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SECRETARY OF THE AIR FORCE**

**AIR FORCE MANUAL 11-2TH-1H,  
VOLUME 3**



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***Flying Operations***

***TH-1H HELICOPTER OPERATIONS  
PROCEDURES***

**COMPLIANCE WITH THIS PUBLICATION IS MANDATORY**

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This manual implements Air Force Policy Directive (AFPD) 11-2, *Aircrew Operations*, and Air Force Instruction (AFI) 11-202, Volume 3, *General Flight Rules*. This manual establishes standard operational procedures applicable to all United States Air Force, Air National Guard, and Air Force Reserve aircrew operating TH-1H aircraft. This manual requires the collection and or maintenance of information protected by the Privacy Act of 1974 authorized by Title 37 United States Code, Section 301a, Incentive Pay, Public Law 92-204, Section 715, Appropriations Act for 1973, Public Law 93-570, Appropriations Act for 1974, Public Law 93-294, Aviation Career Incentive Act of 1974, DoDI 7730.67, Aviation Incentive Pays and Bonus Program, Executive Order 9397, Numbering System for Federal Accounts Relating to Individual Persons, November 22, 1943, as amended by Executive Order 13478, and Executive Order 9397, Relating to Federal Agency Use of Social Security Numbers, as amended, November 18, 2008. Ensure that all records created as a result of processes prescribed in this publication are maintained in accordance with Air Force Manual (AFMAN) 33-363, *Management of Records*, and disposed of in accordance with Air Force Records Information Management System Records Disposition Schedule. Refer recommended changes and questions about this publication to the Office of Primary Responsibility (OPR) using the AF Form 847, *Recommendation for Change of Publication*; route AF Forms 847 to the parent Major Command (MAJCOM) through standardization and evaluation (STAN/EVAL) channels, who will forward approved recommendations to the OPR. Field units below MAJCOM level coordinate their supplements with their parent MAJCOM OPR before publication. The authorities to waive wing and or 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 AFI 33-360, *Publications and*

*Forms Management*, for a description of the authorities associated with the Tier numbers. Submit requests for waivers through the chain of command to the appropriate Tier waiver approval authority, or alternately, or alternately, to the requestor’s commander for non-tiered compliance items. 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 Air Force.”

## **SUMMARY OF CHANGES**

This interim change adds MAJCOM guidance for the use of navigation equipment installed on the aircraft IAW AFMAN 11-202, Volume 3, *Flying Operations*.

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## Chapter 1

### GENERAL GUIDANCE

**1.1. Scope.** This manual outlines the procedures applicable to the safe operation of the TH-1H. With the complementary references cited, this manual prescribes standard operational procedures to be used by all aircrew members operating TH-1H aircraft.

**1.2. Roles and Responsibilities.** This manual, in conjunction with other governing directives, prescribes TH-1H procedures under most circumstances, but is not to be used as a substitute for sound judgment or common sense. The pilot in command (PIC) is ultimately responsible for the safe and effective operation of the aircraft. Accomplish specific crew duties in accordance with: T.O. 1H-1(T)H-1, *Flight Manual, USAF Series TH-1H Helicopter*. Due to the unique tasking(s) associated with planning for diverse missions, as well as the fluid dynamics of Alternate Loading/Insertion and Extraction (AIE) procedures, the roles and responsibilities for these requirements are detailed in paragraphs **2.1** and **11.2** respectively.

1.2.1. Commanders. Commanders at their respective Tier levels are responsible for complying with guidance in this Manual and are responsible for providing local operating guidance to supplement the requirements of this Manual in accordance with AFI 33-360.

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

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

1.2.2.2. 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**).

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

1.2.2.4. Charged with keeping the applicable commander informed concerning mission progress and difficulties.

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

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

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

**1.3. Deviations.** Deviations from these procedures require specific approval of the MAJCOM/A3 or equivalent unless an urgent requirement or an aircraft emergency dictates otherwise, in which case the PIC will take the appropriate action to safely recover the aircraft. Units will report all deviations without an approved waiver in accordance with AFI 11-202, Volume 3 (**paragraph 1.2**). (**T-1**).

## Chapter 2

### MISSION PLANNING

**2.1. Mission Planning Duties.** Mission planning and preparation duties are shared jointly by the individual aircrew members based on specific mission requirements.

**2.2. General Procedures.** Sufficient flight planning must be done to ensure safe mission accomplishment. **(T-2).** AFI 11-202, Volume 3, specifies the minimum requirements.

**2.3. Flight Planning Software.** If an electronic flight log is not generated, aircrew will use the AF Form 70, *Pilot's Flight Plan and Flight Log*. **(T-3).**

#### **2.4. Map and Chart Preparation:**

2.4.1. Local Area Maps. Each squadron will maintain a hazards map with the most recent vertical obstruction data updates posted or available for printing using approved electronic software. **(T-3).** All vertical obstructions 100 feet and above will be annotated on the hazards map. **(T-3).** Pilots will plan flights and fly with current maps, including the most recent edition of the squadron hazards map. **(T-3).**

2.4.2. Charts. Flight information publication (FLIP) en route charts or visual flight rules (VFR) sectionals may be used instead of maps on navigational flights within areas adequately covered by these charts.

#### 2.4.3. Low-level Maps:

2.4.3.1. On low-level flights, each aircraft in the flight will carry a current map with the route depicted. **(T-3).** Maps with a scale of 1:250,000 or greater detail are required for low-level operations. **(T-3).**

2.4.3.2. Prepare maps for low-level flights according to MAJCOM guidance and as directed locally. **(T-3).** Pilots will ensure the current vertical obstruction data is depicted on the map and the currency date of the information used is annotated. **(T-3).**

2.4.3.3. All man-made obstacles at or above the planned flight altitude shall be annotated, and the route time and distance tick-marks will ensure positive positional awareness of obstacles within 5 nautical miles (nm) on either side of the planned route of flight. **(T-3).**

2.4.3.4. Annotate all maps with a Minimum Safe Altitude (MSA). **(T-3).** MSA will be computed for each leg of the route by adding 500 feet to the highest obstruction to flight within 5 nm of route centerline to include the aircraft turn radius. **(T-3).**

2.4.3.5. Annotate all maps with an emergency safe altitude (ERAA). **(T-3).** Compute ERAA by adding 1,000 feet (2,000 feet in mountainous terrain as defined in AFI 11-202, Volume 3) to the elevation of the highest obstruction to flight within 22 nm either side of the entire planned route. **(T-3).** The ERAA will be computed for the route and conspicuously annotated on the chart. **(T-3).**

**2.5. Helicopter Landing Zones (HLZ).** Conduct Landing Zone (LZ) surveys in accordance with AFI 13-217, *Drop Zone and Landing Zone Operations*. **(T-3).** Use TH-1H-specific or H-1-series helicopter guidance if specific guidance does not exist.

**2.6. Aircrew Uniforms, Flight Equipment, and Protective Devices.** Wear of flight uniforms, equipment, and protective devices will be in accordance with AFI 36-2903, *Dress and Personal Appearance of Air Force Personnel*, AFI 11-301, Volume 1, *Aircrew Flight Equipment (AFE) Program*, AFMAN 11-202, Volume 1, *Aircrew Training*; local requirements and the following:

2.6.1. Aircrew members will wear identification tags (dog tags) on their person. **(T-2)**.

2.6.2. Any personnel who are required to be in close proximity (within 50 feet) to an operating helicopter require eye and ear protection. **(T-3)**.

2.6.2.1. Use protective goggles, plastic shatter resistant lens glasses or sunglasses, or the helmet visor for eye protection. **(T-3)**. Passengers loading and unloading in prepared areas are encouraged to wear eye protection, but not required.

2.6.2.2. Protective eye wear is not required while utilizing night vision goggles (NVGs).

2.6.3. Survival vests or approved equivalent must be readily available. **(T-3)**. Survival vests will be worn during contingency and water operations. **(T-3)**. The wear or carry of survival vests or approved equivalent will be in accordance with AFI 11-301, Volume 1 and MAJCOM instructions. **(T-3)**.

2.6.4. Overwater aircrew flight equipment (AFE) is not required when overwater flight is limited to short distances during takeoff and landing. When the route of flight is beyond autorotational distance from land, all occupants will wear life preservers, aircrew members will wear approved underwater breathing devices, a life raft will be carried onboard the aircraft, and anti-exposure suits will be worn in accordance with AFI 11-301, Volume 2, *Management and Configuration Requirements for Aircrew Flight Equipment (AFE)* and MAJCOM instructions. **(T-3)**.

2.6.5. 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:

2.6.5.1. Center one light immediately above each cockpit and cabin door. **(T-3)**.

2.6.5.2. Attach one light to each cabin window emergency release handle (when doors are closed). **(T-3)**.

2.6.5.3. Attach one light to the handle of each cockpit door and cargo door (when doors are closed). **(T-3)**.

2.6.5.4. Attach one light to the life raft. **(T-3)**.

## **2.7. Briefing and Debriefing:**

2.7.1. Aircraft commanders and flight leads will ensure all applicable items are briefed utilizing briefing guides located in AFMAN 11-2TH-1HV3 CL-1, *TH-1H helicopter Crew Briefing Guide and Checklists*. **(T-3)**. In addition, the following guidance applies:

2.7.2. All crewmembers will attend the briefing and debriefing unless previously coordinated with the aircraft commanders or flight leads, or with unit supervisors if aircraft commander or flight lead is not immediately available. **(T-3)**. Anyone not attending the flight briefing must receive a briefing on mission events, duties and emergency procedures prior to flight. **(T-3)**.

2.7.3. When dissimilar aircraft are flown in formation, brief flight responsibilities, proper formation position (minimum rotor separation based on the largest rotor diameter), aircraft unique capabilities, tactics, limitations and requirements for each phase of flight. **(T-3)**.

2.7.4. When appropriate, brief an alternate mission for each flight. **(T-3)**. The alternate mission will be less complex and should parallel the primary mission. **(T-3)**.

2.7.5. Mission elements and events may be modified and coordinated airborne as long as flight safety is not compromised. Aircraft commanders and flight leads will ensure changes are acknowledged by all flight members. **(T-3)**.



## Chapter 3

### OPERATING PROCEDURES

**3.1. Crew Complement.** The minimum crew is one pilot, except as specified in the subparagraphs below. During single-pilot missions, flight engineers and flight surgeons may sit in the left front seat when not required in the cabin area. At no time will personnel not authorized per AFI 11-401, *Aviation Management*, manipulate flight controls. **(T-2).**

3.1.1. The minimum crew is two pilots for emergency procedure, night or NVG operations, planned instrument meteorological conditions (IMC), low-level, and formation.

