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Flying Operations

HH-60--OPERATIONS PROCEDURES

COMPLIANCE WITH THIS PUBLICATION IS MANDATORY

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This volume implements AFPD 11-2, *Aircraft Rules and Procedures*; AFPD 11-4, *Aviation Service;* and AFI 11-202V3, *General Flight Rules*. It applies to all HH-60 units. MAJCOMs/DRUs/FOAs are to forward proposed MAJCOM/DRU/FOA-level supplements to this volume to HQ USAF/XOOT, through HQ ACC/DOTV, for approval prior to publication IAW AFPD 11-2. Copies of MAJCOM/DRU/FOA-level supplements, after approved and published, will be provided by the issuing MAJCOM/DRU/FOA to HQ AFFSA/XOF, HQ ACC/DOTV, and user MAJCOM/DRU/FOA and NGB offices of primary responsibility. Field units below MAJCOM/DRU/FOA level will forward copies of their supplements to this publication to their parent MAJCOM/DRU/FOA office of primary responsibility for post publication review. **NOTE:** The terms Direct Reporting Unit (DRU) and Field Operating Agency (FOA) as used in this paragraph refer only to those DRUs/FOAs that report directly to HQ USAF. Keep supplements current by complying with AFI 33-360V1, *Publications Management Program*. See paragraph **1.4.** of this volume for guidance on submitting comments and suggesting improvements to this publication. Maintain and dispose of records created as a result of prescribed processes in accordance with AFMAN 37-139, *Records Disposition Schedule.*

SUMMARY OF REVISIONS

All references to MEP replaced with MEGP. **2.6.** Crew Complement Table. Multi-helicopter air refueling replaced with simultaneous air refueling. Deleted scanner qualification. PJs fulfilling AG duties maintain AG training requirements/currencies. NWOPs training required prior to performing AG duties during NWOPs. **2.7.** Passengers. Will not be carried (regardless of MEGP status) during practice EPs. MEGP with unqualified pilot now references AFI 11-401. Orientation Flight Program participants will comply with MAJCOM guidance. **2.8.1.** OG/CC approves MEGP unless MAJCOM guidance states otherwise. **2.9.** Interfly. Changed approval authority from WG/CC to OG/CC. **2.9.1.2.** Clarified no interfly approval required for students of 58 SOW. **2.19.** Added reference to AFI 11-202V3 for crew rest guidance. **3.2.** Expanded Briefing/Debriefing Guidance. **3.3.1.2.3.** Added reference for weather minimums for practice

