as less than 10 percent moon disk/moon illumination on a clear, cloudless night on any portion of the route of flight. ORM and mission planning must consider cloud cover, visibility, moon angle, cultural lighting, and other factors affecting illumination. **(T-3)**

4.8. Takeoff and Landing Data (TOLD).

4.8.1. In accordance with T.O. 1H-1(U)N-1, aircrew will complete and brief TOLD cards prior to takeoff. **(T-2)** Compute data applicable to the mission profile. For mission events, aircrew should complete a separate worst case TOLD card during pre-mission planning. Tab data is provided in T.O. 1H-1(U)N-1 to facilitate computing TOLD. TOLD may be computed using flight manual charts, Tab data contained in T.O. 1H-1(U)N-1CL-1, or MAJCOM approved TOLD application for an approved electronic flight bag (EFB). Aircrew will post the TOLD card at the discretion of the AC. **(T-2)**

4.8.2. DELETED.

4.8.3. DELETED.

4.9. Weight and Balance.

4.9.1. The AC, or designated crewmember, will compute crew/passenger/equipment off-loading or on-loading to ensure center of gravity (CG) and weight limits are not exceeded. **(T-2)** Confirm basic aircraft weight and moment with certified DD Form 365-3, *Weight And Balance Record, Chart C – Basic* in accordance with T.O. 1-1B-50, *Aircraft Weight and Balance*. These computations will address the maximum number of personnel/maximum amount of equipment allowed in the cargo compartment without exceeding CG or structural limitations. **(T-2)** This procedure applies to all operations in which CG or weight limits may be exceeded as a result of personnel/equipment on or off-loading. A manual or electronic DD Form 365-4, *Weight and Balance Clearance Form F – Tactical/Transport* may be used. MAJCOMs must approve any electronic system other than the Automated Weight and Balance System (AWBS).

4.9.2. AWBS. Use the most recent version of AWBS found on their official website, **https://awbs.hill.af.mil**. Refer to T.O. 1-1B-50 for installation requirements. Use the transport side of the form. **(T-3)**

4.9.3. Use a DD Form 365-4, for each flight. The DD Form 365-4 records the weight, moment, and CG calculations for a specific loading arrangement on a specific aircraft to ensure the aircraft remains within its safe weight and balance limitations. These forms are prepared for use on a one-time basis. **(T-3)**

4.9.3.1. Standardized Loading (Formerly CANNED Form F). Aircraft configuration encompasses weight, CG, cabin equipment/seating/personnel layout, and mission equipment (i.e., forward looking infrared [FLIR], hoist, life raft, cargo hook, alternate insertion or extraction [AIE] devices, guns). DD Forms 365-4 may be prepared for standardized loading used by the unit. These canned forms are authorized when an aircraft's weight, moment, and CG remain within limits found in T.O. 1H-1(U)N-5, *Basic Weight Checklist and Loading Data*.

4.9.3.2. These forms (either computerized or expendable pad version) must be filed and maintained in both the primary and supplemental weight and balance handbooks. **(T-3)** Aircrew may use these forms only for the configurations they were designed/computed for, and units must check them for accuracy at least every 180 days. **(T-3)**

4.9.4. Initial Takeoff Gross Weight.

4.9.4.1. If the initial takeoff condition gross weight changes by more than 500 pounds, aircrew must generate a new or corrected DD Form 365-4. **(T-3)**

4.9.4.2. When initial takeoff condition gross weight does not change by more than 500 pounds, then a new or corrected DD Form 365-4 need not be generated. Even though no written adjustments are required, aircrew will calculate the new gross weight and CG and ensure limits are not exceeded. **(T-2)**

4.9.4.3. Brief the AC on the new gross weight and CG prior to take-off, as required.

4.9.5. Aircrew will make zero fuel weight computations on the DD Form 365-4. **(T-2)**

4.10. Charts.

4.10.1. Units will maintain a master chart depicting the low-level flight areas for flight planning purposes. **(T-2)** Display the chart in the mission planning area or maintain the electronic files on all unit computer-aided mission planning systems. **(T-3)** Units will annotate all man-made obstacles over 50 feet AGL (or commensurate with the lowest altitude flown). **(T-2)** Additionally, annotate any published low-level routes, no-fly areas, noise abatement areas, or other hazards within the boundaries. Master charts will be updated monthly using the Vector Vertical Obstruction Database (VVOD) or equivalent host nation or National Geospatial-Intelligence Agency (NGA) product. **(T-2)** Annotate the date of review on the master chart. **(T-2)** When uncharted obstacles are found, update the chart/files with location, approximate height in both AGL and mean sea level (MSL). **(T-3)** ACs will ensure this information is immediately passed to appropriate supervisors upon landing. **(T-3)**

4.10.2. Units will ensure charts used for flying reflect the same information as the master chart. **(T-2)** ACs will ensure a copy of the planned route or flight log/AF Form 70, *Pilot's Flight Plan and Flight Log*, is available at the unit. **(T-3)**

4.10.3. Electronic charts will comply with requirements in paragraphs **4.10.1** and **4.11**. **(T-2)** Time elapsed and distance time remaining markers are not required when using electronic

charts. MSAs are not required to be depicted on electronic charts provided they are immediately available to the aircrew in flight.

4.11. Route Planning. Aircrews will review and de-conflict low altitude charts for IFR, VFR, and slow speed low altitude (IFR military training routes, VFR military training route, and slow speed training routes) training routes and annotate potential conflict areas along the proposed routes during pre-mission planning. **(T-2)**

4.12. Over Water. The aircraft is considered "over water" anytime it is not in a position to autorotate to the shore. All altitude restrictions, power requirements, aircrew flight equipment, and aircraft equipment requirements apply.

4.13. Alert Aircraft. Maintain aircraft on alert status as follows:

4.13.1. Park the aircraft in a designated alert parking area/hangar to expedite taxi and takeoff. **(T-3)**

4.13.2. Plan preflight validity periods to limit the need to update the preflight during an alert period. Aircrew Preflight, Acceptance, and Cocking procedures will be performed following maintenance preflight inspections as defined in T.O. 00-20-1, *Aerospace Equipment Maintenance Inspection, Documentation, Policies, and Procedures*, and T.O. 1H-1(U)N-6, *Scheduled Inspection and Maintenance Requirements USAF Series UH-1N Helicopters*. **(T-2)**

4.13.3. The alert aircraft may be flown for purposes other than actual alert missions provided the following conditions are met: **(T-3)**

4.13.3.1. Alert requirements can be met with sufficient fuel to meet mission requirements. **(T-3)**

4.13.3.2. Communication contact is maintained with the primary controlling agency. **(T-3)**

4.13.3.3. Controlling agencies are notified any time the alert aircraft departs the local area. **(T-3)**

4.13.4. Thru-Flight Inspections. in accordance with T.O. 00-20-1, the maintenance thru-flight inspection is a between flights inspection and will be accomplished after each flight when a turnaround sortie, continuation flight or continuation of alert is scheduled and a basic post-flight inspection is not required. **(T-2)** The thru-flight inspection consists of checking the aerospace vehicle for flight continuance by performing visual examination and/or operational checks of certain components, areas, or systems, according to established T.O.s to ensure that no defects exist which would be detrimental to further flight. An alert crewmember or other UH-1N aircrew member designated by the mission commander will be present during the thru-flight inspection or at the completion of the thru-flight inspection to ensure all cowlings/access doors are secure and to check the areas in which the inspection and/or maintenance was performed. **(T-2)**

4.13.5. Aircrews will perform the Acceptance and Cocking checklists (hoist and weapons inspections as applicable) to place the aircraft on alert status. **(T-2)** Once accepted for alert, make the following entry in the AFTO Form 781A, *Maintenance Discrepancy and Work Document*: - "Aircraft accepted for alert_____(time/date). Acceptance check, hoist check (as applicable), and weapons check (as applicable) performed." in accordance with T.O. 1H-1(U)N-1CL-1, an alert crewmember will be present whenever maintenance is performed. **(T-**

2) If an alert crewmember is not available, mission commanders may authorize another UH-1N aircrew member to check the area in which maintenance was performed and ensure the alert crew is briefed on the maintenance actions. The check must be performed prior to flight. **(T-2)**

4.14. Alert Procedures. Alert crews will conduct an aircrew briefing at the beginning of each alert period. **(T-2)** Alert crews are authorized to prepare TOLD and DD Form 365-4 using the worst weather conditions expected during the alert period. This TOLD will be used only for alert scrambles. If the alert aircraft is flown for other reasons, new TOLD will be accomplished. **(T-3)** Weather and TOLD will be updated and briefed at least once each 24 hour period and also when conditions change significantly or are forecasted to change significantly from the original forecast. **(T-3)**

4.14.1. When an alert crew change occurs, and the same aircraft remains on alert, there is no requirement to perform another preflight. Should the aircraft remain on alert for more than 72 hours, regardless if it has flown or not, complete another full acceptance check.

4.14.2. When an alert aircraft changes, the alert crew will perform Acceptance and Cocking checks of the aircraft. **(T-2)** If the alert crew is not available, other qualified aircrew may perform the Preflight Inspection, Acceptance, and Cocking checklists at the mission commander’s discretion.