3.1.1.1. Supervisory flyers, student pilots, and other pilots designated on the flight authorization fulfill this requirement, but will be supervised by an instructor pilot. **(T-3).**

3.1.1.2. An instructor pilot at a set of controls will supervise all emergency procedures. **(T-2).**

3.1.2. The minimum crew for syllabus-directed sorties is two student pilots. **(T-3).**

3.1.3. The minimum crew for a functional check flight (FCF) is a pilot and a flight mechanic or flight engineer, or two pilots. **(T-3).**

**3.2. Mission Kits.** Each crewmember will carry electronic and or hardcopy of T.O. 1H-1(T)H-1CL-1, *Pilot's Flight Crew Checklist* and AFMAN 11-2TH-1HV3 CL-1. **(T-3).** All other required publications for flight will be carried in a mission kit. **(T-3).** A full mission kit is not required for FCFs. During FCFs, a copy of T.O. 1H-1(T)H-6CL-1, *Checklist Acceptance and/or Functional Checkflight*, and T.O.1H-1(T)H-6CF-1, *Acceptance and Functional Checkflight Procedures*, are required. **(T-3).**

3.2.1. Mission kits will include:

3.2.1.1. T.O. 1H-1(T)H-1. **(T-3).**

3.2.1.2. AF Form 457, *USAF Hazard Report*. **(T-3).**

3.2.1.3. AF IMT 651, *Hazardous Air Traffic Report (HATR)*. **(T-3).**

3.2.1.4. AFI 11-202, Volume 3. **(T-3).**

3.2.1.5. AFMAN 11-2TH-1H, Volume 3. **(T-3).**

3.2.2. The FLIP for all areas of planned operations:

3.2.2.1. The instrument flight rules (IFR) supplement. **(T-3).**

3.2.2.2. The VFR supplement. **(T-3).**

3.2.2.3. The flight information handbook (FIH). **(T-3).**

3.2.2.4. Appropriate en-route low-altitude charts (one set for each area of operation). **(T-3).**

3.2.2.5. Appropriate low-altitude instrument approach procedures (two for each area of operation). **(T-3).**

3.2.2.6. Two TCNs (Terminal Change Notice) will be included, as applicable. **(T-3).**

3.2.2.7. Appropriate VFR sectional (one set for each area of operation). (T-3).

3.2.2.8. Air Card user guide (cross-country kits only). (T-3).

**3.3. Minimum Essential Aircraft Equipment.** See [Table 3.1](#) for a list of required equipment. The minimum essential aircraft equipment list defines the absolute minimum equipment that must be functional to operate the aircraft in a given condition. If the aircraft commander determines an item is essential for the accomplishment of the mission, the aircraft commander (AC) will designate the item mission essential, and it will be repaired or replaced prior to the aircraft's departure. (T-2).

**Table 3.1. TH-1H Minimum Essential Aircraft Equipment.**

ITEM	A	B	C	D	E
	Required Equipment	Day	Night	IMC <sup>8</sup>	NVG <sup>8</sup>
1	Airspeed Indicator <sup>1</sup>	X	X	X	X
2	Anti-collision Lights and Position Lights <sup>11</sup>	X	X	X	X
3	Attitude Indicator <sup>1</sup>	X	X	X	X
4	Clock or Watch (any position)	X	X	X	X
5	Comm Equipment <sup>2</sup>	X	X	X	X
7	Outside Air Temperature Indication	X	X	X	X
8	Fuel Quantity Indicator	X	X	X	X
9	Heading Indicator <sup>1</sup>	X	X	X	X
10	Landing and Search Light <sup>3</sup>	X	X	X	X
11	Navigation Equipment <sup>7</sup>			X	
12	Pitot Heater <sup>4</sup>	X	X	X	X
13	Cockpit Instrument Lights		X	X	X
14	Altimeter <sup>1</sup>	X	X	X	X
15	Transponder	X	X	X	X
16	Turn and Slip Indicator <sup>1</sup>	X	X	X	X
17	Vertical Velocity Indicator <sup>1</sup>	X	X	X	X
18	Air Data Computer (ADC) <sup>5</sup>	X	X	X	X
19	Multi-Function Display (MFD) <sup>6</sup>	X	X	X	X
20	Standby Instruments <sup>10</sup>		X	X	X
21	Radar Altimeter <sup>9</sup>	X			X

**Notes:**

1. At least one must be operational for day visual meteorological condition (VMC) operations. **(T-3)**. Pilot and copilot MFD indication must be operational for Night, IMC, and NVG operations. **(T-3)**.
2. At least one radio must be operational. **(T-3)**.
3. At least one must be operational. **(T-3)**. If the NVG cover is installed, the landing light must be operational. **(T-3)**.
4. Must be operational for all anticipated flight below 10 degrees Celsius with visible moisture present. **(T-3)**.
5. At least one ADC is required for Day, Night, and NVG Operations. Both ADCs must be operational for IMC operations. **(T-3)**.
6. To accept an aircraft for flight all three MFD's must be operational. **(T-3)**. For a mission already in progress, if one MFD fails, the crew may elect to continue the mission. Two failed MFDs (one pilot's still working) require the flight to return to base. **(T-3)**. (See Note 1)
7. As determined by the aircraft commander.
8. Equipment items 1, 3, 9, and 14 must be operational for both the pilot and copilot stations. **(T-3)**. All pitot static and electrical sources for flight instruments must be operational. **(T-3)**.
9. The radar altimeter is required for low level flight. **(T-3)**.
10. At least one clock and at least one Magnetic Compass must be operational. **(T-3)**.
11. At least one position light must be operational on each side of the aircraft. **(T-3)**.

**3.4. Passengers.** Follow the requirements of DoD Instruction 4515.13, *Air Transportation Eligibility* and AFI 11-401. Passengers will:

- 3.4.1. Be escorted by aircrew or a designated representative when the aircraft is being on- or off- loaded with rotors turning. The aircraft commander or designated representative will brief passengers on procedures to be followed. **(T-3)**.
- 3.4.2. Not occupy a cockpit seat with the engine running unless authorized via a formal orientation request, according to AFI 11-401 and appropriate supplements. **(T-2)**.
- 3.4.3. Receive a passenger briefing in accordance with T.O. 1H-1(T)H-1. **(T-3)**.
- 3.4.4. Be restrained by the safest means possible while still enabling the supported passengers to accomplish their mission. **(T-3)**. PIC will ensure supported forces are given a safety briefing and are familiar with the mission profile and events before the flight. **(T-3)**.
- 3.4.5. When passengers are in the cargo compartment, the cargo doors will remain closed during flight unless a qualified aircrew member is also in the cabin. **(T-3)**.

**3.5. Weather Minimums.**

- 3.5.1. Operational Missions. Will be in accordance with AFI 11-202, Volume 3 and MAJCOM supplements. **(T-2)**.
- 3.5.2. Training Missions:
  - 3.5.2.1. IFR. Will be in accordance with AFI 11-202, Volume 3 and MAJCOM supplements. **(T-2)**.
  - 3.5.2.2. VFR and Special VFR. All training flights require a minimum of 700-foot ceilings and 2 statute miles (SM) visibility. Student cross-country, student solo flights, night, NVG

requires 1,000-foot ceilings and 3 SM visibility. **Note:** VFR weather minimums for training do not apply to hover and air taxi operations at the aerodrome. Hover and taxi training at the aerodrome is authorized if observed weather is less than VFR training minimums. **(T-3).**

3.5.2.3. Surface Wind Limitations. Aircrew will not conduct training missions with surface winds exceeding 30 knots and or a maximum gust spread of 15 knots. **(T-3).**

### **3.6. Fuel Requirements.**

3.6.1. The AIRCARD (aviation credit card) must be aboard the aircraft when off-station refueling is planned or required. **(T-3).**

3.6.2. Aircraft will take off with sufficient fuel for the planned sortie, to include minimum fuel reserve of 250 lbs and alternate fuel, if applicable. **(T-3).** The following definitions and requirements apply to fuel:

3.6.2.1. Crews will plan a minimum of 250 pounds of fuel for a planned approach and missed approach if using visibility-only criteria when filing IFR. **(T-3).**

3.6.2.2. When it becomes apparent the fuel remaining at final touchdown will be less than the requirements indicated in **paragraph 3.6.2**, and flight must be continued, declare “emergency fuel” with the controlling agency in accordance with AFI 11-202, Volume 3. **(T-3).**

### **3.7. Weight and Balance and Take-off and Landing Data (TOLD).**

3.7.1. Verify the canned weight and balance has been calculated and reviewed within the last 180 days. **(T-3).**

3.7.2. Compute a new or corrected DD Form 365-4, *Weight and Balance Clearance Form F - Transport/Tactical*, if the initial takeoff weight changes by more than 500 pounds. **(T-3).** For configuration changes of less than 500 pounds, the aircraft commander will ensure the resulting center of gravity is within limits. **(T-3).**

3.7.3. The same TOLD will suffice for consecutive takeoffs and landings when aircraft gross weight or environmental conditions have not increased by 200 pounds gross weight, 5 degrees Celsius, or 500 feet pressure altitude (PA). **(T-3).**

3.7.4. TOLD will be computed and briefed prior to takeoff. **(T-3).**

### **3.8. Altitude Restrictions.**

3.8.1. Conduct all operations at or above 300 feet above ground level (AGL) except when lower altitudes are required for terminal area operations, low-level training, takeoff, landing and operations in approved areas or routes. **(T-3).**

3.8.2. The minimum altitude for low-level training is 100 feet above highest obstacle (AHO) except when lower altitudes are required for terminal area operations, takeoff, landing, and operations in approved areas, routes, or when specifically allowed by MAJCOM supplement.

### 3.9. Aerospace Vehicle Flight Data Documents

3.9.1. The exceptional release must be signed before flight. **(T-3). Exception:** FCF operations will be IN ACCORDANCE WITH: T.O. 1H-1(T)H-6CL-1, T.O.1H-1(T)H-6CF-1, and T.O. 1-1-300, *Maintenance Operation Checks and Check Flights*. **(T-3).**

3.9.2. When designated maintenance personnel are not available the AC is authorized to sign the exceptional release. See T.O. 00-20-1, *Aerospace Equipment Maintenance Inspection, Documentation, Policies, and Procedures*, for additional guidance.

### 3.10. Seatbelt Use and Restraint Devices.

3.10.1. Occupants seated at a set of controls will fasten seat belts and shoulder harnesses. **(T-3). Exception:** During crew changes and ground operations a minimum of one pilot will be secured via seat belt and shoulder harnesses and will monitor the controls. **(T-3).**

3.10.2. Crewmembers sitting in the center observer seat may fly without shoulder straps if straps hinder their ability to perform aircrew duties. The shoulder harness will be worn during actual and simulated emergency procedures. **(T-3).**

3.10.3. When doors are open during flight, all occupants in the cabin area will wear a seatbelt or gunner's belt. **(T-3).** Occupants using a gunner's belt must be instructed on its use by a qualified instructor. **(T-3).**

3.10.4. When doors are closed during flight, the aircraft commander may direct crewmembers to perform duties in the cabin unrestrained for brief periods.

3.10.5. Aircrew members will notify the AC when performing duties that preclude the use of a seat belt and upon completion of duties. **(T-3).**

3.10.6. During emergency procedures (EP) training, all personnel in the cargo compartment will be in a seat and restrained by a seatbelt. **(T-3).**

**3.11. Aircraft Lighting.** Configure aircraft lighting in accordance with AFI 11-202, Volume 3 and local requirements. **(T-3).** The last aircraft in the formation may carry the anti-collision light for the formation when spacing is less than 500 feet.