EPs at night. **3.3.2.2.2.2.** Added 60 minute requirement for departure alternate. **3.4.1.** Added reference to AFI 11-202V3, para 5.23. to ensure H60V3 is not less restrictive than basic instruction. **3.4.2.1.** Changed authorization to exceed wind limit from 56 RQS/CC to SQ/CC. **3.5.2.** Clarified minimum fuel is based on useable fuel. **3.6.** Requires depiction of low level area on hazards chart and clarified charting of obstacles. **3.7.3.** Simplified LZ size requirements. **3.8.1.1.** Clarified charting of obstacles. **3.9.1.** Added "Night" to clarify NVG requirement. **3.10.** Added last sentence to emphasize AFI 11-202V3 guidance. **3.10.7.** Added here; deleted from **6.10.1. 3.10.8.** Added minimum altitudes for AR. **3.12.1.** Excluded PJs and CROs from survival equipment wear. **3.18.** Expanded guidance on use of seats in the cabin. **3.20.2.** Changed approval authority to remove FE/AG seats to OG/CC, who can delegate to SQ/CC. **3.20.2.** Allows AG to inspect rappelling equipment. **3.20.5.** Added AG and aircraft rigging. **3.20.6.** Added barrelman hoist technique. **3.24.** Added shipboard ops. **4.1.** Checklists. Normal checklists accomplished using C-R method; EP checklists using C-R/R. **4.2.** Equipment in the Cockpit. Added authorization to use ELMO. **4.4.2.** Air Refueling Contacts. Changed qualification to certification and reference to AFI 11-2HH-60V1. **4.5.** Deployment of Non-USAF Personnel. Changed approval authority from SQ/CC to OG/CC. **4.6.1.** added "authorized restraint harness." **4.6.1.** clarified attachment points. **4.7.2.** clarified lights on for unaided approaches. **4.7.3.** Lists requirements for reduced lighting. **4.8.3.** exempts Air Taxi from 15 knot restriction. **4.9.3.** Added combat mission training flights. **4.10.** Added conditions when exceeded maximum sustainable bank angle is acceptable. **4.16.4.** clarified that Flight Manual of CDU Calc page may be used. **4.17.** Added reference to AFI 11-202V3, para 5.9.4. **4.17.1.** added requirement for unsurveyed LZs. **4.21.2.1.** Added SERE specialist. **4.21.2.2.** Increased live hoist altitude. **4.21.3.2.** Allows for night practice EPs. **4.21.3.4.** Clarified hover height based on main landing gear. **4.21.3.6.** and **4.21.3.7.** Added (or 80 knots if safe single engine airspeed is not available) for completion of maneuver. **4.22.** Clarified AHC. **4.22.1.5.** Clarified minimum recovery altitude for quickstops. **4.22.2.** Simplified verbiage. **4.23.** Added shipboard ops. **5.2.1.4.** Added statement: "or if the aircraft is not in a position for a normal landing." **6.1.1.4.** Added additional EVM guidance. **6.1.4.** Replaced "combat ingress" checklist with "low level checklist." **6.2.** Removed formation position descriptions and referenced AFTTP 3-3V24. **6.3.** Referenced AFTTP 3-3V24 for TFM descriptions. Added statement clarifying that echelon position is non-tactical. **6.3.1.1.** Limits maneuvering at less than 3 rotor disk separation. **6.3.1.2.** Added guidance for aircraft separation. **6.3.1.3.** Added center turn guidance. **6.3.1.4.** Prohibits cross turns at night. **6.3.2.** Changed low illum definition "from 10% or less" to "less than 10%." **6.3.2.1.** Allows for increased NVG formation separation when using non-visual means to ensure separation. **6.3.2.2.** Added terminal area formation maneuvering guidance. **6.8.** Clarified that unaided night formation is only used as a last resort. **6.10.1.** Changed 30 degree bank angle limit during NVG water operations from "at or below 100 ft AWL" to "below 100 ft AWL." **6.10.2.2.** Clarified low and slow wording. **6.10.2.4.** Added guidance for visual references during NVG water operations and moved minimum airspeed to this paragraph. **6.11.2.** Added "or when cleared by the AC" to release of restraint devices. **6.12.5.1.** clarified safe position to deploy. **6.12.5.2.** Prefaced rope master deploying authority with "following the pilot's clearance." **6.13.1.** Changed H-bar extension from prior to "5-minute" call to prior to final approach. **6.14.1.** Clarified rappelling attachment points. **6.15.1.** Clarified rope ladder attachment points. **6.15.4.** and **6.16.3.5.** Added guidance to close cabin door not being used during recoveries. **6.16.3.** Shortened due to information being included in flight manual. **6.16.3.3.1.** deleted "extreme" from emergency forward flight during stokes. **6.18.** Changed title and added reference to AFTTP 3-3V24. **7.1.** Blind Procedures. Complete revision. **8.2.8.** Allows publishing of standards as a separate document. **8.3.** Form Adopted added. Terms. Added "Air Taxi" and "Hover Taxi." **Attachment 2** Deleted checklist from title. **A2.12.1.** Changed "Combat Ingress" to "Low level" and changed/deleted items. **A2.12.3.1.** Added Fuel and Armor Wings to FENCE check. **Figure A2.5.**, *: Clar-

ified that visible landing or search light required for night/IMC flight. Changed material from the previous edition is indicated by a bar (|).