Chapter 5

NORMAL OPERATING PROCEDURES

5.1. Aircrew Uniforms and Protective Devices:

5.1.1. When reporting for flying or alert duties, all crewmembers will wear appropriate flying clothing in accordance with AFI 11-301V1, *Aircrew Flight Equipment (AFE) Program,* and carry a set of identification tags on their person in accordance with Department of the Air Force Instruction (DAFI) 36-3802, *Force Support Readiness Programs*. **(T-2)** Commanders will determine additional requirements appropriate for the terrain and climatic conditions. **(T-3)**

5.1.2. All crew chiefs and maintenance/logistic support personnel will wear Nomex® flight gear when flying on helicopters. **(T-3)** Civilian maintenance contractors must abide by local contract requirements. **(T-3)**

5.1.3. Personnel whose duties require them to be within 30 feet of an operating helicopter will wear eye and ear protection. **(T-3)**

5.1.4. Aircrews will ensure hearing protection is available prior to flight. **(T-3)** The AC or designated crewmember will be responsible for distributing these devices to all passengers. **(T-3)**

5.1.5. Chemical/Biological Warfare Individual Protective Equipment will be worn in accordance with MAJCOM procedures. **(T-2)**

5.2. Publications Required for Flight. Aircraft commanders will ensure the minimum publications listed in **Table 5.1** are on board the aircraft prior to departure either on an electronic flight bag (EFB) or in a publication kit unless specified by MAJCOM. **(T-2)** Unit commanders may supplement as desired. Aircrew EFBs are restricted to those approved by MAJCOM and will be operated in accordance with MAJCOM guidance. **(T-2)**

5.2.1. Crewmembers may omit checklist pages not applicable to their unit operations as determined by the unit commander. Insert current, approved flight manual checklists in the USAF flight crew checklist binder or electronically in an approved EFB. **(T-3)** Additional notes amplifying checklist procedures and limitations may be added. Currency of notes is the crewmember's responsibility. **(T-3)**

5.2.2. Copies of the Before Takeoff, Before Landing, Hoist Operators Before Pickup, Hoist Operator's After Pickup, Smoke/Flare Drop, Scramble, and Weapons System Emergency checklists may be posted in the cockpit and/or cabin at the discretion of the unit.

5.3. DELETED.

5.4. Aircrew Charts. Pilots will ensure they flight plan and fly with current charts. **(T-2)** A current chart consists of the most recent edition available and annotated as such. ACs will ensure the terrain, obstacle and navigation databases in the aircraft are current prior to flight. **(T-2)** MAJCOMs may publish guidance for operations with expired databases. Unit commanders will ensure procedures are in place to maintain the currency of the databases on unit assigned aircraft. **(T-3) Note:** The GNS-530 will be updated with the helicopter-specific commercial navigation database. **(T-2)**

Table 5.1. Publications Required for Flight.

Publication	Notes
T.O. 1H-1(U)N-1	1
T.O. 1H-1(U)N-1CL-1	
T.O. 1H-1(U)N-1CL-2, *Crewmember's Flight Crew Checklist*	2
T.O. 1H-1(U)N-5	
Supplemental Weight & Balance Handbook	3
T.O. 1H-1(U)N-2-1CL-2, *Refueling/Defueling*	
T.O. 1H-1(U)N-6CF-1, *Acceptance and Functional Check Flight Procedures*	1
T.O. 1H-1(U)N-6CL-1, *Acceptance and Functional Check Flight Procedures Checklist*	1
AFMAN 11-2UH-1NV3, *UH-1N Helicopter Operations Procedures*, and applicable supplements	
AFMAN 11-2UH-1NV3CL-1	
AFMAN 11-202V3 and applicable supplements	
DoDM 4140.25-V3, *DoD Management of Energy Commodities: Fuel Cards*	
Flight Information Handbook	
En Route Low Altitude Charts for areas of operation	
VFR Maps/Charts (e.g., Sectionals) for areas of operation	
Low Altitude Instrument Approach Procedures for areas of operation	
IFR and VFR Supplement	
Standard Form 44, *Purchase Order-Invoice-Voucher*	3

Notes:
1. Required during local FCF operations. No additional flight publications are required.
2. If applicable to unit assigned mission equipment.
3. Paper copy required

5.5. Minimum Aircraft Equipment and Instrumentation. Aircraft commanders will ensure the minimum aircraft equipment and instrumentation is listed in **Table 5.2** are operational prior to flight. **(T-3)** Additional information can be found in AFMAN 11-202V3 and DAFI 21-103, *Equipment Inventory, Status and Utilization Reporting*.

5.5.1. In addition to requirements in AFMAN 11-202V3, the final decision regarding equipment required for a mission rests with the AC. When the AC considers an item essential for the accomplishment of the mission, the AC will designate the component mission-essential, and it will be repaired or replaced prior to departure. **(T-3)** Acceptance of an aircraft by an AC to operate one mission (or mission segment) without an item or system does not commit that AC or a different AC to subsequent operations with the same items/systems inoperative.

5.5.2. Radar Altimeter. Two operational radar altimeters are required for all low-level flight. At least one radar altimeter must be operational for night operations (aided and unaided) below 500 feet AHO. **(T-2)**

Table 5.2. Minimum Aircraft Equipment and Instrumentation.

Equipment	Day	Night/NVG	IMC	Overwater	Notes
Altimeter	X	X	X	X	1
Attitude Direction Indicator (ADI)	X	X	X	X	1, 4
Heading Indicator	X	X	X	X	1
Airspeed Indicator	X	X	X	X	1
Dual Torque Indicator	X	X	X	X	
Triple Tachometer	X	X	X	X	
Engine Instruments	X	X	X	X	
Transmission Instruments	X	X	X	X	
Combining Gearbox Instruments	X	X	X	X	
Navigation Instruments	X	X	X	X	2
Communication Equipment	X	X	X	X	2
Navigation and Anti-Collision lights	X	X	X	X	
IDAR/HUMS (N/A Block 1 Aircraft)	X	X	X	X	
Landing/Searchlight	X	X	X	X	3
Cockpit Instrument Lights		X			6
Pitot Heat			X		
Life Preserver Unit (LPU)				X	
Helicopter Emergency Egress Device (HEED)				X	
Life Raft				X	5

Notes:
1. At least one operative, on whichever side is occupied by the AC.
2. As required for flight profile.
3. An operable white light is required for all flights. If infrared filter installed on the searchlight, the landing light must be operational. **(T-2)**
4. Instrument Meteorological Conditions (IMC) flight requires two operative ADIs.
5. Life rafts are not required for non-open ocean water training sorties when cover is provided by a boat or hoist equipped helicopter. See **paragraph 5.5.3** for covership/safety boat requirements.
6. ACs may accept non-functional cockpit instrument lights, provided an alternate illumination method is used. See **paragraph 5.26.6.2** for additional requirements.

5.5.3. Water Operations Training. Crews conducting water training sorties may use a helicopter covership or safety boat in lieu of carrying a life raft for non-open ocean training.

5.5.3.1. Helicopter Coverships Requirements. Helicopter coverships will maintain constant line-of-sight communications with deploying helicopter at all times and remain within 5 NM. **(T-2)** Coverships will be equipped with an operable hoist or carry a life raft for deployment. **(T-2)**

5.5.3.2. Cover (Safety) Boat Procedures. The boat party and helicopter will maintain positive visual contact at all times and minimize the distance between the boat and deploying team to ensure prompt response. **(T-2)** All live swimmer water operations require positive radio contact. **(T-2)** If radios are unavailable or inoperable, swimmer team lead will carry an overt and pre-briefed emergency signal. **(T-2)**

5.6. Restraint Devices. When rotors are engaged, at least the pilot on the controls will have their seat belt and shoulder harness fastened and secured. **(T-2)** All crewmembers will wear a seat belt when conducting practice emergency procedures. **(T-2)** All occupants in the cabin compartment will wear a seat belt, authorized restraint device, or parachute when doors are open during flight. **(T-2)** The term 'authorized restraint device' pertains to devices approved for use in accordance with MAJCOM approval, technical orders, safe-to-fly approvals, or operational safety, suitability, and effectiveness compliance.

5.6.1. With the cabin doors closed, the AC may direct crewmembers to perform duties in the cabin unrestrained for brief periods when required to don harnesses, attend to passengers, or change seats. Parachutists may change positions with doors open if parachutes are worn and the aircraft is higher than 1,000 feet AGL.

5.6.2. The AC may direct crewmembers to perform duties requiring the use of an approved restraint device in lieu of a seat and seat belt when mission requirements dictate. Attach the restraint device to any tie down ring on the floor or to any seat belt ring as long as the seat belt is not simultaneously in use (does not prevent crewmember from attaching their restraint device to their own seat belt ring). **(T-2)** Only one restraint device can be attached to a tie down ring at the same time. **(T-2)** Do not attach the restraint device to cargo tie down rings on the bulkhead or ceiling. Adjust the length of the restraint device to preclude accidental exit from the aircraft. **(T-2) WARNING:** An improperly adjusted restraint device may result in injury or loss of life.

5.6.3. Alternate loading allows equipment, not required for the mission, to be removed and the cabin floor to be used as a seat.