### 3.12. Ground Operations.

3.12.1. 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).**

3.12.2. Personnel will not enter or exit the rotor system while blades are turning unless signaled safe to do so from the pilot on the controls, flight engineer, or designated representative. **(T-3).**

3.12.3. Rotor-turning crew changes are authorized. The new crew will review and make changes, if necessary, to aircraft forms, weight and balance, and TOLD prior to takeoff in accordance with this AFMAN. **(T-3).**

### 3.13. Power Definitions, Computations and Analysis.

3.13.1. Power available is the charted power (or actual power if a power check was performed) the helicopter is capable of producing for the given PA and outside air temperature (OAT).

3.13.2. Power required is the charted power for the operation based on the aircraft weight, OAT and PA at the site. Consider the following when determining power required:

3.13.2.1. Power required for take-off is the power sufficient to clear obstacles by a minimum of 10 feet. Consider ground effect, distance to the obstacle, and height of the obstacle. For training, this will be no less than 5-foot hover power. **(T-3)**.

3.13.2.2. Power required for landing is the power required to hover over the point of intended landing at the intended hover height. For training, this will be no less than 5-foot hover power. **(T-3)**.

3.13.2.3. Power required for landing to a pinnacle (smaller than 2 rotor diameters) is out of ground effect (OGE). **(T-3)**.

3.13.3. Power margin is the difference between power-available and power required. For multiple operations to the same LZ, under the same conditions, consider the smallest power margin for power analysis.

3.13.4. Ensure power is sufficient for the approach, landing and departure. Factor in changes to aircraft loading and configuration in the LZ when making this analysis. **(T-3)**.

3.13.4.1. If power margin is less than 10%, a second crewmember will re-compute TOLD to verify power computations. **(T-3)**.

3.13.4.2. If power required exceeds the power available, or the crew determines a suitable margin is insufficient to justify the risk, lighten the helicopter, locate a more suitable landing site, or abort the mission. **(T-3)**.

### **3.14. Crew Procedures (General).**

3.14.1. The pilot not flying (PNF) or other crewmember will announce heading deviations of 10 degrees, airspeed deviations of 10 knots, altitude deviations exceeding 100 feet as well as deviations from the prescribed procedures being flown. **(T-3)**. Any crewmember who sees a deviation causing a potential hazard, conflict, or contact with terrain or obstructions will immediately notify the pilot flying (PF) regardless of the magnitude. **(T-3)**.

3.14.2. When VMC approach calls are mandated or directed by the PF:

3.14.2.1. The PF will inform the crew when on final approach heading by stating "ON FINAL" and when beginning the approach by stating "ON APPROACH." **(T-3)**.

3.14.2.2. The PNF will call altitude, airspeed or groundspeed, and at the PF's discretion, descent and power applied. Example: "250 FEET, 40 KNOTS (or knots ground), SINK 500, TORQUE 30%." **(T-3)**. The PNF will make altitude calls in 100-foot increments when above 300 feet above site elevation (ASE), and 50-foot increments when below 300 feet ASE. **(T-3)**. When qualified scanners are on board, the PNF will transfer advisory calls with the command "DOOR" between 100 and 50 feet AGL. **(T-3)**.

3.14.2.3. The scanners will provide terrain or hazard clearance inputs after each PNF advisory call. **(T-3)**. When the PNF states "DOOR", the scanners will become primary crewmembers for advisory calls. **(T-3)**.

### **3.15. Prohibited Maneuvers.**

3.15.1. The following procedures and maneuvers are prohibited:

- 3.15.2. Actual engine shutdown in flight (except for emergency) **(T-2)**.
- 3.15.3. Intentional flight into blade stall **(T-2)**.
- 3.15.4. Deliberately entering vortex ring state **(T-2)**.
- 3.15.5. Maneuvers in which power required will exceed power available **(T-2)**.
- 3.15.6. Pulling circuit breakers to simulate emergency procedures **(T-2)**.

### **3.16. Training Restrictions.**

- 3.16.1. Unusual Attitude Recovery Procedures Training:
  - 3.16.1.1. Conduct only during day, VMC, and above 1,000 feet AGL. **(T-3)**.
  - 3.16.1.2. Maximum Bank angle is 30 degrees. Maximum nose high attitude is 20 degrees. Maximum nose low attitude is 10 degrees. **(T-3)**.
  - 3.16.1.3. Do not conduct unusual attitude recovery procedures training with passengers on board. **(T-3)**.
- 3.16.2. Emergency Procedures Training:
  - 3.16.2.1. Conduct only during day, VMC. **(T-3)**.
  - 3.16.2.2. Crash and fire rescue must be available. **(T-3)**.
  - 3.16.2.3. Conduct EP training with the following wind restrictions:
    - 3.16.2.3.1. Wind speeds or gusts up to and including 15 knots, within 90 degrees of landing direction. **(T-3)**.
    - 3.16.2.3.2. Wind speeds or gusts above 15 knots, within 45 degrees of landing direction. **(T-3)**.
    - 3.16.2.3.3. Hovering maneuvers will be conducted within 20 degrees of wind direction. **(T-3)**.
    - 3.16.2.3.4. A readily discernible wind detection device or wind reporting must be available. **(T-3)**.
- 3.16.3. Conduct slide landings, and autorotations (other than hovering autorotations), only to slide landing areas. **(T-3)**.
  - 3.16.3.1. Hard surface areas such as runways, taxiways, ramp areas and stagefields may be used for slide landings, including autorotations, if free of obstacles and hazards. Other local slide landing training areas designated by the unit with minimum dimensions in accordance with UFC 3-260-01, *Airfield and Heliport Planning and Design* (<https://www.wbdg.org/ffc/dod/unified-facilities-criteria-ufc/ufc-3-260-01>) may be used for emergency and normal procedure maneuvers.
  - 3.16.3.2. Do not plan to touchdown in the last 500 feet of the landing area when conducting slide landings or touchdown autorotations. **(T-3)**.

## Chapter 4

### CONTACT AND EMERGENCY TRAINING PROCEDURES

#### 4.1. Contact Maneuvers.

##### 4.1.1. Takeoffs:

4.1.1.1. Normal Takeoff: Initiate from the ground or hover using a target torque value of 5-foot hover power plus 5-10 percent. **(T-3)**. Minimize time in the “AVOID” area of the height-velocity diagram. See T.O. 1H-1(T)H-1 for diagram. Terminate the maneuver when reaching 70 knots indicated airspeed (KIAS). **(T-3)**.

4.1.1.2. Maximum Performance Takeoff. Initiate from the ground or 5-foot hover using a target torque value of 5-foot hover power plus 10-15 percent. **(T-3)**. Simulate a 100-foot obstacle. Terminate the maneuver when clear of the simulated obstacle and reaching 70 KIAS. **(T-3)**.

4.1.1.3. Marginal Power Takeoff. Initiate from the ground or hover using a target torque value of 5-foot hover power. **(T-3)**. Simulate a 50-foot obstacle. Terminate the maneuver when clear of the simulated obstacle and reaching 50 KIAS. **(T-3)**.

4.1.1.4. Slide Takeoff. Initiate from the ground using a target torque value of 5% below 5-foot hover power. **(T-3)**. Terminate the maneuver when reaching 50 KIAS. **(T-3)**.

4.1.2. Traffic Pattern. Comply with appropriate local traffic pattern guidance. **(T-3)**. Otherwise, downwind leg is 500 feet AGL and 90 KIAS and base is 300 feet AGL and 70 KIAS. **(T-3)**.

##### 4.1.3. Approaches:

4.1.3.1. Normal Approach. Initiate from 300 feet AGL and 70 KIAS using a 30 degree apparent angle. **(T-3)**. Terminate on the ground or in a hover. **(T-3)**.

4.1.3.2. Shallow Approach. Initiate from 300 feet AGL and 70 KIAS using a 10 degree apparent angle. **(T-3)**. Terminate on the ground or in a hover. **(T-3)**.

4.1.3.3. Steep Approach. Initiate from 300 feet AGL, approximately 30 knots ground speed, and a 45 degree apparent angle. **(T-3)**. Terminate on the ground or in a hover. **(T-3)**.

4.1.3.4. Slide Landing. For approaches terminating to a slide landing, maintain directional control with pedals. **(T-3)**. Maximum touchdown speed is 50 knots ground speed with no lateral drift. **(T-3)**.

#### 4.2. Emergency Procedures:

4.2.1. The instructor pilot (IP) or IP candidate will fly an autorotation prior to performing subsequent autorotations to evaluate aircraft performance. **(T-3)**.

##### 4.2.2. Standard Autorotation.

4.2.2.1. Minimum entry altitude is 500-feet AGL. **(T-3)**.

4.2.2.2. Entry airspeed must be between 70 and 100 KIAS. **(T-3)**.



4.2.2.3. Execute the flare between 100 and 75 feet. **(T-3)**. The aircraft must be in a safe position to land, airspeed must be a minimum of 70 KIAS, revolutions per minute (RPM) must be in the normal operating range, and sink rate must be under control (less than 3000 feet per minute (fpm) to execute the flare. **(T-3)**. Otherwise, perform a power recovery. **(T-3)**.

4.2.2.4. At approximately 15 feet AGL, apply sufficient collective to arrest the rate of descent. **(T-3)**. Adjust the cyclic to attain a landing attitude prior to touchdown while increasing collective pitch to cushion the landing. **(T-3)**. Touchdown between 5 and 25 knots groundspeed. **(T-3)**.

4.2.2.5. If planning to terminate the maneuver with a power recovery, apply throttle after initiating the flare. **(T-3)**. Terminate no lower than 5 feet and groundspeed between 0 and 15 knots. **(T-3)**.

#### 4.2.3. 180-degree Autorotation

4.2.3.1. Minimum entry altitude is 800 feet AGL. **(T-3)**.

4.2.3.2. Entry airspeed must be between 70 and 100 KIAS. **(T-3)**.

4.2.3.3. At no less than 150 feet AGL, the aircraft must be wings-level, aligned with the landing direction and in a safe position to land, airspeed must be a minimum of 70 KIAS, rotor RPM must be in the normal operating range, and sink rate must be under control (less than 3000 fpm). **(T-3)**. Otherwise, perform a power recovery. **(T-3)**. Once these parameters have been satisfied, continue the same as a standard autorotation. **(T-3)**.

#### 4.2.4. Low-level Autorotation

4.2.4.1. Entry altitude will be a minimum of 100-feet AGL or 50 feet AHO (whichever is higher). **(T-3)**.

4.2.4.2. Entry airspeed must be between 70 and 100 KIAS with cruise torque applied. **(T-3)**.

#### 4.2.5. Simulated Forced Landing (SFL) Training from Altitude.

4.2.5.1. SFLs include simulated emergencies requiring off airport landings, e.g. simulated engine failure, system emergencies, and other situations requiring the crew to land as soon as possible.

4.2.5.2. Minimum altitude to initiate a SFL is 500 feet AGL. **(T-3)**.

4.2.5.3. Airspeed to initiate an SFL must be between 70 and 100 KIAS. **(T-3)**.

4.2.5.4. Begin a power recovery no lower than 350 feet AGL. **(T-3)**. Establish a normal climb no slower than 60 KIAS and no lower than 200 feet AGL. **(T-3)**.

4.2.5.5. If established in a pattern with clearance to land, this maneuver may be initiated with intent to perform the maneuver to a touchdown or to terminate the autorotation with a power recovery. If standard or 180-degree autorotation parameters (as applicable) are met, continue using the same criteria for those maneuvers. **(T-3)**.