Chapter 1—GENERAL INFORMATION **7**

1.1. General: 7
1.2. Pilot Responsibilities. 7
1.3. Deviations. 7
1.4. Recommended Changes/Waivers: 7
1.5. Terms Explained: 7
1.6. Supplements. 8
1.7. Development of New Equipment and Procedures. 8
1.8. Distribution. 8

Chapter 2—GENERAL OPERATING GUIDANCE **9**

2.1. Aircraft Commander Responsibility and Authority. 9
2.2. Posse Comitatus Act. 9
2.3. Drug Law Enforcement Agencies (DLEA) Support. 9
2.4. Medical Evacuation. 9
2.5. Aircrew Qualification. 10
2.6. Crew Complement. 10
Table 2.1. Crew Complement. 10
2.7. Passengers. 11
2.8. Mission Essential Ground Personnel (MEGP). 11
2.9. Interfly. 11
2.10. Alert Personnel. 11
2.11. Alert Duty. 11
2.12. Alert Aircraft. 12
2.13. Alert Procedures. 12
2.14. Reconstitution of Alert. 12
2.15. Armed Crewmembers. 12
2.16. Armed Passengers. 13
2.17. Utilization of Civilian Law Enforcement or Medical Personnel. 13
2.18. Maximum Flight Duty Period. 13
2.19. Crew Rest Period. 13

Chapter 3—MISSION PLANNING/FLIGHT PREPARATION 14

3.1. Responsibilities. 14
3.2. Briefing/Debriefing Requirements. 14
3.3. Weather Minimums: 14
3.4. Adverse Weather Planning: 15
3.5. Fuel Planning: 16
3.6. Local Area Hazards Map. 16
3.7. Landing Zone Surveys: 16
3.8. Low Level Surveys: 16
3.9. Illumination Requirements for Helicopter Landing Areas: 17
3.10. Altitude Restrictions. 17
3.11. Minimum Equipment for NVG Operations: 18
3.12. Life Support Requirements: 18
3.13. Tool Kits. 19
3.14. Publication Kits. 19
3.15. Hazardous Cargo Procedures. 19
3.16. TOLD. 20
3.17. Weight and Balance Documentation: 20
3.18. Aircraft Configuration. 20
3.19. Water Operations: 21
3.20. Alternate Insertion/Extraction Operations (AIE): 21
3.21. Wind Limitations for Personnel Parachute Delivery. 21
3.22. Maintenance Debriefing. 21
3.23. Helicopter Fuel Systems: 22
3.24. Shipboard Operations. 22

Chapter 4—NORMAL OPERATING PROCEDURES 23

4.1. Checklists. 23
4.2. Equipment in the Cockpit. 23
4.3. Passengers Occupying Crew Positions. 23
4.4. Copilot Maneuvering Policy. 23
4.5. Deployment of Non-USAF Personnel. 23
4.6. Seat Belts. 23

4.7. Aircraft Lighting. 24
4.8. Aircraft Taxi Restrictions: 24
4.9. Rotor Turning Ground Operations: 25
4.10. Helicopter Maneuvering. 25
4.11. AFTO Form 781, AFORM, Aircrew/Mission Flight Data Document. 25
4.12. Aircraft Refueling. 25
4.13. Forced or Precautionary Landings. 26
4.14. Fuel Dumping. 26
4.15. Engine Health Indicator Test (HIT) Checks. 26
4.16. Power Required. 26
4.17. Non-Surveyed/Unprepared Landing Zone Procedures. 27
4.18. Remote Site Evaluations Not Requiring a High and Low Reconnaissance: 27
4.19. Unaided Night Approaches. 27
4.20. Cargo Sling Operations: 27
4.21. Training: 28
4.22. Aircraft Handling Characteristics (AHC). 30
4.23. Shipboard Operations will be conducted IAW Joint Pub 3-04.1 and AFTTP 3-3V24. 31