5.6.3.1. When use of standard seating is not possible due to mission requirements, personnel will be secured using an authorized restraint device. **(T-2)** ACs must ensure that these personnel are thoroughly familiar with the use of restraint devices and are fully briefed on all pertinent safety considerations **(T-3)** Passengers will be secured regardless of door position, except when tactically not feasible. **WARNING:** Not using a seat belt or restraint device for cabin occupants increases personal injury in the event of an emergency where ground impact and/or aircraft rollover occurs. Use the following order of preference to restrain alternate loaded personnel: **(T-2)**

5.6.3.1.1. Authorized restraint device.

5.6.3.1.2. Seat belts attached to the tie down rings on the cabin floor.

5.6.3.1.3. Five thousand (5,000) pound tie-down straps attached to the tie down rings on the cabin floor

5.6.4. DELETED.

5.7. Aerospace Vehicle Flight Data Document. A crewmember must review all applicable aircraft forms, AFTO Forms 781, before applying power to the aircraft or operating aircraft systems. **(T-2)** An authorized maintenance person, if available, or the AC must sign the exceptional/conditional release before flight. **(T-2)** Ensure the Aviation Into-Plane Reimbursement (AIR Card ®) and DD Form 1896, *DoD Fuel Identaplate,* are aboard the aircraft.

5.8. Communications Guidance:

5.8.1. Primary Radio. The AC will tell the crew which radio is the primary radio. **(T-2)** All crewmembers will monitor the primary radio unless specifically directed otherwise by the AC. **(T-2)**

5.8.2. Intercom. All crewmembers will listen to the intercom. **(T-2)** Clearance is required from the AC prior to switching off the intercom. During critical phases of flight, intra-plane transmissions will be limited to those essential for crew coordination. **(T-2) NOTE:** Avoid discussing classified information on intercom. If classified discussion is necessary, ensure all wafer switches are in the internal communications system (ICS) position. Also ensure the cockpit voice recorder mute switch and FLIR recorder mute switch are on.

5.9. Dual Engine Power Available Check.

5.9.1. Perform the power check as near as possible to the same pressure altitude (PA) and outside air temperature (OAT) as the operating area. **(T-2)** Slowly apply collective pitch without drooping rotor speed (Nr) below 97 percent until computed power or a limit (as defined by the flight manual, section 5) is reached. The engines need to produce power equal to or greater than computed from the power available charts in the flight manual. If the engines fail to produce computed power or Nr droops below 97 percent prior to reaching computed power or a limit, terminate the sortie. Perform a dual engine power available check for:

5.9.1.1. Operations below 300 feet AGL (except when operating on routes depicted on published FAA/NACO helicopter route charts)

5.9.1.2. Unprepared landing area operations

5.9.1.3. Search operations

5.9.1.4. Cargo sling operations

5.9.1.5. AIE operations

5.9.1.6. Water operations

5.9.2. Dual engine power available checks are not required for operations to approved operational sites unless the AC believes a critical power requirement exists.

5.10. Single Engine Power Available Check. Ensure torque is below single engine power available. Gradually roll one throttle back to flight idle while monitoring the engine instruments to ensure the other engine is able to produce adequate power to sustain flight. Slowly apply collective pitch without drooping Nr below 97 percent until computed power available or a limit (as defined by the flight manual, Section 5) is reached. If the engine fails to produce computed

power or Nr droops below 97 percent prior to reaching computed power or a limit, terminate the sortie. **(T-2)**

5.11. Power Required. All primary flight crewmembers are required to know the power margin for intended operations. Power available versus power required will be briefed prior to final approach. **(T-2)** For multiple approaches to the same area, power available/power required will be briefed for the applicable landing/AIE with the smallest power margin. **(T-2)** Updates will be briefed if gross weight or temperatures increase. **(T-2)**

5.11.1. Comparing power available with highest power required (landing/takeoff/AIE) determines power margin. This is the excess power available for go-around or unforeseen conditions (e.g., wind shifts, null areas, etc.). When the power margin is 10 percent or less, a second aircrew member will recalculate TOLD to confirm power requirements. **(T-2)** Aircrew must recalculate and brief TOLD for approaches if conditions become less favorable (i.e., gross weight, pressure altitude, or temperature increase). **(T-3)**

5.11.2. Consider that power available at the site may differ from power available in flight if temperature or PA differs. Reaccomplish power check if conditions change from worst case which will result in a decrease in power available. **(T-2)**

5.11.3. Prior to landing, ensure that sufficient power to depart the planned landing site is available. Factor in any weight that will be added at the site (e.g., survivors)**. (T-2)**

5.11.4. If sufficient power is not available for the approach, landing and/or departure, lighten the helicopter, locate a more suitable landing site, or abort the mission.

5.11.5. Landing Zone Power Requirements:

5.11.5.1. Clear Escape Route. The minimum power available required for areas with a clear escape route is computed hover power for the intended hover height at the landing location. **(T-3)**

5.11.5.2. Restricted Escape Route. The minimum power available required for areas with a restricted escape route is computed out of ground effect (OGE) hover power for the landing location. **(T-3)**

5.11.5.3. Water Operations. Minimum power available required for water operations is computed OGE hover power. **(T-3)**

5.11.5.4. Restricted Visibility Approach. Any time the pilot flying anticipates losing ground references due to sand, dust, snow, or other obscurations, the minimum power margin must be 5 percent. **(T-3)**

5.11.5.5. When landing to a surface area equal to or smaller than the rotor diameter, such as a pinnacle or ridgeline, computed OGE hover power must be available. **(T-3)**

5.12. Engine Running Crew Change. For engine running crew changes, the new AC will review the AFTO Forms 781, aircraft weight and balance, configuration, and TOLD. **(T-2)**

5.13. Fuel Management.

5.13.1. Preflight. The AC, or designated crewmember, will ensure the pre-planned fuel load is on board the aircraft and will brief the crew on fuel loads that do not meet mission requirements. **(T-2)**

5.13.2. In flight. The AC, or designated crewmember, will monitor fuel transfer and fuel consumption and keep the crew advised of fuel status. **(T-2)**

5.14. Forced or Precautionary Landings. Aircraft security and accessibility for maintenance are secondary considerations to aircrew safety. Report all precautionary landings through appropriate channels as soon as communications are established. **(T-2)**

5.14.1. Forced or Precautionary Landings due to In-flight Malfunction.

5.14.1.1. Aircraft malfunctions must be investigated, corrected, and inspected by qualified maintenance personnel. **(T-2)** Coordinate maintenance support via radio, telephone, or any other means available. The OG/CC, Maintenance Group Commander (MXG/CC), or designated representative (cannot be delegated below unit Director of Operations [DO]) is the approval authority required prior to further flight when the precautionary landing occurs at a location where qualified maintenance is not available.

5.14.1.2. In the event a forced or precautionary landing occurs at a location where communications are not available, and the AC determines the aircraft is safe for flight, the AC may authorize further flight. The decision to resume flight under these circumstances must be based on a thorough evaluation of all the hazards and risks involved. **(T-2)**

5.14.2. Precautionary Landings Due to Weather.

5.14.2.1. If deteriorating weather is encountered during VFR operations, consider a precautionary landing a viable option in addition to course reversal, course deviation, or continuing under IFR.

5.14.2.2. The AC may authorize further flight after a precautionary landing for weather. Make a reasonable effort to notify appropriate agencies of the precautionary landing and to determine additional weather information.

5.15. Obstacle Clearance.

5.15.1. Prior to maneuvering the helicopter in close proximity to obstacles, the aircrew will ascertain that the area is clear. **(T-3)** Whenever aircraft clearance (including rotor tip path plane) is 25 feet or less, the scanner will inform the pilot of the clock position relative to the nose of the aircraft and estimated distance to the obstacle from the nearest part of the aircraft (e.g., “Tree, nine o’clock, 20 feet” or “fence, seven o’clock, eight feet from the tail”). **(T-3)**

5.15.2. During en route flight, if known obstacles cannot be visually identified prior to 0.5 NM, climb to a sufficient altitude to ensure obstacle clearance, and do not descend to planned en route altitude until obstacle clearance is assured. **(T-3)**

5.16. Fire Guard. A fire guard will be used, when available, for all engine starts. **(T-3)** If a wheeled extinguisher is not available, the fire guard will have a hand-held fire extinguisher readily available. **(T-3)** Should a fire occur, the fire guard’s primary duty is to assist the crew in evacuating the aircraft, not fight the fire at the engine compartment.

5.17. Refueling Duties. Aircrew members trained in refueling may perform cold refueling duties. MAJCOMs will establish procedures to certify crewmembers prior to accomplishing hot refueling duties. Conduct hot refueling in accordance with AFI 11-235, *Specialized Refueling Operations,* T.O. 00-25-172, *Ground Servicing of Aircraft and Static Grounding/Bonding,* and

appropriate flight manuals. **(T-2)** The guidance in this section supplements the procedures outlined in T.O. 00-25-172, appropriate flight manuals and checklists.