4.2.6. Simulated Hydraulic System Malfunction. Prior to moving the hydraulic control switch to the off position, the aircraft must be:

- 4.2.6.1. Straight and level. **(T-3)**.
- 4.2.6.2. At a minimum of 300 feet AGL. **(T-3)**.
- 4.2.6.3. At a minimum airspeed of 70 KIAS. **(T-3)**.
- 4.2.7. Simulated Fixed Pedal Approach.
  - 4.2.7.1. Minimum altitude to initiate a simulated fixed pedal is 300 feet AGL. **(T-3)**.
  - 4.2.7.2. Minimum airspeed to initiate a simulated fixed pedal is 70 KIAS. **(T-3)**.
  - 4.2.7.3. Maximum heading displacement from coordinated flight is 10 degrees. The maximum displacement from landing heading is 20 degrees. **(T-3)**.
- 4.2.8. Hovering Autorotation and SFL at a Hover.
  - 4.2.8.1. SFL at a hover and hovering autorotations will only be initiated at normal hover taxi altitudes and groundspeeds. **(T-3)**.
- 4.2.9. Emergency Governor Operations (Hovering only).
  - 4.2.9.1. Entry parameters are aircraft on the ground with the throttle at idle. **(T-3)**.
  - 4.2.9.2. Adjust throttle and collective to hold rotor speed (Nr) and power turbine speed (Nf) in limits at a normal 5-foot hover while executing 90 degree pedal turns (one each direction from entry heading.) **(T-3)**.

## Chapter 5

### INSTRUMENT PROCEDURES

**5.1. Instrument Cockpit Check.** Complete an instrument cockpit check before takeoff if expecting IMC during flight. (T-3). An IFR-certified global positioning system (GPS) with available Receiver Autonomous Integrity Monitoring (RAIM) and current database card may be used to verify equipment accuracy in lieu of a ground checkpoint.

**5.2. Advisory Calls:** Mandatory altitude calls for the PNF during IFR (and or practice instrument procedures) include:

5.2.1. Climb out or Descent. Calls will be at 500 and 100 feet below or above assigned altitude and 500 and 100 feet below or above initial approach fix altitude or holding altitude. (T-3).

5.2.2. Nonprecision Approaches. Call “one hundred feet above minimums,” “minimums” at minimum descent altitude (MDA), and “runway in sight.” (T-3). Call “go-around” at the missed approach point if the runway environment is not in sight. (T-3).

5.2.3. Precision Approaches. Call “one hundred feet above” when one hundred feet above decision altitude (DA). (T-3). Then, if the runway environment is in sight and the aircraft is in a position for a normal landing, call “land” at decision height. (T-3). Otherwise, call “go-around.” (T-3).

**5.3. TH-1H Standard Equipment.** GPS (FreeFlight Model 2101 I/O Approach Plus GPS) is approved for IFR enroute, terminal, and non-precision approach navigation to the LNAV MDA line of minima. The navigation system has been installed and certified in accordance with FAA requirements. Aircrew will not file a flight plan, or accept an IFR clearance that does not comply with the following guidance (T-2):

5.3.1. GPS IFR operations without a current, valid navigational database are not authorized.

5.3.2. GPS NOTAMS must be checked if intending to fly a GPS Departure Procedure or Instrument Approach Procedure. Satellites that will become unavailable during the flight should be manually deselected to ensure an accurate predictive Receiver Autonomous Integrity Monitoring (RAIM) check can be accomplished.

5.3.3. Aircrew will ensure RAIM availability prior to commencing the GPS procedure. If approach RAIM is not available, then a GPS IAP shall not be flown.

5.3.4. Aircrew comply with AFMAN 11-202, Volume 3, considerations, to included alternates, for non-SBAS-Equipped without Fault Detection-Exclusion.

**5.4. Flight Planning.** For flight plan purposes, the TH-1H has the below equipment. Ensure the appropriate blocks of the DD Form 1801 are annotated in accordance with General Planning (GP) (T-3).

5.4.1. Navigational equipment: S – Standard, D – DME, F – ADF, G – GNSS, R – PBN Approved, T – TACAN, U – UHF RTF

5.4.2. Surveillance Categories: C – Mode A and C, U1 – ADS-B “out” capability using UAT (if modified by TCTO 1H-1(Y)H-548)

5.4.3. RNAV and RNP capabilities (PBN/): B2 – RNAV 5 GNSS, S1 – RNP APCH.  
Surveillance Capabilities (SUR/): 282B – compliant with RTCA DO-282B.

## Chapter 6

### UNPREPARED LANDING SITE PROCEDURES

**6.1. High Reconnaissance.** Minimum altitude is 300' AGL, but no less than 100' AHO. Minimum airspeed is 50 KIAS. **(T-3)**. Use the high reconnaissance to evaluate the following items before landing:

6.1.1. Environmental Conditions – Consider elevation, PA and OAT at the site. Determine wind velocity and the potential for turbulence, updrafts, downdrafts, and or null areas that may impact aircraft performance. **(T-3)**.

6.1.2. Hazards – consider significant obstacles, suitability of the site (size, shape, slopes, etc.) and the potential for blowing debris (brownout or whiteout). **(T-3)**.

6.1.3. Approach and Departure Plan – Brief the approach and departure path, escape route (if different than planned departure path), touchdown point (or hover point and hover height), and go and no-go point. **(T-3)**.

6.1.4. Power – For the elevation, the PA and the OAT at the site, determine power available, power required and the power margin for the operation briefed as required in the [paragraph 6.1.3](#). **(T-3)**.

**6.2. Low Reconnaissance.** Minimum altitude is 50 feet AHO. **(T-3)**. Minimum airspeed is no slower than effective translational lift. **(T-3)**. Use the low reconnaissance to assess aircraft performance and handling while flying the approach and departure route. **(T-3)**. Confirm the items evaluated during the high reconnaissance and confirm the touchdown or hover point. **(T-3)**. The low reconnaissance may be performed on final approach if OGE hover power is available.

**6.3. Landing Procedures.** VMC approach calls are mandatory. **(T-3)**. See [paragraph 3.14.2](#). Whenever horizontal rotor clearance is 25 feet or less, crewmembers will announce the clock position relative to the nose of the aircraft, and the estimated distance of the obstacle. **(T-3)**. Example: “tree, nine o’clock, 20 feet.” **(T-3)**.

## Chapter 7

### LOW-LEVEL FLIGHT PROCEDURES

**7.1. General.** Flight below 300 feet AGL is considered low-level flying.

**7.2. Low-Level Flight Areas.** Low-level training flights must be conducted in surveyed low-level flight areas. (T-3). The area or route will have defined boundaries. Prepare maps in accordance with [paragraph 2.4.3](#) and complete extensive map study of the selected routes and areas. (T-3).

**7.3. Terminal Operations.** Conduct a study of the terminal area during the preflight briefing. (T-3). Cover all the elements required for an unprepared landing site high and low reconnaissance. (T-3). The products used for the study will be of such scale and quality that an effective review can be accomplished. (T-3).

**7.4. Landing Procedures.** VMC approach calls are mandatory. (T-3). See [paragraph 3.14.2](#). Whenever horizontal rotor clearance is 25 feet or less, crewmembers will announce the clock position relative to the nose of the aircraft, and the estimated distance of the obstacle. (T-3). Example: “tree, nine o’clock, 20 feet.” (T-3).

## Chapter 8

### FORMATION PROCEDURES

**8.1. Responsibilities.** Every flight member has specific responsibilities that directly affect the safety and mission of the entire formation, as follows:

8.1.1. Flight Lead (Mission Commander). The individual who is responsible for execution of the mission. This individual is identified by the flight authorizing official. Flight lead will perform or delegate the following tasks appropriately:

8.1.1.1. Plan, organize, and brief the mission. **(T-3).**

8.1.1.2. Develop clear and measurable mission objectives. **(T-3).**

8.1.1.3. Coordinate with supporting or supported forces for the mission. **(T-3).**

8.1.1.4. Upon mission completion, debrief the mission and evaluate accomplishment of objectives. **(T-3).**

8.1.2. Formation Lead (Lead Aircraft). Lead is responsible for:

8.1.2.1. Directing radio channel changes. **(T-3).**

8.1.2.2. Making radio calls. **(T-3).**

8.1.2.3. Navigating. **(T-3).**

8.1.2.4. Ensuring formation clearance from other aircraft and hazards. **(T-3).**

8.1.2.5. Directing all formation changes. **(T-3).**

8.1.3. Wingman. The wingman is responsible for:

8.1.3.1. Verifying the accuracy of the mission planning. **(T-3).**

8.1.3.2. Being prepared to assume responsibilities as lead. **(T-3).**

8.1.3.3. Maintaining position in the formation and advising lead when it is necessary to deviate from any directed position. **(T-3).**

8.1.3.4. Acknowledging radio channel changes by position prior to initiating the action. **(T-3).**

8.1.3.5. Navigating and ensuring terrain or obstacle clearance independent of lead. **(T-3).**

8.1.3.6. Notifying lead if visual contact with formation aircraft is lost, flying safety is jeopardized, or radio failure occurs. **(T-3).**

8.1.3.7. Advising lead any time a significant deviation occurs that may jeopardize mission accomplishment. **(T-3).**

### **8.2. Safety Considerations.**

8.2.1. Break Out. Wingmen must break out of formation when directed by lead, when unable to maintain sight of lead or the preceding aircraft, when unable to remain in formation without crossing under or in front of lead or the preceding aircraft, or anytime their presence constitutes a hazard to the formation. **(T-3).**

8.2.2. “Knock-It-Off” and Terminate. Aircrew will accomplish these in accordance with AFI 11-214, *Air Operations Rules and Procedures*. (T-3).

**8.3. Formation Taxi.** The minimum taxi spacing is 100 feet of spacing from the main rotor to the tail rotor. (T-3).

**8.4. Formation Takeoffs.**

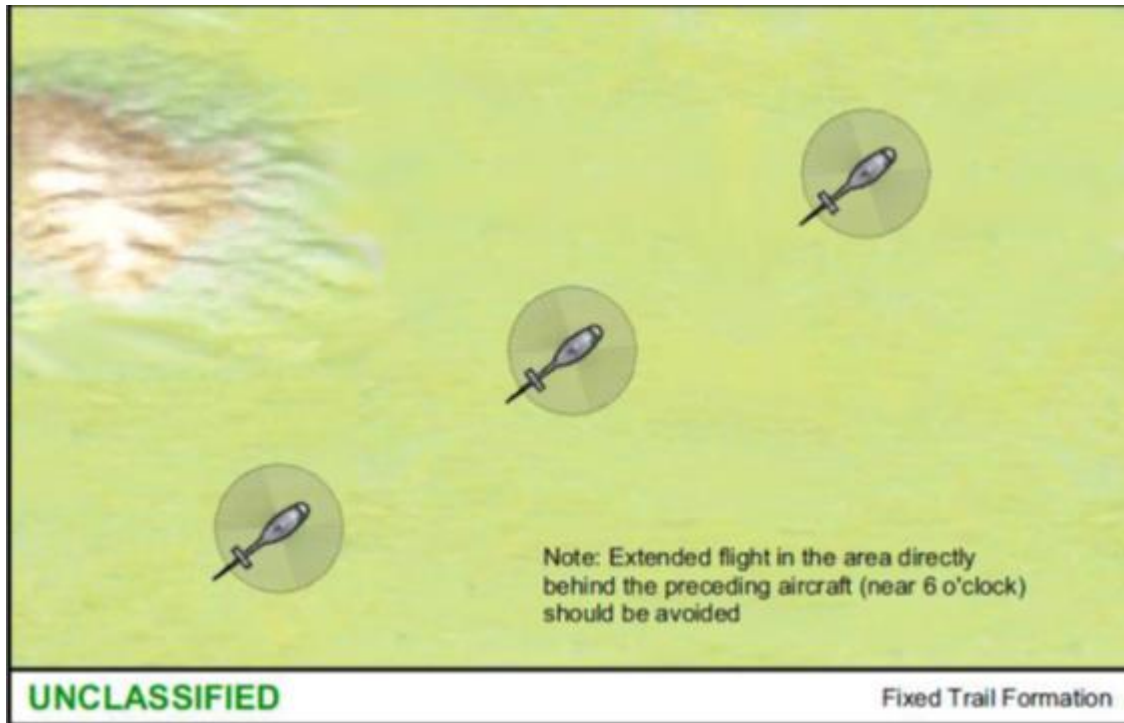
8.4.1. Wing takeoff. Wingmen takeoff simultaneously with formation lead while maintaining position within the formation. (T-3).