Chapter 5—INSTRUMENT PROCEDURES 32

5.1. Simulated Instrument Flight. 32
5.2. Advisory Calls: 32

Chapter 6—COMBAT RESCUE/MISSION OPERATIONS 33

6.1. Low-Level Operations: 33
6.2. Formations. 33
6.3. Formation Maneuvering. 33
6.4. Dissimilar Formation. 35
6.5. Communication. 35
6.6. Taxi. 35
6.7. Turning Rejoins. 35
6.8. Night Formation. 35
6.9. Changing Formation. 35
6.10. Water Operations: 35
6.11. Mission Essential Ground Personnel Loading/Off Loading: 36

6.12. General AIE Procedures (Fast Rope, Rappel, Rope Ladder, Hoist): 36
6.13. Fast Rope: 37
6.14. Rappelling: 37
6.15. Rope Ladder Operations: 37
6.16. Hoist Procedures: 38
6.17. Parachute Delivery Operations: 38
6.18. Air Combat Maneuvering (ACM) Training. 39
6.19. Weapons Employment: 39

Chapter 7—ABNORMAL OPERATING PROCEDURES 40

7.1. Blind Procedures. 40
7.2. Lost Wingman Procedures. 40
Figure 7.1. Lost Wingman (Non-mountainous Terrain Procedures). 42
Figure 7.2. Lost Wingman (Mountainous Terrain Procedures). 43

Chapter 8—LOCAL OPERATING PROCEDURES 44

8.1. Requirements. 44
8.2. Organization. 44
8.3. Forms Adopted. 44

Attachment 1—GLOSSARY OF REFERENCES AND SUPPORTING INFORMATION 46

Attachment 2—HELICOPTER CREW BRIEFING GUIDE 52

Chapter 1

GENERAL INFORMATION

1.1. General:

1.1.1. This instruction outlines those procedures applicable to the safe operation of the HH-60 Helicopter. Used in conjunction with aircraft flight manuals, FLIP, and other applicable USAF directives it prescribes standard operational procedures for all USAF HH-60 aircrew. It is written for normal, training, and contingency operations.

1.1.2. The ACC Directorate of Aerospace Operations, Flight Standardization Branch, (ACC/DOTV) has overall responsibility for administration of this instruction.

1.2. Pilot Responsibilities. This regulation, in conjunction with other governing directives, prescribes guidance for HH-60 aircraft under most circumstances, but is not to be used as a substitute for sound judgment or common sense. Operations or procedures not specifically addressed may be accomplished if they enhance safe effective mission accomplishment.

1.3. Deviations. Deviations from this instruction require specific approval of the MAJCOM DO unless an urgent requirement or an aircraft emergency dictates otherwise. In this case, the pilot in command will evaluate all options and take the appropriate action to ensure the safe recovery of the aircraft, crew, and survivors.

1.4. Recommended Changes/Waivers:

1.4.1. Recommendations for improvements to this volume will be submitted on AF Form 847, **Recommendation for Change of Publication**, to the parent MAJCOM. Approved recommendations will be forwarded to HQ ACC/DOTV.

1.4.2. Forward waiver request through appropriate channels to the applicable MAJCOM for approval. ANG units forward waiver requests to HQ ACC/DOTO for staffing. Approved waivers are granted for a period of 1 calendar year, unless otherwise stated.

1.4.2.1. The Flying Wing CC is the waiver authority for crew complement/management policies. The Wing CC may delegate his waiver authority to the OG/CC with operational control.

1.5. Terms Explained:

1.5.1. ***Will*** and ***shall*** indicate a mandatory requirement.

1.5.2. ***Should*** indicates non-mandatory desired or preferred method of accomplishment.

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

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

1.5.5. ***CAUTION:*** Operating procedures, techniques, etc., which may result in damage to equipment if not carefully followed.