5.17.1. Crewmembers used as refueling supervisors/panel operators will comply with T.O. 00-25-172 and T.O. 1H-1(U)N-2-1CL-2 to the max extent possible. **(T-3)** At locations with refueling support, aircrews will not refuel unless extenuating circumstances dictate. **(T-3)** When not directly involved in the refueling operation, personnel will remain at least 50 feet from the refuel operation and/or any pressurized fuel carrying servicing component. **(T-3)**

5.17.2. The AIR Card® is used to pay for services at commercial fixed base operators (FBO). These include aviation fuel, aircraft oil and fluids or other minor maintenance items. Charges incurred during this routine aircraft servicing generate a charge receipt. The AC is responsible for ensuring the receipt is correct and all appropriate signatures are obtained before departing the FBO. **(T-3)** Log refuel information on the AF Form 664, *Aircraft Fuels Documentation Log*, and AFTO Form 781H, *Aerospace Vehicle Flight Status and Maintenance*, located in the aircraft 781 forms binder in accordance with T.O. 00-20-1. **(T-3)** The AC then ensures that all charge receipts are transferred to the unit document control officer (DCO) at the completion of the mission. **(T-3)**

5.17.3. Charges incurred for other services, including landing fees, aircraft de-icing, follow-me trucks, and other airfield related services might not generate a receipt that is given to the aircrew. If no receipt for the services is generated and provided to the aircrew, the AC will ensure the location and services performed are noted (AF Form 664 meets this requirement) and relayed to the unit DCO when the receipts are turned in upon mission completion. **(T-3)** If a separate receipt is generated, turn it in to the unit DCO**. (T-3)**

5.17.4. In the event the AIR Card® is not accepted aircrew will use the SF44 for payment purposes. **(T-3)** The aircrew shall complete the SF44 and attach it to the merchant vendor ticket/invoice when the merchant also declines use of the SF44 and uses its own invoice/receipt. **(T-3)** Refer to DoDM 4140.25-V3 for guidance on completion of the SF44. Fuel purchases shall be documented on a separate SF44 from ground services and other authorized products, since the merchant must invoice Defense Energy Support Center for the fuel portion of the invoice and the customer home station payment office for any non-fuel product and services. **(T-3)**

5.18. Minor Maintenance Actions. When authorized by the terms of the performance work statement in the maintenance contract, MAJCOMs may train and certify flight engineers in minor maintenance actions using a syllabus approved by the MAJCOM Training Branch and Weapon System Team. After certification, flight engineers may perform minor maintenance and servicing within the scope of the syllabus when away from home station to allow continued mission execution or return flight for maintenance actions.

5.18.1. When authorized by the maintenance group commander, ACs will inspect minor maintenance action performed by certified flight engineers and sign off red-X discrepancies prior to flight in accordance with T.O. 00-20-1. **(T-2)** All maintenance, servicing, and post-maintenance operational or leak checks, and the exceptional release must be performed in accordance with T.O. 00-20-01 and applicable technical manuals prior to resuming flight operations. **(T-1)**

5.18.2. Certified flight engineers will have a tool kit on board for all flights departing the local traffic pattern. **(T-3)** Individual units will establish requirements for tools/parts to be included in these kits. **(T-3)** As a minimum, the kit will include enough tools to remove and install chip detectors. Tool accountability shall be performed in accordance with DAFI 21-101, *Aircraft and Equipment Maintenance Management*, and applicable supplements. **(T-2)**

5.19. Cabin Security. During preflight inspections, pay particular attention to panels and components that are potential dropped objects. Air crew must secure all cargo/mission equipment inside the aircraft prior to any aircraft movement. **(T-3) WARNING:** Loose objects can become hazardous projectiles during any violent maneuver or hard landing and must be secured to prevent injury to personnel and/or damage to the aircraft. **(T-2)**

5.20. Standard Configurations. Standard configurations will be in accordance with MAJCOM and unit local procedures (supplement or operating instruction). **(T-2)** Each flying unit will publish diagrams and mission equipment lists for each configuration used by the unit. **(T-2)** Prepare a DD Form 365-4 in accordance with **paragraph 4.9** for each of these configurations. **(T-3)** Additional special mission equipment may be added at the option of the unit commander. All equipment authorized for and installed on the aircraft will be categorized and managed in accordance with applicable Air Force instructions. **(T-2)** Aircraft will not be modified to secure and/or install equipment unless authorized by aircraft technical orders or applicable Air Force instructions. **(T-2)**

5.20.1. Cargo/Equipment. Securing life support/medical equipment/medical kits with seat belts is authorized. In addition, items weighing less than 200 pounds that require constant access, such as navigation or mission kits, may be secured with seat belts. Secure cargo/equipment items not requiring rapid removal during an aircraft or medical emergency with devices identified in T.O. 13C2-1, *Cargo Tie-Down Equipment,* and the flight manual. Do not modify tie down devices in any fashion.

5.20.2. Deployment/Exercise Configuration. Every effort will be made to establish the standard configuration(s) prior to deployment/exercise participation. **(T-3)** In lieu of an exercise coordinator, the mission commander will establish the standard configuration for each planned mission. **(T-3)** The configuration(s) may be altered to carry additional observers, ferry simulated survivors, etc. Survival equipment required by MAJCOM or multi-command guidance will be included in these configurations. **(T-3)**

5.20.3. Deviations. Unit commanders may authorize deviations from the standard configuration. Deviations from tactical configuration requirements are authorized at deployment locations (including exercises) when the mission dictates.

5.20.4. FCF Configuration. Unit commanders may establish standard FCF configurations as required.

5.20.5. Discrepancies. Document all standard configuration discrepancies using the AFTO Form 781A. **(T-3)**

5.21. Alternate Insertion/Extraction Operations (AIE). WARNING: For all AIE operations, it is the AC's responsibility to ensure all crewmembers are aware of the length of the rope(s). Failure to do so may result in serious injury to deploying personnel and/or damage to the aircraft. **WARNING:** Devices used for non-live AIE training will be clearly distinguishable from

operational equipment. **(T-2)** Training devices will be configured the same as operational equipment. **(T-2)** Only operational equipment will be used for live AIE operations. **(T-2)**

5.21.1. Live Hoist Training. Accomplish live hoist training at the minimum altitude required to accomplish desired training, but in no case higher than 40 feet AGL. **(T-3)** Live hoist operations may be performed at higher altitudes with Squadron Commander (SQ/CC) or DO approval when conducting a search and rescue exercise.

5.21.1.1. Hoist Hook Safety/Retaining Pin Procedures. To prevent dropping the rescue device, use the hoist hook safety/retaining pin for all ground recoveries. **(T-3)** When raising or lowering an empty stokes litter or rescue strop, the use of the hoist hook safety/retaining pin is not required. This allows easier removal of litter cables, or attachment of one/both sides of the rescue strop when used, from the hoist hook. Ensure the hoist hook safety/retaining pin is installed prior to hoisting the litter, or strop, with a survivor. **(T-3)**

5.21.1.2. Unit commanders or DOs must approve hoist riders for training. **(T-3)** Any military member or DoD civilian may serve in a survivor role and ride the hoist. Personnel not familiar with AIE operations will complete familiarization training with a flight engineer prior to flight or require a qualified observer on the ground during hoist operations. **(T-2)** This requirement may be met by lowering a qualified crewmember to the ground to assist the survivor/personnel not familiar with AIE operations. **(T-3)**

5.21.1.3. Hoist Exercise Procedures. Exercises are distinct from currency training. Exercises are designed to add elements of realism not normally provided during currency training. The following are special provisions for exercises:

5.21.1.3.1. Select a clear recovery area to enhance speed and safety and to allow the helicopter to land or use the extraction device from as low a hover altitude as possible and/or practical. If a recovery is to be accomplished from a forested area, the foliage must be sparse enough to ensure the survivor will not be dragged through the branches. **(T-2)** When practical, select areas with trees of a minimum height to decrease recovery time and provide additional safety for the survivor in the event of a hoist or other equipment malfunction.

5.21.1.3.2. Other exercise personnel. The AC will make every practical effort to recover other exercise personnel by landing. **(T-2)** They may be recovered by hoist if the remaining range time prevents movement of these personnel to a suitable landing area, or when an extended period of time is required to reach a suitable landing area. The AC will ensure these personnel are briefed to select an area within a reasonable distance that will allow the helicopter to hover as low as practical. **(T-2)**

5.21.2. Rope Ladder Operations. The maximum number of personnel on the ladder at any one time is three. **WARNING:** UH-1N crews will not use the rope ladder for emergency extraction of personnel unless the threat to personnel remaining on the ground is higher than the risk associated with the in-flight rope ladder failure. **(T-2)** If used in forward flight, altitude will be the absolute minimum required, airspeed will not exceed 30 knots indicated airspeed (KIAS), and crews will continually assess the risk and the possibility for rope ladder failure. **(T-2)**

5.21.3. AIE Storage and Maintenance. Units will develop a program to ensure all unit-owned equipment is tracked, maintained and serviceable. **(T-2)** As a minimum units must ensure

compliance with current manufacturer procedures. **(T-2)** Units will document these procedures per MAJCOM guidance. **(T-2)**

5.22. Weapons Employment. Units will ensure that weapon systems employment procedures and training standards are included in the unit weapons and tactics training program. **(T-2)** Refer to AFI 11-214, *Air Operations Rules and Procedures,* Air Force Tactics, Techniques, and Procedures (AFTTP) 3-3.H-1, *Combat Aircraft Fundamentals—H-1,* and local range procedures/restrictions for guidance. Units will ensure that detailed local weapons procedures are documented per MAJCOM guidance. **(T-2)**

5.23. Armed Crewmembers. Squadron commanders may direct arming of crewmembers as deemed necessary by mission threat analysis. During all operations with an aircraft weapon system on board, an aircrew member will be armed with an approved Air Force small arms weapon. **(T-1)** Protect aircraft weapons in accordance with AFI 31-117, *Arming and Use of Force by Air Force Personnel,* and Department of Defense Manual (DoDM)-5100.76_AFMAN 31-101V2, *Physical Security of Sensitive Conventional Arms, Ammunition, & Explosives (AA&E*) and applicable supplements. During training events using blank ammunition, follow AFMAN 31-129, *USAF Small Arms and Light Weapons Handling Procedures* guidance. **(T-2)**

5.24. Armed Passengers. The AC is the final approving authority for armed passengers. At the discretion of the AC, a crewmember may collect, secure, and transport weapons for passengers who are authorized to carry them.