8.4.2. Delayed takeoff. Wingmen delay takeoff for briefed or announced time interval from the preceding aircraft. Formation lead must establish takeoff interval, rejoin instructions, and type of formation. (T-3).

**8.5. Types of Formation.** The minimum separation between the closest portions of any two helicopters in any formation is 1 rotor diameter. (T-3).

8.5.1. Fixed Trail. Flown at 1-3 rotor diameter (RD) at the 6 o’clock position. Limit maneuvers to those necessary for landing alignment in the LZ. (T-3).

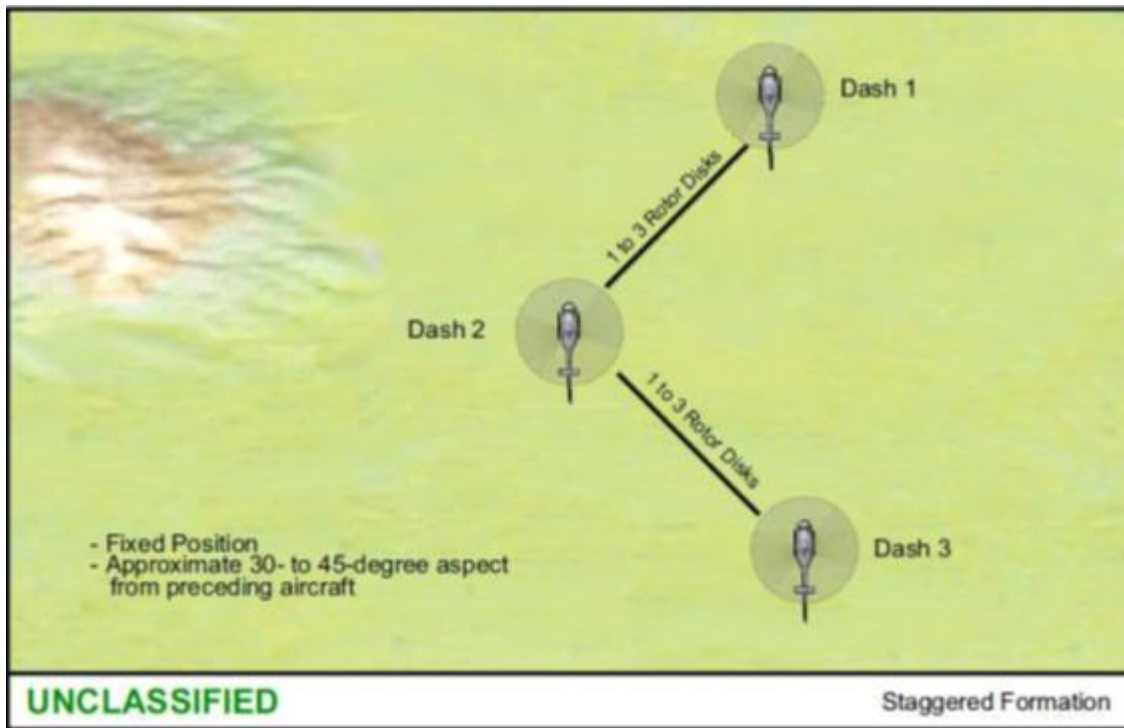
**Figure 8.1. Fixed Trail Formation.**



8.5.2. Staggered Formation (Right or Left). Flown at 1-3 RD from the 30-45 degree aspect. Chalk 2 will set the spacing and aspect. (T-3). Subsequent wingmen alternate stagger.

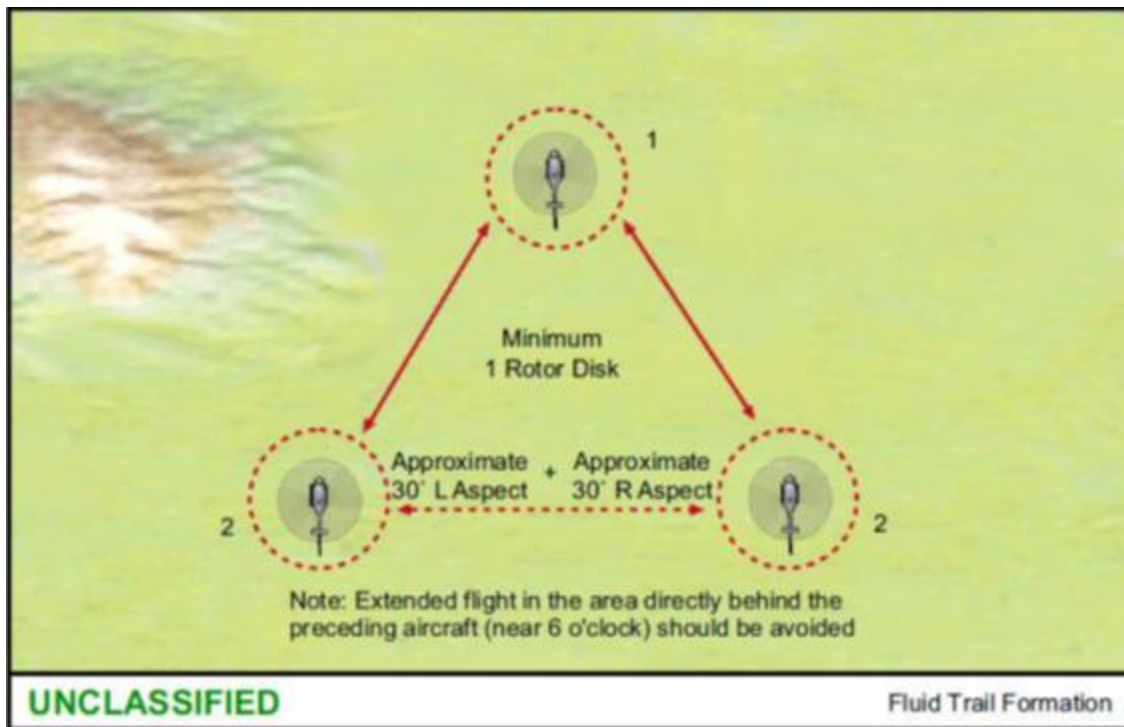


Figure 8.2. *Staggered Formation.*



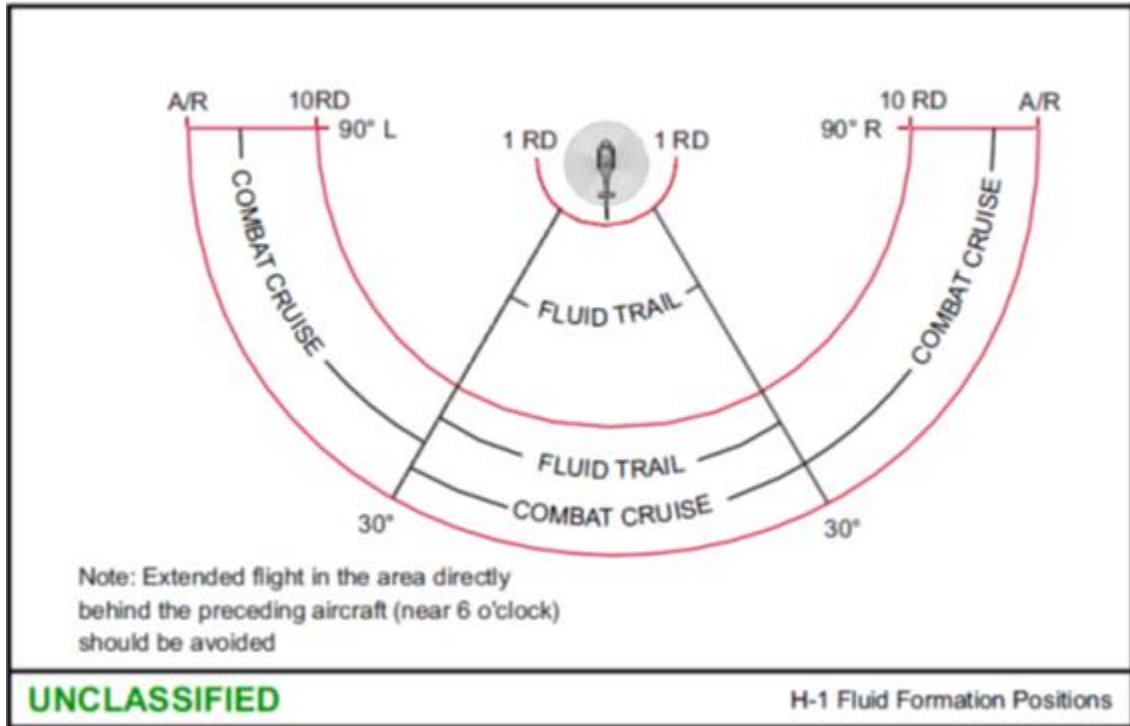
8.5.3. Fluid Trail Formation. Flown 3-10 RD. Maintain position within a 30-degree aspect left or right of lead. (T-3).