1.5.6. ***NOTE:*** Operating procedures, techniques, etc., which are essential to emphasize.

1.6. Supplements. The only portions of this instruction authorized to be supplemented are **Chapter 8** (Local Operating Procedures) and chapter 9 (Major Command Operating Procedures). No other supplements to this instruction are authorized.

1.7. Development of New Equipment and Procedures. MAJCOM approval must be obtained prior to the testing of new procedures or equipment.

1.8. Distribution.

1.8.1. Commanders (Squadron, Group, and Wing): 1

1.8.2. Operational File (Operations Section), all levels: 1

1.8.3. FCIF: 1

1.8.4. Rescue Coordination Centers: 1

1.8.5. Staff Operations Officers, all levels: 1

1.8.6. Individual Aircrew: 1

Chapter 2

GENERAL OPERATING GUIDANCE

2.1. Aircraft Commander Responsibility and Authority. All flights will have an aircraft commander designated on a flight authorization form, or equivalent, in accordance with AFI 11-401, *Flight Management*, as supplemented by MAJCOMs. ANG will comply with AFI 11-401, ANG Sup 1. Aircraft commanders are:

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

2.1.2. Responsible for the welfare of the crew and the safe accomplishment of the mission. This begins upon notification and terminates upon mission completion. If the aircraft commander determines that conditions are not safe to prosecute the mission, the aircraft will not depart until the condition is corrected.

2.1.3. The final mission authority and will make decisions not specifically assigned to higher authority.

2.1.4. Charged with keeping the applicable commander informed concerning mission progress and/or difficulties. The final authority for asking for and accepting waivers affecting the crew or mission.

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

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

2.2. Posse Comitatus Act. See AFI 10-801, *Assistance to Civilian Law Enforcement Agencies.*

2.3. Drug Law Enforcement Agencies (DLEA) Support. Units receiving requests for operational DLEA support (flight support, aerial reconnaissance, etc.,) should inform the requesting organization to redirect the request through:

2.3.1. FORCECOM J-3, Counter Drug, Fort McPherson, Ga., 30330-6000, DSN 367-5000/5798 or commercial (404) 669-5000/5798 for CONUS units.

2.3.2. Appropriate theater J-3 for overseas units.

2.3.3. Operational DLEA requests will be routed through appropriate command channels, in turn through MAJCOM/DO, ANG/DON, AFRC/DOU, as applicable. Once the request is received, it will be evaluated, available resources will be reviewed, unit taskings will be coordinated if appropriate, and a response will be provided to the requesting organization. Units should not respond directly to drug law enforcement agency requests.

2.3.4. Requests for non-operational support (equipment loans) should be referred to the installation commander who will staff the request through the appropriate Regional Logistics Support Office (RLSO).

2.4. Medical Evacuation.

2.4.1. Aeromedical Evacuation Missions. Aircraft will not be used for routine patient transfer. Medical evacuation flights may be operated to transport seriously ill or injured persons, and/or to

transport medical personnel, equipment, or supplies under emergency conditions when other means are not suitable or readily available. Ensure all mission requests are coordinated through the appropriate Joint Search and Rescue Center.

2.4.2. Medical Assistance. If one or more qualified pararescuemen are immediately available, deployment of aircraft will, as a rule, not be delayed pending arrival of a local flight surgeon/physician.

2.5. Aircrew Qualification. Crewmembers occupying a primary position during flight must be H-60 qualified and current for the mission events to be flown, or conducting training/recurrency for that crew position/mission IAW AFI 11-2HH-60, Vol 1, *HH-60-Aircrew Training*. Otherwise, AFI 11-202, Vol 1, *Aircrew Training*, AFI 11-401, and MAJCOM supplements apply.

2.6. Crew Complement. The minimum crew is a pilot, copilot, and flight engineer for all flight operations except those specified in **Table 2.1.** or as waived IAW **1.4.2.1.** All low-level maneuvers involving flight below 500 feet AGL, with the exception of Day Water and Day Remotes, requires two qualified scanners. During engine running crew changes and other ground operations when the engines are running, a minimum of one pilot or copilot will be strapped in and monitor the controls at all times.