5.25. Aircraft Lighting. Aircraft lighting will be in accordance with AFMAN 11-202V3.

5.26. Aircraft Lighting for NVG Operations.

5.26.1. An operable white light (landing or search) is required for all NVG flights. **(T-2)**

5.26.2. Aircraft may operate in restricted areas and warning areas with reduced lighting in accordance with AFMAN 11-202V3 and FAA exemptions. Refer to MAJCOM guidance for aircraft lighting waivers.

5.26.3. Aircraft not operating in a warning/restricted area or under a waiver will operate with the following configurations: **(T-2) Exception:** Lighting may be reduced if it creates a hazard to the aircrew.

5.26.3.1. Single Ship Operations. Position lights will be set to bright. **(T-2)** The use of one anti-collision light is permitted.

5.26.3.2. Formation Operations. The lead aircraft and wingman will operate with overt position lights. **(T-2)** Anti-collision light use is optional. The last aircraft in the formation will operate with overt position lights and one anti-collision light. **(T-2)** Use of the white fuselage lights is optional. Tape may be applied to the tail lights as necessary. If external lighting creates a hazard, crews should adjust formation spacing before considering reduced lighting.

5.26.3.3. For contingency operations, aircraft lighting will be commensurate with mission and local requirements.

5.26.4. An operable searchlight equipped with an infrared filter is required for NVG flights when effective illumination (regardless of methodology or measurement) is below 20 percent and is highly recommended for all NVG flights.

5.26.5. DELETED.

5.26.6. Interior Lighting/Configuration.

5.26.6.1. DELETED.

5.26.6.2. Aircrew should tape all lights that are not NVG compatible. Ensure critical information is not rendered invisible by excessive taping. The tape must allow enough light to be emitted to alert the pilot of critical information. **Note:** Crews may use mini-chems in lieu of non-functional cockpit instrument lighting. Use of lip or finger lights to illuminate gauges in lieu of secondary lights is not authorized.

5.26.7. Over Water Flights. All cockpit and cabin emergency exits will be marked by chemical lights, which will be activated prior to flight over water. **(T-2)** The chemical lights will be placed inside the cockpit and cabin compartment as follows: **(T-2)**

5.26.7.1. Center one light immediately above each cockpit and cabin door. **(T-2)**

5.26.7.2. Attach one light to each cabin window emergency release handle (when doors are closed). **(T-2)**

5.26.7.3. Attach one light to the handle of each cockpit door and cargo door (when doors are closed).

5.26.7.4. Attach one light to the life raft. **(T-2)**

5.27. Maintenance Debriefing. The AC or representative will debrief maintenance personnel on the condition of the aircraft and equipment following flight. **(T-2)** The AC will make the following entries in the AFTO Form 781A, when appropriate:

5.27.1. Aircraft subject to salt spray when flown below 3,000 feet over salt water. **(T-2)**

5.27.2. Aircraft flown below 30 feet above salt water. **(T-2)**

5.27.3. Hoist and rescue device used. Specify the length of cable used, the particular device used, and if they were used in salt water. **(T-2)**

5.27.4. Aircraft flown through volcanic ash. **(T-2)**

Chapter 6

TRANSITION AND EMERGENCY PROCEDURES TRAINING

6.1. Prohibited Training Maneuvers. In addition to T.O. 1H-1(U)N-1 restrictions, aircrew will not intentionally accomplish the following maneuvers in the aircraft:. **(T-2)**

6.1.1. Actual in-flight engine shutdown. **(T-2)**

6.1.2. Blade stall, vortex ring state, and power settling. **(T-2)**

6.1.3. Dual fuel control failures. **(T-2)**

6.1.4. Dual hydraulic system failures. **(T-2)**

6.1.5. Dual engine forced landing (i.e., the surprise approach to conditions leading to an autorotation by intentionally rolling both throttles to flight idle unannounced). **(T-2)**

6.1.6. Hovering autorotation. **(T-2)**

6.1.7. Touchdown autorotations. **(T-2)**

6.2. Training Requirements.

6.2.1. Special Restrictions. Unusual attitude training and emergency procedure training involving engines (to include simulated autorotations), engine fuel systems, or hydraulic systems will be accomplished only: **(T-2)**

6.2.1.1. During visual meteorological conditions. **(T-2)**

6.2.1.2. After official sunrise/prior to official sunset (extended daylight hours may be authorized by MAJCOM). Night Emergency Procedures may be authorized by MAJCOMS and procedures will be addressed in MAJCOM Supplements. **(T-2)**

6.2.1.3. During training, currency, or evaluation flights. **(T-2)**

6.2.1.4. When passengers are not on board. **(T-2)**

6.2.1.5. When an instructor pilot (IP) or evaluator pilot (EP) is designated on the flight orders under duty position as IP or EP and occupies a pilot seat with a set of controls. **(T-2)**

6.2.2. Unusual Attitude Training. Entry must be at or above 1,000 feet AGL. **(T-2)** Simulated unusual attitude training will not exceed 30 degrees of bank, a 20 degrees nose high attitude, or 10 degrees nose low attitude. **(T-2)**

6.3. Slide Landing Training Areas. Local slide landing training areas are used for emergency and normal procedure maneuvers (e.g., single engine). Minimum dimensions will be in accordance with UFC 3-260-01, *Airfield and Heliport Planning and Design*. **(T-2)**

6.3.1. The AC will accomplish the following. **(T-2)**:

6.3.1.1. Brief the hazards of the slide landing area prior to commencing any maneuvers. **(T-2)**

6.3.1.2. Visually inspect the slide area for hazards and surface condition (N/A for active runways and active taxiways at airports with an active control tower). **(T-2)**

6.3.1.3. If the visual inspection was inconclusive, test the surface prior to commencing emergency procedures by accomplishing a slide landing. Accomplish a slide landing with both throttles at full open to determine its slide characteristics. **(T-2)**

6.3.1.4. If the slide area is not safe, discontinue training or go to a suitable slide or hard surface area. **(T-2)**

6.3.1.5. Hard surface areas such as runways, taxiways, or ramp areas may be used if free of obstacles/hazards. **(T-2)**

6.4. Airport Rescue and Fire Fighting (ARFF). Units will establish procedures to ensure ARFF support is readily available during emergency procedure training. **(T-2)** Aircrews will not accomplish simulated emergency procedures while operating at civil airfields unless authorized in a letter of agreement. **(T-2)**

6.5. Maneuver Parameters.

6.5.1. Traffic Pattern. If a rectangular pattern is flown, aircrew should fly the downwind leg at 500 feet AGL and 90 KIAS. During the turn to base, aircrew will descend to 300 feet AGL and slow the aircraft to 70 KIAS. **(T-3)** These altitudes will be used whenever possible if local conditions permit, otherwise comply with appropriate local traffic patterns. **(T-3)**

6.5.2. Normal Takeoff. The pilot flying will initiate from the ground or hover using 5-foot hover power plus 10 percent. **(T-3)** The pilot flying will terminate the maneuver when reaching minimum safe single engine airspeed (or 70 KIAS if safe single engine airspeed is not available or as directed by the AC). **(T-3) NOTE**: A normal takeoff should minimize time in the AVOID area of the height-velocity diagram.

6.5.3. Marginal Power Takeoff. The pilot flying will initiate from the ground or hover using 5-foot hover power. **(T-3)** Simulate a 50-foot obstacle. **(T-3)** The pilot flying will terminate the maneuver when clear of the simulated obstacle and above minimum safe single engine airspeed (or 70 KIAS if safe single engine airspeed is not available or as directed by the AC). **(T-3)**

6.5.4. Maximum Performance Takeoff. The pilot flying will initiate from the ground or 5-foot hover using 5-foot hover power plus 10 to 15 percent or as specified by the IP/EP. **(T-3)** Simulate a 100-foot obstacle. **(T-3)** The pilot flying will terminate the maneuver when clear of the simulated obstacle and above minimum safe single engine airspeed (or 70 KIAS if safe single engine airspeed is not available or as directed by the AC). **(T-3)**

6.5.5. Slide Takeoff. The pilot flying will initiate from the ground using approximately 5-foot hover power minus 10 percent. **(T-3)** The pilot flying will terminate the maneuver when at minimum safe single engine airspeed (or 70 KIAS if safe single engine airspeed is not available or as directed by the AC). **(T-3)**

6.5.6. Normal Approach. The pilot flying will initiate the approach from approximately 300 feet AGL and 70 KIAS using a 30 degrees apparent angle. **(T-3)** The pilot flying will terminate the approach at a touchdown or 5-foot hover. **(T-3)**

6.5.7. Steep Approach. The pilot flying will initiate the approach from approximately 300 feet AGL and an apparent 30 Knots Ground Speed (KGS) using a 45 degrees apparent angle. **(T-3)** The pilot flying will terminate the approach at a touchdown or 5-foot hover. **(T-3)** **WARNING**: During approaches at less than 40 KIAS, do not exceed 800 feet per minute

descent rate. If descent rate exceeds 800 feet per minute at less than 40 KIAS, aircrew will execute a "go-around." **(T-2)**

6.5.8. Shallow Approach. The pilot flying will initiate the approach from approximately 300 feet AGL and 70 KIAS using a 10 degrees apparent angle. **(T-3)** The pilot flying will terminate approach at a touchdown or 5-foot hover. **(T-3)**