Figure 8.3. *Fluid Trail Formation.*

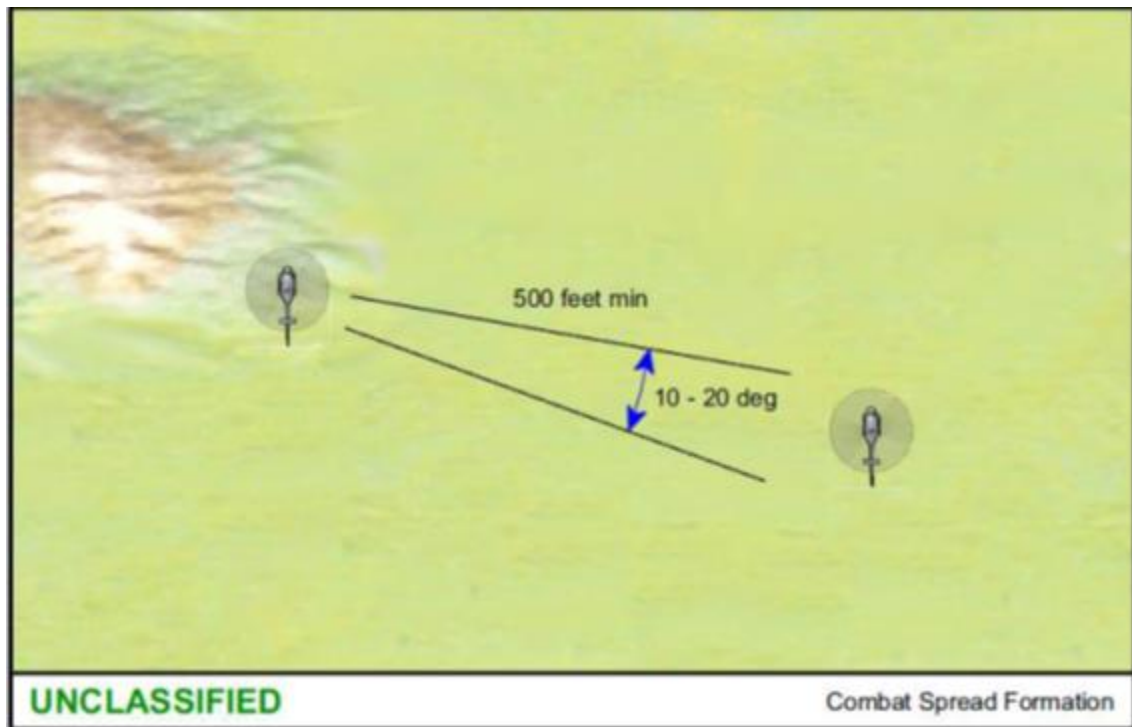


8.5.4. Combat Cruise Formation. Minimum separation is 10 RD between all aircraft. (T-3). Wingmen have the ability to maneuver behind the preceding aircraft's 3 and or 9 line.

**Figure 8.4. Fluid Formation Positions.**



8.5.5. Combat Spread Formation. This is a subset of Combat Cruise. Wingmen will maintain 10 to 20 degrees behind preceding aircraft's 3 and or 9 line. (T-3).

**Figure 8.5. Combat Spread Formation.**

**8.6. Lead Change Procedures.** Formation lead changes require an unmistakable transfer of responsibilities from one flight member to another. Lead changes may occur in flight or on the ground.

8.6.1. When conducted on the ground, aircraft may reposition for a wing takeoff, or wingmen may delay take off sufficiently and assume formation position on the climb out. When the latter procedure is used, the aircraft taking off first must ensure sufficient clearance (minimum of 1 RD) until in front of the formation. **(T-3)**.

8.6.2. When conducted in flight, lead will direct the lead change (i.e., “BLUE 60 FLIGHT, EXECUTE LEAD CHANGE”) and maneuver clear of the formation (minimum of 1 RD) to take up the last chalk position. **(T-3)**. Chalk 2, when approaching formation lead’s 3 and or 9 line will state “ABEAM” indicating ready to assume formation lead. **(T-3)**. Formation lead, when ready to relinquish formation lead, will state “VISUAL.” **(T-3)**. The new formation lead states “ASSUMING LEAD.” **(T-3)**. The aircraft that relinquished formation lead will take up position and spacing as the last chalk position. **(T-3)**. Subsequent aircraft will adjust position and spacing appropriate for the type of formation. **(T-3)**.

8.6.3. Light signals or hand signals may be used in lieu of radio procedures provided an unmistakable transfer of flight member responsibility is established.

**8.7. VMC Blind.** When a wingman loses sight of the preceding aircraft and the crew is unable to positively maintain position and spacing, wingman must report “BLIND” to formation lead. **(T-3)**. The wingman will breakout to ensure sufficient spacing, (see [paragraph 8.2.1](#)). **(T-3)**. Formation lead will take immediate action to ensure separation is maintained. **(T-3)**. Once wingmen have acquired visual contact with formation lead, the formation lead may direct a rejoin.

**8.8. Lost Wingman.** Lost wingman occurs when a wingman loses sight of the preceding aircraft due to IMC. When IMC is encountered, and break up procedures must be initiated, the aircraft losing visual contact will transmit flight call sign, formation position (or individual call sign), and “LOST WINGMAN”. (T-3). Lead will immediately initiate a breakup by transmitting flight call sign, “EXECUTE”, type of breakup (mountainous or non-mountainous), base heading (mag), airspeed, and MSA appropriate for area. (T-3). If any aircraft remain VMC or acquire VMC during lost wingman procedures, they will remain VMC if possible. (T-3).

8.8.1. Mountainous Lost Wingman Procedures. Formation lead will fly base heading at base airspeed and climb to MSA. Wingman will:

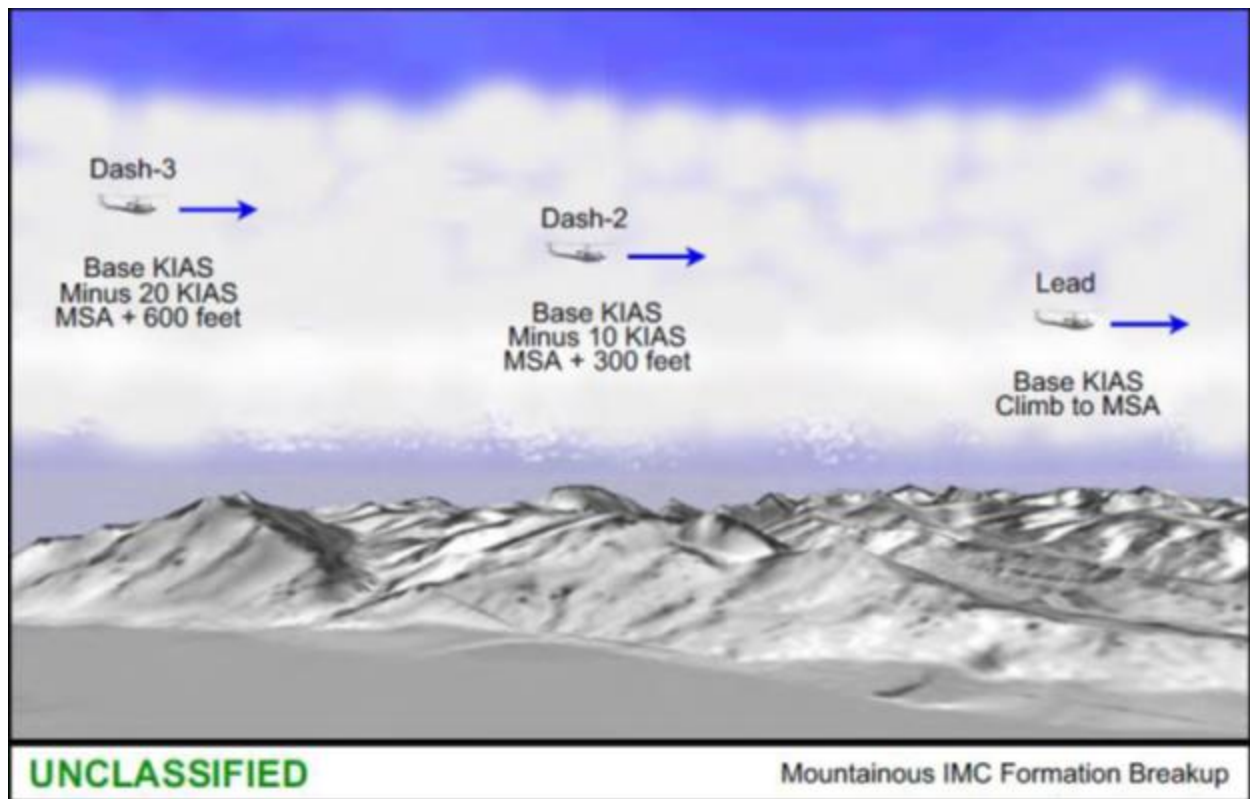
8.8.1.1. Heading: All wingman will fly base heading. (T-3).

8.8.1.2. Airspeed: Wingman will fly 10 knots slower than the preceding aircraft. (T-3).

8.8.1.3. Altitude: Wingman will initiate a 500 fpm climb to an altitude 300 feet above the preceding aircraft. (T-3).

8.8.1.4. Upon reaching the assigned altitude, wingman will fly assigned airspeed for 3 minutes and then resume base airspeed. (T-3).

**Figure 8.6. Mountainous IMC Formation Breakup.**



8.8.2. Non-mountainous Lost Wingman Procedures. Formation lead will fly base heading at base airspeed and climb to MSA. (T-3). Wingman will:

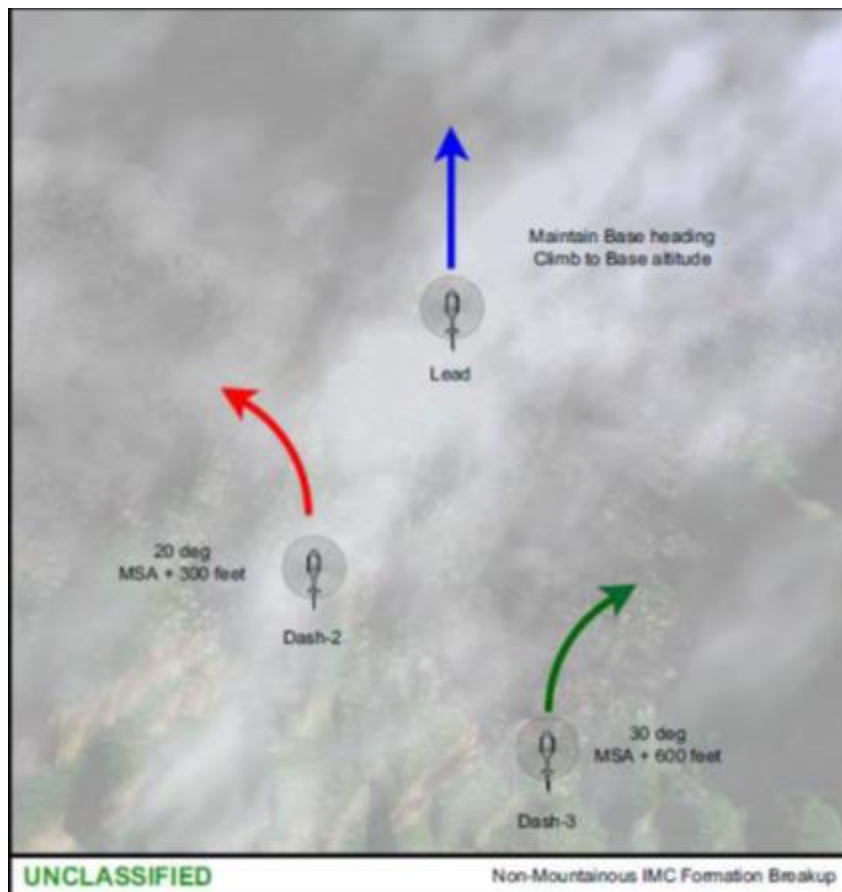
8.8.2.1. Heading: All wingman will turn away from the formation to a heading offset of 10 degrees times their chalk position. **(T-3)**. If directly behind the preceding aircraft, even number chalk position will turn right, odd number chalk positions will turn left. **(T-3)**.