6.6. Emergency Procedures Training.

6.6.1. Manual Fuel Operations. The IP may simulate fuel control malfunction indications at any time. If aircrew accomplish the Fuel Control System Actuation checklist in flight, the aircraft must be at a minimum of 500 feet AGL and 70 KIAS before initiating step 1 of the checklist. **(T-3)** The pilot flying will ensure collective setting is below computed single-engine torque available prior to retarding the throttle to flight idle. **(T-3)** The pilot flying will maintain torque on the manually governed engine approximately 5 to 10 percent below the governed engine, but it may be less than 5 percent under high density altitude conditions to preclude exceeding engine operating limitations. **(T-3)**

6.6.2. Single Hydraulic System Failure Operations. Aircrew may enter the maneuver on the ground or in the air. If in the air, aircrew will be at a minimum altitude of 500 feet AGL and 70 KIAS and in straight-and-level flight prior to moving the hydraulic selector switch. **(T-3)**

6.6.3. Simulated Single-Engine Emergencies. Aircrew will not reduce a throttle to initiate practice single-engine emergencies lower than 150 feet AGL and 55 KIAS. **(T-3) NOTE**: Practice single-engine emergencies may be initiated below the above listed altitude as long as throttles are left at full open and torque available is limited on both engines versus reducing the throttle on the simulated failed engine. Aircrew will not reduce a throttle on the simulated failed engine unless indicated dual torque is below single-engine torque available. **(T-3)** If unsafe conditions exist, aircrew will use both engines for the go-around or landing, as required. **(T-3)**

6.6.3.1. Aircrew will practice single-engine approaches and landings to a unit approved slide area or hard surface landing area. **(T-3)** The pilot flying will identify a go/no-go point for the approach. **(T-3)**

6.6.3.2. Aircrew will perform a single engine power-available check prior to beginning the approach if the simulated single-engine landing will be performed with one engine at flight idle. **(T-3)**

6.7. Practice Autorotations.

6.7.1. Aircrew will terminate autorotations and initiate a power recovery at the first indication of abnormally high/low rotor revolutions per minute (RPM), excessive sink rate, low airspeed, ineffective flare, or at any time an inadvertent touchdown might occur. **(T-2)**

6.7.2. Aircrew will enter straight ahead and 90-degree autorotations at least 500 feet AGL and 60-100 KIAS. **(T-2)** Aircrew will enter autorotations of 180-degrees or greater at least 800 feet AGL and 60-100 KIAS. **(T-2)**

6.7.3. Aircrew will terminate practice autorotations of 180 degrees or less to a power recovery no lower than 5 feet AGL with a maximum ground speed of 15 knots. **(T-3)** Aircrew will terminate practice autorotations in excess of 180 degrees to a power recovery no lower than 500 feet AGL. **(T-2)**

6.7.4. For the first autorotation during training and currency sorties, the instructor or evaluator pilot will fly a straight-ahead autorotation to evaluate aircraft performance. **(T-2)** During instructor upgrades, the instructor pilot candidate may perform this autorotation.

6.7.5. When performing any autorotation, prior to descending below 150 feet AGL, aircrew must maneuver the aircraft to wings level, have a minimum of 60 KIAS, have rotor RPM within limits, and be aligned within 30 degrees of the landing/recovery heading. **(T-2)** The pilot flying will initiate the flare at approximately 100 to 75 feet AGL with a minimum of 60 KIAS. **(T-2)** If any of these conditions are not met, aircrew will initiate a power recovery immediately. **(T-2)** The wings level requirement does not prohibit minor heading corrections on final.

6.7.6. Wind Requirements. When steady-state winds are less than 15 knots, aircrew will align the aircraft landing within 90 degrees of the wind direction; if steady-state winds are 15 knots or greater, aircrew will align the aircraft landing heading within 45 degrees of the wind direction. **(T-2)**

Chapter 7

INSTRUMENT PROCEDURES

7.1. Climbout/Descent. The pilot not flying will make the following calls during instrument climb out/descent: **(T-3)**

7.1.1. "500 feet below/above" assigned, holding altitude, or approach fix (initial, final, and step down) altitudes. **(T-3)**

7.1.2. "100 feet above/below" assigned, holding altitude, or approach fix (initial, final, and step down) altitudes. **(T-3)**

7.1.3. DELETED.

7.2. Deviations. Any crewmember seeing deviations greater than 10 degrees of heading, 10 knots of airspeed, or 100 feet of altitude will inform the pilot flying. **(T-3)** Deviations from prescribed procedures for the approach being flown will also be announced. **(T-3)**

7.3. Non-Precision Approaches. The pilot not flying will make the following calls during non-precision approaches:

7.3.1. "100 feet above MDA/DDA" (minimum descent altitude/derived decision altitude). **(T-3)**

7.3.2. "Minimums" at MDA. **(T-3)**

7.3.3. "Runway in sight." Call when the runway environment is in sight. Do not call too soon when obstructions to vision (such as fog, haze, low stratus clouds, and other obscurations) are present. **(T-3)**

7.3.4. "Go-around." Call at missed approach point or DDA if the runway environment is not in sight or at any time the aircraft is not in a safe position to land. **(T-3)**

7.4. Precision Approaches. The pilot not flying will make the following calls during precision approaches:

7.4.1. "100 feet above decision altitude" (DA). **(T-3)**

7.4.2. "Continue." Call at DA if only the approach lights can be seen, indicating that the pilot may continue descent to 100 feet above threshold elevation (THRE) or touchdown zone elevation (TDZE) using the approach lights as a reference. **(T-3)**

7.4.3. "Land." Call at DA if sufficient visual reference with the runway environment has been established and the aircraft is in position to execute a safe landing. **(T-3)** If the term "Continue" was used as in **paragraph 7.4.2**, call "Land" at 100 feet above THRE or TDZE when the red termination bars or the red side row bars are visible and identifiable and the aircraft is in a safe position to land. **(T-3)**

7.4.4. "Go-around." Call at DA if the runway environment is not in sight or at any time the aircraft is not in a safe position to land. **(T-3)** If the term "Continue" was used as in **paragraph 7.4.2**, call "Go-around" at 100 feet above THRE or TDZE when the red termination bars or the red side row bars are not visible and identifiable or if the aircraft is not in a safe position to land. **(T-3)**

Chapter 8

MISSION EVENTS

Section 8A—Unprepared Landing Areas

8.1. Unprepared Landing Area Procedures. Operations will be in accordance with the procedures for helicopter landing areas in AFMAN 11-202V3 and DAFMAN 13-217, *Drop Zone, Landing Zone, and Helicopter Landing Zone Operations*. **(T-2)** For all tactical and non-tactical operations to unprepared or unfamiliar landing areas, aircrews must analyze winds, power margin, hazards, and approach and departure plan. **(T-2)** Only one site analysis is required during successive approaches when conditions are equal to or better than previous approaches to the same area.

8.1.1. Prepared surfaces (e.g., hospital helipads) are posted in the DoD Flight Information Publication, the FAA Airport Data and Information Portal, or host-nation equivalents. All other locations are considered unprepared. The aircraft commander is responsible for determining the weight bearing capacity and structural limits (if applicable) of the landing location prior to use.

8.2. High and Low Reconnaissance.

8.2.1. Aircrew will conduct a high and low reconnaissance for all operations to unprepared landing areas other than: **(T-3)**

8.2.1.1. Conducting tactical approaches. **(T-3)**

8.2.1.2. During a mission where, in the judgment of the AC, the accomplishment of the high and low reconnaissance would degrade or dangerously delay mission accomplishment. **(T-3)**

8.2.1.3. Operational Sites. OG/CCs will define what constitutes an operational site and requirements in a local instruction. **(T-3)**

8.2.2. Aircrew will overfly the landing area and begin the high reconnaissance at a minimum of 300 feet above landing site. **(T-3)** Aircrew may descend no lower than 100 feet above highest obstacle (AHO) after the initial overflight if necessary to analyze elements affecting the landing zone (LZ) (winds, terrain, etc). To the maximum extent possible for the high recon, aircrew should maintain above minimum safe single engine airspeed. If safe single engine airspeed is not available, to the maximum extent possible aircrew should maintain at or above minimum rate of descent airspeed. If flying below minimum safe single engine airspeed, or if single engine airspeed is unavailable, the AC will ensure a viable escape route is briefed. **(T-3)**

8.2.3. Aircrew will accomplish a low reconnaissance no lower than 50 feet AHO along the flight path. **(T-3)** Aircrew will maintain at/or above effective translational lift. **(T-3)** At the pilot's discretion, the low reconnaissance may be performed on final approach if OGE power is available.

Section 8B—Low-Level Operations/Tactical Procedures

8.3. General. Tactical operations may consist of low-level flight, normal flight, or a combination of both. Minimum en route altitude will be at or above 50 feet AHO or as directed by MAJCOM. **(T-2)**

8.4. Evasive Maneuver Training. Aircrew will maintain 100 feet AHO during en route evasive maneuver training. **(T-3)** Pilots will make crew advisory calls prior to turns and will clear their flight path throughout maneuvering. **(T-3)** If hovering, this does not preclude turning the tail of the helicopter to mitigate the threat or minor heading changes during takeoff.

Section 8C—Formation Procedures

8.5. Formation Types/Maneuvers. A description of formation types and maneuvers is listed in AFTTP 3-3.H-1.

8.5.1. Safety Considerations. Perform "Knock-It-Off" and "Terminate" calls in accordance with AFI 11-214.

8.5.2. Formation Spacing Requirements.

8.5.2.1. The minimum distance between aircraft in flight is one rotor diameter.

8.5.2.2. The minimum distance between aircraft taxiing is two rotor diameters.

8.5.2.3. Rejoins may be straight ahead or turning. Maximum bank angle for turning rejoins is 20 degrees.

8.6. Dissimilar Formation. Formation flights with dissimilar aircraft are authorized when all participating crewmembers are briefed and are thoroughly familiar with the other aircraft's performance and tactics. Rotor disk separation will be based on the largest rotor disk diameter. **(T-3)**

8.7. Blind Procedures. In the event one or more aircraft loses visual contact within the formation in VMC, flight lead will direct a deconfliction plan using the following procedures:

8.7.1. If any flight member/element calls "Blind," then the other flight member/element will acknowledge with "Visual" and an informative position call or acknowledge with "Blind". **(T-2)** If any member calls "Blind with SA" the flight lead will direct "Continue" with heading or other briefed de-confliction plan. **(T-2)**

8.7.1.1. DELETED.

8.7.1.2. DELETED.

8.7.2. If the other flight member/element acknowledges with "Blind", the flight lead will immediately take action to ensure separation between flight members/elements. **(T-2)** When unable to ensure separation using non-visual means, flight lead will direct an altitude separation of at least 200 feet and specify AGL or MSL. **(T-2)** Climbs/descents through the de-confliction altitude should be avoided if possible.

8.7.2.1. DELETED.

8.7.2.2. DELETED.

8.7.3. If there is no timely acknowledgment of the original "Blind" call, then the flight member/element initiating the call will maneuver away from the last known position of the other flight member/element and alter altitude if unable to ensure aircraft separation by non-visual means. **(T-2)**

8.7.3.1. DELETED.

8.7.3.2. DELETED.

8.7.3.3. DELETED.

8.7.3.4. DELETED.

8.7.4. If visual contact is not regained, the flight lead will take additional positive action to ensure flight path de-confliction within the flight to include a Knock-It-Off if necessary. **(T-2)** Scenario restrictions such as sanctuary altitudes and/or adversary blocks must be considered. **(T-2)**

8.7.5. When using visual cues as the sole means of ensuring aircraft separation, the formation will maintain altitude separation until visual is regained or non-visual separation methods are coordinated. **(T-2)**

8.8. Lost Wingman Procedures. When a wingman goes inadvertent IMC and loses sight of the preceding aircraft, all members of the formation must react quickly and precisely to prevent a midair collision. **(T-3)** In such a case, the aircraft losing visual contact will call, "Formation Call Sign, Position, Lost Wingman." **(T-3)** Formation lead will immediately initiate the breakup by announcing "Formation Call Sign, Execute," the type of breakup (i.e., mountainous or non-mountainous) unless prebriefed, base “heading” (magnetic), base “airspeed”, and base “MSA”. **(T-3)** Formation lead will maintain base parameters and all wingmen will take action based on the base heading, airspeed and MSA. **(T-3)** Wingmen will acknowledge lead's call. Once the formation executes the IMC breakup, lead will announce or brief any changes to magnetic headings, airspeed, and MSA. **(T-3)**

8.8.1. If a wingman calls lost wingman and lead is still VMC and able to ensure terrain/obstacle clearance, lead should stay VMC. Formation lead must still make heading, airspeed, and MSA calls for the wingman executing the lost wingman procedure. **(T-3)**

8.8.2. If a lost wingman call is made within the formation and visual is maintained on the preceding aircraft, maintain visual and formation position. VMC aircraft will remain VMC. **(T-3)** If visual contact is lost or aircraft enter IMC, execute lost wingman procedures for the original position in the formation.

8.8.3. Non-Mountainous Procedures. The following lost wingman procedures are for non-mountainous operations: (**Figure 8.1**).

8.8.3.1. Formation lead maintains base heading, airspeed, and climbs to MSA.

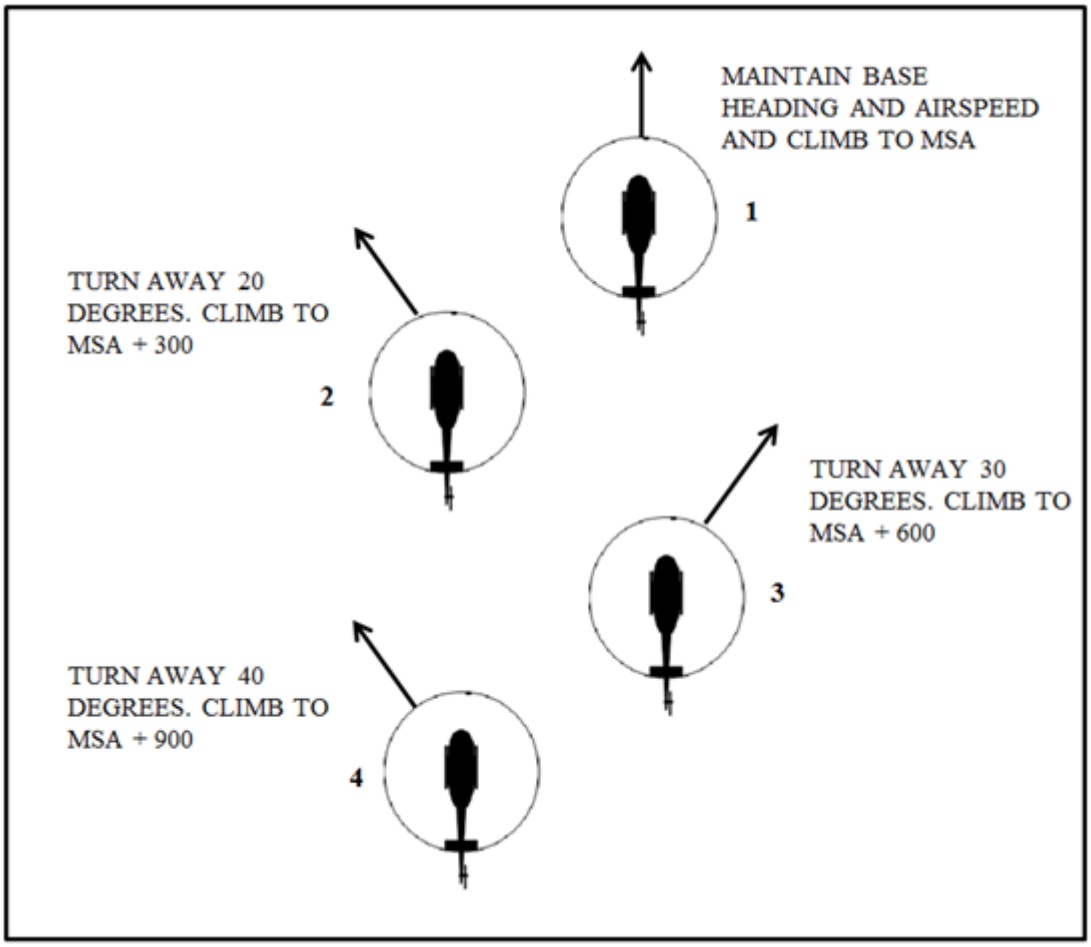
8.8.3.2. Dash 2 will initiate a turn away from the preceding aircraft to a heading of 20 degrees from the base heading and climb to MSA plus 300 feet. **(T-3)**

8.8.3.3. Dash 3 will initiate a turn away from the preceding aircraft to a heading of 30 degrees from the base heading and climb to MSA plus 600 feet. **(T-3)**

8.8.3.4. Dash 4 will initiate a turn away from the preceding aircraft to a heading of 40 degrees from the base heading and climb to MSA plus 900 feet. **(T-3)**

8.8.3.5. Once altitude is reached, maintain offset heading for 30 seconds and then return to the base heading.

Figure 8.1. Non-Mountainous Procedures.



8.8.4. Mountainous Procedures. The following lost wingman procedures are for mountainous operations (**Figure 8.2**).

8.8.4.1. Formation lead will maintain announced base airspeed or higher and climb to MSA. **(T-3)** If possible, lead should accelerate to allow the formation more maneuvering room and to avoid excessively slow airspeeds for wingmen.