8.8.2.2. Airspeed: All wingman will fly assigned airspeed. **(T-3)**.

8.8.2.3. Altitude: Wingman will initiate a 500 fpm climb to an altitude 300 feet above the preceding aircraft. **(T-3)**.

8.8.2.4. Upon reaching the assigned altitude, wingman will fly assigned heading for 30 seconds and then resume base heading. **(T-3)**.

**Figure 8.7. Non-Mountainous IMC Breakup.**



8.8.3. After completing a breakup, formation lead will contact air traffic control (ATC) facilities for an IFR clearance for the formation with an appropriate facility. **(T-3)**. When ATC facilities are not available and or formation lead is VMC, formation lead may designate a specific letdown point and mean sea level (MSL) altitude. **WARNING:** Descent from IMC in an attempt to reach VMC without the benefit of ATC is extremely hazardous and should only be used as a last resort. **(T-2)**.

## 8.9. Formation Rejoins.

8.9.1. Straight ahead rejoin. Performed at a briefed or announced airspeed on a constant heading. **(T-3)**.

8.9.2. Turning Rejoin. Performed at 80 KIAS and maximum bank-angle of 20 degrees. (T-3).

## Chapter 9

### NIGHT OPERATION PROCEDURES

**9.1. Altitude Restrictions (Unaided).** Minimum en route altitude for unaided night navigation is 500' AHO within 5 nm of the route of flight unless published helicopter routes dictate a lower altitude. **(T-3).**

**9.2. Illumination Requirements (Unaided).** Illumination requirements for unaided night operations into unprepared sites are allowed only if the area is outlined by discernible lights. **(T-3).**

**9.3. Aircraft Lighting.** Landing and or searchlights will be on for all unaided night takeoffs and prior to turning final for unaided night approaches unless safety, weather, excessive glare, or aircraft operational procedures dictate otherwise. **(T-3).**

**9.4. Crew Procedures.** Mandatory PNF calls are 500 feet above intended altitude, 100 feet above intended altitude, and intended altitude. **(T-3).** VMC approach calls are mandatory. **(T-3).** See [paragraph 3.14.2](#). Additionally, rate of descent is mandatory when greater than 500 feet per minute (fpm). **(T-3).** Call "Go-around" if rate of descent exceeds 800 fpm. **(T-3).**

## Chapter 10

### LOCAL OPERATING PROCEDURES

**10.1. Requirements.** This chapter is reserved for unit local operating procedures. Procedures herein will not be less restrictive than those contained elsewhere in this manual, nor is this chapter intended to be a single source document for procedures contained in other directives or instructions. **(T-3).** Individual squadron local operating procedures are required for all TH-1H units. **(T-3).** If more than one TH-1H squadron is co-located at the same installation, only one **Chapter 10** is required but all squadron commanders must approve and gain approval through their appropriate chains of command. **(T-3).**

**10.2. Organization.** Organize the local chapter in the following format and, as a minimum, include the following:

- 10.2.1. Introduction and General Guidance
- 10.2.2. Mission Planning
- 10.2.3. Operations Procedures
- 10.2.4. Contact and Emergency Training Procedures
- 10.2.5. Instrument Procedures
- 10.2.6. Unprepared Landing Site Procedures
- 10.2.7. Low-level Flight Procedures
- 10.2.8. Formation Procedures
- 10.2.9. Night Operations Procedures
- 10.2.10. Include procedures for the following in the appropriate sections if applicable:
  - 10.2.10.1. Command and Control
  - 10.2.10.2. Mission Planning and Preparation Procedures
  - 10.2.10.3. Local Weather Procedures
  - 10.2.10.4. Flight Plan Procedures
  - 10.2.10.5. Cross-Country Procedures
  - 10.2.10.6. Aircraft Publication Management
  - 10.2.10.7. TOLD Book Management
  - 10.2.10.8. Aircraft Weight and Balance Procedures
  - 10.2.10.9. Helicopter Landing Zone Program
  - 10.2.10.10. Bird and Wildlife Aircraft Strike Hazard (BASH) program guidance.
  - 10.2.10.11. Environmental restrictions applicable to unit operating locations.
  - 10.2.10.12. Taxi and Parking Restrictions and Procedures.
  - 10.2.10.13. Traffic Pattern, Landing Area, and Emergency Procedure Training locations.



10.2.10.14. Alternate Insertion and Extraction Device Management

10.2.10.15. Hot Gas Procedures

10.2.10.16. Squadron Briefing Standards

## Chapter 11

### ALTERNATE LOADING/INSERTION/EXTRACTION

**11.1. Restrictions.** The maximum number of personnel on any AIE device at any one time is three; this does include an anchorman if their bodyweight is being suspended by the AIE device. **(T-3).** **WARNING:** If more than three personnel are allowed to climb the rope ladder at the same time, the excess weight could cause loss of aircraft control and or Center of gravity problems.

11.1.1. The aircraft will not exceed 30 knots indicated with any AIE device deployed. **(T-3).**

11.1.2. For preservation of life, limb or eyesight, the rope ladder may be used for an emergency situation where personnel are still on the device as the aircraft begins to accelerate away from the point of origin. After a short haul transport with personnel on the device while in flight, the device must be sent in for refurbish in accordance with T.O. 00-25-245, *Testing and Inspection Procedures for Personnel Safety and Rescue Equipment*. **(T-3).**

11.1.3. 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-3).**

**11.2. Alternate Loading/Insertion/Extraction Operations.** The individuals within this chain of command are the AC, the Flight Engineer (FE), and the rope master (RM), if required. USAF customers do not use RMs, but will designate a member as the Team Lead (TL). Sister Service customers that require an RM will designate a team member as the RM. When an RM is not required, the TL will perform the RM duties as described below. **(T-3).** If only one roper is involved in the AIE operation, the roper will be considered the TL. **(T-3).**

11.2.1. AC Responsibilities. In all situations, the AC has full responsibility for the safety of the crew, passengers, and the orderly conduct of all aspects of the flight. The AC exercises final authority to cease or terminate operations.

11.2.2. Pilot Flying Responsibilities. The PF is responsible for communicating with the crew and maintaining a stable hover.

11.2.3. Pilot Not Flying Responsibilities. The PNF is responsible for monitoring torque, aircraft instruments and performance, scanning, and ensuring the pilot maintains a stable hover.

11.2.4. FEs trained and qualified in the AIE event being performed will execute the actions to inspect, install, and deploy AIEs except for devices delegated to the RM or TL. **(T-3).** In cases where the FE is not deploying the AIE device, they will then act as the safetyman. **(T-3).** The FE is directly responsible to the AC for all actions occurring in the cargo compartment and with the AIE devices in and around the aircraft. **(T-3).**

11.2.5. FEs are responsible for the safe conduct of all passengers and proper configuration of the aircraft for AIE operations. The FE will be in position to monitor all exit activities, act as a safetyman, relay communications, monitor or deploy the AIE device, ensure AIE device to ground contact is maintained, and recover or release the AIE device upon completion of the insertion or extraction. **(T-3).** The FE generally has tactical lead of the aircraft during AIE events. Tactical lead exists only for the duration where any aircrew member has greatest situational awareness for the safe execution of the aircraft and mission and immediately terminates once the situation has resolved or completed.

11.2.6. RM or TL. During helicopter operations, the RM or TL is subordinate in authority to the FE and the AC. The RM or TL is responsible for the safety, conduct, and performance of rope personnel. The RM or TL is responsible for inspecting and rigging the aircraft and hooking up and deploying ropers. Only one RM or TL may control an evolution, but any other RM or TL or the FE may assist the primary RM or TL in their duties.

**11.3. Communication over Intercommunication System (ICS).** During operational missions, if there is a loss of communication or ICS failure, AIE operations may continue as mission requirements dictate. Live personnel deployment for training will cease if either the RM, TL, or FE loses ICS capability. **(T-3).** Comm-out procedures may be used for training with no live deployments.

**11.4. Mission Briefs.** Prior to deployment, the AC will ensure the AIE briefing in AFMAN 11-2TH-1HV3 CL-1 is completed for the applicable device to be used. **(T-3).** The RM or TL must conduct an operation brief for all insertion and or extraction personnel and a face-to-face mission brief for all aircrew personnel participating in AIE operations. **(T-3).**

**11.5. Inner Aircraft Safety.** When possible, improvise handholds to assist in moving from a seated position to the device stations. Cargo straps, ropes, or webbing can be secured overhead to provide a secure handhold during movement. Cabin floor surfaces must be clean and free of oil and solvents. **(T-3).**

**11.6. Mishap Procedures.** If a mishap occurs, all training will cease and crewmembers will follow briefed safety procedures. **(T-2).** Do not disturb the device rigging if it was a factor in the mishap, unless it interferes with the evacuation of the injured personnel or could cause an unsafe situation landing the aircraft.

**11.7. Commands and Signals.** Hand and arm signals provide a comm-out means of communication between aircrew and personnel utilizing the AIE device. Hand signals should be made as large as possible when signaling outside the aircraft.

**11.8. AIE Installation and Inspection Procedures.** The FE is responsible for providing, inspecting, and rigging rope ladders. Refer to the AFMAN 11-2TH-1HV3 CL-1 and T.O. 00-25-245 for preflight checklist inspection criteria.

11.8.1. The cargo tie-down fittings used to deploy the rope ladder from the left side are 9, 10, 14, 22, 27, 30, 31, and 39. These are the only tie-down fittings that can be used. **(T-3).**

11.8.2. The cargo tie-down fittings used to deploy the rope ladder from the right side are 7, 8, 13, 19, 26, 28, 29, and 36. These are the only tie-down fittings that can be used. **WARNING: Do not** use removable Kinedyne® type jaw fittings (i.e., bear claws) to secure the rope ladder to any of the floor or ceiling stud fittings; these jaw fittings and floor or ceiling studs are not approved rope ladder connection points. **(T-3).**

**11.9. Deployment.** Depending on mission requirements, aircrew may position and secure the AIE device in the doorway, ready for immediate deployment, or position and secure it out of the way for later use. Once positioned in the aircraft, it may be secured to the cabin floor or cabin wall using a seat belt, cargo tie-down strap or another restraint device to keep the device in place during and emergency. **Note:** When rope ladders are rolled up instead of fan folded, they are more likely to become fouled during rope ladder deployment.

11.9.1. In-Flight Phase. All participants remain strapped in and follow the directions of the FE. **(T-3)**. The PNF should provide crew with advisory time calls, typically 20-, 10-, 5-, and 1-minute out. The RM or TL may require more advisory and or time calls. The FE will relay time calls to any pertinent personnel. **(T-3)**.

11.9.2. Hover Phase. This is the phase of flight where the pilot flying has brought the helicopter to a near complete or complete stop, has adequate hover references to maintain a stable hover (into the wind to the max extent possible), and is at the appropriate hover height to commence AIE operations. The pilot flying will commence AIE operations by announcing **“ROPES, ROPES, ROPES.” (T-3)**.

11.9.2.1. **“ROPES, ROPES, ROPES.”** When the pilot flying announces **“ROPES, ROPES, ROPES,”** it implies three things: the aircraft is in a stable hover (or 2 to 5 knot forward hover taxi for water ops if desired by the customer) at the correct spot at the correct altitude, the AIE device is cleared for deployment, and the team are cleared in or out of the aircraft. No other approval from the pilot flying is required to proceed with the AIE operations.