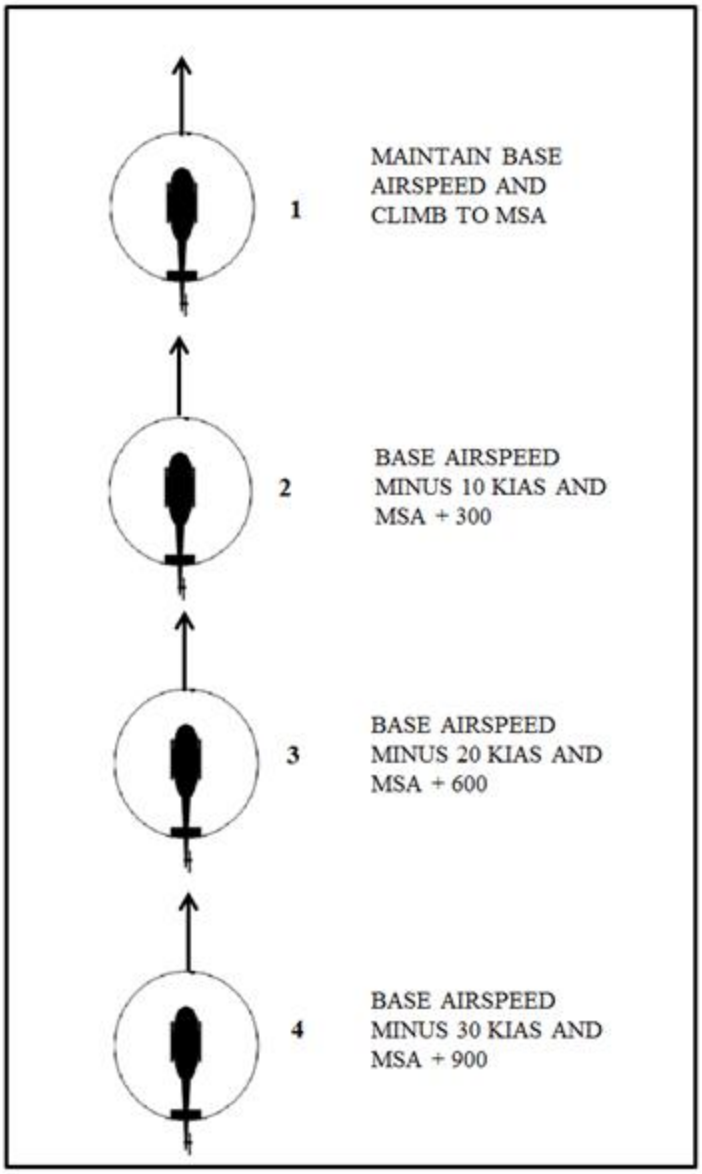
8.8.4.2. Dash 2 will adjust to maintain announced airspeed minus 10 knots, and climb 300 feet above MSA. **(T-3)**

8.8.4.3. Dash 3 will adjust to maintain announced airspeed minus 20 knots, and climb 600 feet above MSA. **(T-3)**

8.8.4.4. Dash 4 will adjust to maintain announced airspeed minus 30 knots, and climb 900 feet above MSA. **(T-3)**

8.8.4.5. Once assigned altitude is reached, maintain heading and assigned airspeed for 3 minutes, then accelerate to the base airspeed.

Figure 8.2. Non-Mountainous Procedures.



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Attachment 1

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AFTO Form 781H, *Aerospace Vehicle Flight Status and Maintenance*

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DD Form 365-4, *Weight And Balance Clearance Form F - Transport/Tactical*

DD Form 1801, *DoD International Flight Plan*

DD Form 1896, *DoD Fuel Identaplate*

Standard Form 44 , *Purchase Order-Invoice-Voucher*

Abbreviations and Acronyms

AA&E—Arms, Ammunition, and Explosives

AC—Aircraft Commander/Advisory Circular

ADI—Attitude Direction Indicator

ADS-B—Automatic Dependent Surveillance Broadcast

AFGSC—Air Force Global Strike Command

AFI—Air Force Instruction

AFMAN—Air Force Manual

AFPD—Air Force Policy Directive

AFRCC—Air Force Rescue Coordination Center

AFTTP—Air Force Tactics, Techniques, and Procedures

AGL—Above Ground Level

AHO—Above Highest Obstacle

AIE—Alternate Insertion or Extraction

AIR—Aviation Into-Plane Reimbursement

APV—Approach with Vertical Guidance

ARFF—Airport Rescue and Fire Fighting

AWBS—Automated Weight and Balance System

AWL—Above Water Level

CC—Commander

CG—Center of Gravity

CUGR—Cargo Utility GPS Receiver

DA—Decision Altitude

DAFI—Department of the Air Force Instruction

DAFMAN—Department of the Air Force Manual

DCO—Document Control Officer

DDA—Derived Decision Altitude

DME—Distance Measuring Equipment

DO—Director of Operations

DoD—Department of Defense

DoDI—Department of Defense Instruction

DoDM—Department of Defense Manual

EFB—Electronic Flight Bag

EP—Evaluator Pilot

FAA—Federal Aviation Administration

FBO—Fixed Base Operator

FCF—Functional Check Flight

FL—Flight Lead

FLIP—Flight Information Publications

FLIR—Forward Looking Infrared

GNSS—Global Navigation Satellite System

GPS—Global Positioning System

HAATS—High-Altitude Army National Guard Aviation Training Site

HEED—Helicopter Emergency Egress Device

HG—Helicopter Group

HTAWS/TCAD—Helicopter Terrain Awareness Warning System/Traffic Collision Avoidance Device

ICS—Intercom Communication System

IDAR—Integrated Data Acquisition Recorder

IFR—Instrument Flight Rules

IMC—Instrument Meteorological Conditions

IP—Instructor Pilot

KGS—Knots Ground Speed

KIAS—Knots Indicated Airspeed

LPU—Life Preserver Unit

LPV—Localizer Performance with Vertical Guidance

LZ—Landing Zone

MAJCOM—Major Command

MDA—Minimum Descent Altitude

MEA—Minimum En Route Altitude

MEDEVAC—Medical Evacuation

MSA—Minimum Safe Altitude

MEP—Mission Essential Personnel

MOCA—Minimum Obstruction Clearance Altitude

MSL—Mean Sea Level

MXG—Maintenance Group

NACO—National Aeronautical Charting Office

NAF—Numbered Air Force

NDB—Nondirectional Beacon

NGA—National Geospatial Intelligence Agency

NM—Nautical Miles

Nr—Rotor Speed

NVG—Night Vision Goggles

OAT—Outside Air Temperature

OG—Operations Group

OGE—Out of Ground Effect

OPR—Office of Primary Responsibility

ORM—Operational Risk Management

OSF—Operational Support Flyer

PA—Pressure Altitude

PBN—Performance Based Navigation

RNAV—Area Navigation

RPM—Revolutions Per Minute

RTF—Radio Telephone

RVR—Runway Visual Range

SA—Situational Awareness

SAR—Search And Rescue

SBAS—Satellite-Based Augmentation System

SF—Standard Form

SQ—Squadron

TACAN—Tactical Air Navigation

TCTO—Time Change Technical Order

TDZE—Touchdown Zone Elevation

THRE—Threshold Elevation

T.O.—Technical Order

TOLD—Takeoff and Landing Data

UHF—Ultra High Frequency

USAF—United States Air Force

VHF—Very High Frequency

VOR—Very High Frequency Omni-directional Range

VFR—Visual Flight Rules

VMC—Visual Meteorological Conditions

VVOD—Vector Vertical Obstruction Data

WG—Wing

Terms

Aircraft Commander (AC)—The aircrew member designated by competent authority as being in command of an aircraft and responsible for its safe operation and accomplishment of the assigned mission. **Note:** For the purposes of this manual, the term Pilot in Command (PIC) may be used interchangeably with Aircraft Commander (AC).

Aircrew Member—An individual, designated on the flight authorization who is an aircrew member as explained in AFPD 11-4, *Aviation Service,* AFMAN 11-402, *Aviation and Parachutist Service*, and is assigned to a position listed in AFI 65-503, *US Air Force Cost and Planning Factors*, and is designated on orders to fulfill specific aeronautical tasks.

Aircrew or Crew—The full complement of military, civilian and contract personnel required to operate a USAF aircraft and complete an assigned mission.

Alert Aircraft—An operationally ready aircraft specifically designated to be launched in accordance with timing factors established for the assigned missions with a ready crew available.

Alternate Loading—A method of restraining passengers without using standard troop seats.

Formation Flight—More than one aircraft which, by prior arrangement between crews, operates as a single aircraft with regard to air traffic control, navigation and position reports.

Hot Refueling—Hot refueling is the transfer of fuel into an aircraft with one or more aircraft engines operating.

Interfly—Interfly is the exchange and/or substitution of aircrew members from separate MAJCOMs to accomplish flying missions.

Intrafly—Intrafly is the exchange and/or substitution of aircrew members from separate units under the same MAJCOM to accomplish flying missions.

Low-Level Operations—Flight conducted below 300 feet AGL or AWL.

May—Indicates an acceptable or suggested means of accomplishment.

Minimum Safe Altitude (MSA)—Altitude designed to provide positive IMC terrain clearance during emergency situations that require leaving the low-level structure.

NOTE—An operating procedure, technique, etc., which is considered essential to emphasize.

Operational Mission—Any mission not designated as a unilateral training mission.

Shall—Indicates a mandatory requirement.

Should—Indicates non-mandatory recommended method of accomplishment.

Tactical Operations—A mission designed to perform the units designed operational capability mission set. These operations may consist of low-level, normal flight, or a combination thereof on training, exercise, or operational missions.

WARNING—Operating procedures, techniques, etc., which may result in personal injury or loss of life if not carefully followed.

Will—Indicates a mandatory requirement.

Attachment 2

EXAMPLE AUTHORIZATION TO REMOVE HUMAN REMAINS

Figure A2.1. Example Authorization to Remove Human Remains.

Example Authorization to Remove Human Remains

1. I ***(name)*** under the authority granted me as ***(position),*** of ***(jurisdiction where position held)***, hereby authorize this ***(xx)*** day of ***(month), (year)*** or hereby did authorize the ***(xx)*** day of ***(month), (year)***, the United States Government to remove any and all human remains located near ***(location)*** and certify I have provided or did provide these representatives with any necessary directions for the proper removal and handling of human remains under the applicable laws and regulations of this jurisdiction.

_____

(Signature)

_____

(Printed Name)

_____

(Date)

2. Verbal permission received per telecom on ***(date)*** by ***(name and position)*** for SAR mission ***(number).***