11.9.2.2. **“ROPES DEPLOYED.”** Once the FE has determined that the AIE device has deployed safely, (minimum of five (5) rungs on the ground for rope ladder), the FE passes the advisory call **“ROPES DEPLOYED”** to the pilots. **(T-3)**.

11.9.2.2.1. Upon verifying that the AIE device is on the ground, the FE will wave the climbers in and provide the crew with a running commentary of the team’s ascent into the aircraft. **(T-3)**. During the evolution, the FE will give hover calls, as necessary, to maintain the aircraft over the target area. **(T-3)**.

11.9.2.2.2. **“ROPES RELEASED or SECURE.”** The FE advises the pilots once the AIE device has either been released or retrieved into the aircraft and secured. **(T-3)**. (In an actual tactical or emergency situation, jettison the AIE device if time is critical.) **Note:** For multiple training evolutions, the AIE device may remain attached to the aircraft while ground personnel walk the AIE device clear of the aircraft as it descends to the ground. **WARNING:** Ensure all personnel *are clear* from below the aircraft before jettisoning the AIE device. **(T-3)**.

11.9.2.2.3. **“CLEARED FOR FORWARD FLIGHT”** or **“CLEARED FOR LANDING.”** The FE confirms to the pilot flying that the AIE device is clear of the aircraft or obstacles and there is no possibility the AIE device will become fouled. **(T-3)**. Once assured that all is clear, the pilot flying transitions the aircraft from a stable hover to forward flight or, during multiple training evolutions, lands. **(T-3)**.

11.9.3. Night AIE operations. During night operations, a chemlight will be attached the end of any device or cable so that the AIE operator is able to identify when the device has made contact with the ground. **(T-3)**. A chemlight will also be placed around the immediate vicinity of any quick release handle, jettison handle, cable cut switch, and etc. **(T-3)**. Team member will have a chemlight attached to their person for easy identification. **(T-3)**. Climbers or riders should not wear NVGs during AIE operations.

11.9.4. Aircraft Emergency. If the helicopter experiences engine failure or other critical aircraft emergencies during AIE operations, climbers on the ladder must remain on it until ground or water contact is made. **(T-3)**. Upon contact, have personnel clear the rope ladder and

the area beneath the helicopter to either the 3 or 9 o'clock position (depending on which side the rope ladder is on). The pilot flying attempts to land the helicopter by moving forward, terrain depending. In the event of an aircraft emergency, initiate the following procedures:

11.9.4.1. Upon notification by the pilot flying of an emergency situation, the FE will signal personnel to move away from the AIE device (if time permits). **(T-3)**.

11.9.4.2. In an emergency or if the aircraft comes under fire and forward flight is possible, climbers will secure themselves to the rope ladder and the aircraft may depart turning. **(T-3)**. This twisting and turning causes the rope ladder to become unstable, which could dislodge users. Slow forward flight to a safe area should be accomplished if flight characteristics and power requirements allow. Airspeed with climbers on the rope ladder will not exceed 30 KIAS. **(T-3)**.

11.9.5. Lost Communication or ICS Failure. ICS communications between the pilot flying and the FE are mandatory. In the event of an ICS failure, the FE will initiate the following procedures:

11.9.5.1. Signal the remaining climbers to HOLD and signal the entire crew of LOST COMMUNICATION. **(T-3)**. **Note:** Hand-and-arm signals are only used to complete the ascent or descent at the time of the ICS failure.

11.9.5.2. At no time are additional AIE operations initiated during an ICS failure. If ICS is reestablished, the FE will direct the pilot flying back into position and may continue AIE operations. **(T-3)**.

11.9.6. Hung Climber. This is a member who has started climbing the rope ladder and is unable to complete the ascent. A member can become hung for a variety of reasons: injury, loose clothing, straps, equipment, or physical exhaustion. In the event of a hung climber, initiate the following procedures:

11.9.6.1. The FE will immediately notify the pilot flying of the situation. **(T-3)**.

11.9.6.2. If possible, the pilot flying will descend to lower the climber(s) to the ground or water. **(T-3)**.

11.9.6.3. Once the climber(s) reaches the ground or water, have them clear off the rope ladder. If able, land and on-load the climber(s). If unable to land the aircraft for on-loading the climber(s), maintain a low hover and have the climber(s) attempt a second climb.

11.9.6.4. If the aircraft is unable to land or descend to off-load the climber(s) and if power requirements and flight characteristics allow, reposition and land to a suitable area to off-load hung climber(s).

11.9.7. Fouled AIE. An AIE device may become fouled with itself and or the aircraft or entangled on ground obstacles during the course of operations. If the device becomes fouled initiate the following procedures:

11.9.7.1. The FE will immediately notify the pilot flying of the fouling or entanglement and ensure all climbers are clear. **(T-3)**.

11.9.7.2. If possible, the FE should retrieve or attempt to clear the AIE device. Once cleared, the FE can deploy the AIE device and continue with operations.

11.9.7.3. In the event the device becomes entangled, initiate the following procedures:

11.9.7.3.1. If possible, the pilot will descend, reposition, or land in order to decrease tension or untangle the device. **(T-3)**. When tension has been removed from the AIE device, the FE will attempt to untangle the device. **(T-3)**. **WARNING: Do not** use the helicopter to pull the AIE devices free. **(T-2)**.

11.9.7.3.2. If unable to land or untangle the AIE, the FE will jettison or cut the device. **(T-3)**. Aircraft and personnel safety will determine the course of action to be taken. **(T-3)**.

11.9.8. Helicopter Gains Altitude or Drifts off Target Area. If the helicopter gains altitude and device-to-ground contact is not maintained, or if the helicopter drifts off the target area, the FE will initiate the following procedures:

11.9.8.1. Direct climbers to HOLD, preventing any additional ascents. **(T-3)**.

11.9.8.2. Redirect the helicopter back over the target area or descend to the correct altitude; once back on target and or altitude, continue AIE operations **(T-3)**.

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

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

- Executive Order 9397, *Numbering System for Federal Accounts Relating to Individual Persons*, 22 November 1943
- Title 37 United States Code, Section 301a, *Incentive Pay*, 3 January 2016
- Public Law 92-204, *DoD Appropriations Act of 1972*, 18 December 1971
- Public Law 93-294, *Aviation Career Incentive Pay*, 31 May 1974
- Public Law 93-570, *DoD Appropriations Act of 1974*, 28 February 1975
- DoDI 4515.13, *Air Transportation Eligibility*, 22 January 2016
- DoDI 7730.67, *Aviation Incentive Pays and Bonus Program*, 12 October 2016
- AFPD 11-2, *Aircrew Operations*, 31 January 2019
- AFI 11-202, Volume 3, *General Flight Rules*, 10 August 2016
- AFI 11-214, *Air Operations Rules and Procedures*, 14 August 2012
- AFI 11-301, Volume 1, *Aircrew Flight Equipment (AFE) Program*, 10 October 2017
- AFI 11-301, Volume 2, *Management and Configuration Requirements for Aircrew Flight Equipment*, 20 December 2013
- AFI 11-401, *Aviation Management*, 10 December 2010
- AFI 13-217, *Drop Zone and Landing Zone Operations*, 10 May 2007
- AFI 36-2903, *Dress and Personal Appearance of Air Force Personnel*, 15 April 2019
- AFMAN 11-202, Volume 1, *Aircrew Training*, 27 September 2019
- AFMAN 11-2TH-1HV3 CL-1, *TH-1H helicopter Crew Briefing Guide and Checklists*, 01 June 2018
- AFI 33-360, *Publications and Forms Management*, 1 December 2015
- AFMAN 33-363, *Management of Records*, 1 March 2008
- T.O. 00-20-1, *Aerospace Equipment Maintenance Inspection, Documentation, Policies, and Procedures*, 1 June 2018
- T.O. 00-25-245, *Testing and Inspection Procedures for Personnel Safety and Rescue Equipment*, 14 October 2016
- T.O. 1-1-300, *Maintenance Operation Checks and Check Flights*, 15 March 2012
- T.O. 1H-1(T)H-1, *Flight Manual, USAF Series TH-1H Helicopter*, 1 August 2019
- T.O. 1H-1(T)H-1CL-1, *Pilot's Flight Crew Checklist*, 01 August 2019
- T.O. 1H-1(T)H-6CF-1, *Acceptance and Functional Checkflight Procedures*, 1 August 2019
- T.O. 1H-1(T)H-6CL-1, *Checklist Acceptance and/or Functional Checkflight*, 1 August 2019

UFC 3-260-01, *Airfield and Heliport Planning and Design*, 4 February 2019

### ***Adopted Forms***

AF Form 70, *Pilot's Flight Plan and Flight Log*

AF Form 457, *USAF Hazard Report*

AF Form 847, *Recommendation for Change of Publication*

AF IMT 651, *Hazardous Air Traffic Report (HATR)*

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

### ***Abbreviations and Acronyms***

**AC**—aircraft commander

**ADC**—air data computer

**AFE**—Aircrew Flight Equipment

**AFPD**—Air Force Policy Directive

**AFI**—Air Force Instruction

**AF IMT**—Air Force Information Management Tool

**AFMAN**—Air Force Manual

**AGL**—above ground level

**AHO**—above highest obstacle

**AIE**—alternate insertion extraction

**ASE**—above site elevation

**ATC**—air traffic control

**DOD**—Department of Defense

**DoDI**—Department of Defense Instruction

**EP**—emergency procedure

**ERAA**—emergency route abort altitude

**FCF**—functional check flight

**FE**—flight engineer

**FLIP**—flight information publications

**FPM**—feet per minute

**ICS**—intercommunication system

**IFR**—instrument flight rules

**IMC**—instrument meteorological conditions

**IP**—instructor pilot



**KIAS**—knots indicated airspeed  
**LZ**—landing zone  
**MAJCOM**—Major Command  
**MFD**—multi-function display  
**MSA**—minimum sector altitude  
**Nf**—power turbine speed  
**NM**—nautical mile  
**Nr**—rotor speed (in rpm)  
**NVG**—night vision goggles  
**OAT**—outside air temperature  
**OGE**—out of ground effect  
**OPR**—office of primary responsibility  
**PA**—pressure altitude  
**PF**—pilot flying  
**PIC**—Pilot in Command  
**PNF**—pilot not flying  
**RD**—rotor diameter  
**RM**—rope master  
**RPM**—revolutions per minute  
**SFL**—simulated forced landing  
**SM**—statute mile  
**STAN/EVAL**—Standards and Evaluations  
**TCN**—terminal change notice  
**TL**—team leader  
**T.O.**—Technical Order  
**TOLD**—takeoff and landing data  
**VFR**—visual flight rules  
**VMC**—visual meteorological condition

### *Terms*

**ERAA**—designed to provide positive IMC terrain clearance during emergency situations that require leaving the low-level structure

**Minimum Sector Altitude**—altitude that provides at least 1,000 feet of obstacle clearance within 25 nautical miles

**May**—indicates an acceptable or suggested means of accomplishment.

**Shall**—indicates a mandatory requirement.

**Should**—indicates non-mandatory recommended method of accomplishment.

**Student**—any crewmember enrolled in a formal training course and/or undergoing qualification/requalification training that will result in an evaluation.

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

**Will**—indicates a mandatory requirement.