Table 2.1. Crew Complement.

MISSION	CREW POSITION				
	P	CP	FE	AG	PJ
SAR/ALERT	1	1	1	1 (NOTE 2)	2 (NOTE 1)
DAY TAC	1	1	1	1 (NOTE 2)	
NVG TAC/NVG WATER OPS/NVG REMOTES / SHIPBOARD OPERATIONS	1	1	1	1 (NOTE 2) (NOTE 4)	
SIMULTANEOUS AIR REFUELING	1	1	1	1 (NOTE 2)	
MAINTENANCE GROUND RUN (NOTE 3)	1		1		

Notes:

1. The use of medically qualified personnel other than PJs is authorized during peacetime SAR missions. Squadron commanders may modify the number of PJs based on specific mission requirements.

2. Or H-60 qualified FE or PJ. PJs fulfilling the gunner aircrew position will maintain the same currency and training requirements as AGs. AFRC units may use event qualified and current pilots to perform AG scanning duties.

3. Aircraft taxi or flight is not permitted.

4. AG crew duties during night water operations require night water operations training prior to certification.

2.6.1. FCF crewmembers must be certified IAW AFI 11-2HH-60V1, AFI 21-101, and applicable MAJCOM directives, and designated in writing (AF Form 1381, USAF Certification of Aircrew Training, and/or unit letter of Xs.) When certified copilots and flight engineers are not available, non-certified crewmembers may be designated by the commander or his/her representative on the

flight authorization. When away from home station and qualified crews are not available, refer to applicable MAJCOM guidance.

2.6.2. Copilots must sit in the left seat when the aircraft commander is not instructor qualified.

2.7. Passengers. Passengers will not be carried on flights involving low level, tactical mission events, pilot recurrency, air refueling, AHC, unusual attitudes, or water operations unless they are designated as Mission Essential Ground Personnel (MEGP). Passengers will not be carried on any flight involving practice emergency procedures. Comply with AFI 11-401 when flying MEGP when an unqualified pilot has access to the controls. Personnel participating in an Orientation Flight Program will comply with applicable MAJCOM instructions.

2.8. Mission Essential Ground Personnel (MEGP). Refer to AFI 11-401 and AFI 11-401, MAJCOM Supplement. Guidance in preceding reference applies regardless of qualification of pilots.

2.8.1. Unless stated otherwise in MAJCOM supplements to AFI 11-401, OG/CC is the approving authority.

2.8.2. MEGPs will be manifested on a passenger manifest.

2.8.3. Crew chiefs and maintenance/logistic support personnel are required to wear nomex flight gear when performing in-flight duties.

2.9. Interfly. An interfly exists any time an aircrew is made up of members from more than one MAJCOM, or aircrew members of one MAJCOM are flying aircraft owned by another MAJCOM. The OG/CC of the unit possessing the aircraft is the approval authority, and retains responsibility for the aircraft. All flying with ANG units will be IAW AFI 11-401.

2.9.1. Interfly approval is not required for:

2.9.1.1. Students attending the USAF Weapons School (USAFWS).

2.9.1.2. Students enrolled in 58 SOW formal training courses.

2.9.1.3. USAFWS unit visits.

2.9.1.4. MAJCOM Realistic Training visits.

2.9.1.5. HHQ SAVs, ORIs, and OREs.

2.9.1.6. 422 TES unit visits.

2.10. Alert Personnel. Alert personnel are those personnel required to be on duty and available for prompt prosecution of the mission. The location of alert personnel will be such that desired speed into action standards can be met without jeopardizing the safety of personnel or equipment.

2.11. Alert Duty. Alert duty is defined as any period during which an alert crew is on call to perform its mission. The alert duty period will begin at a scheduled changeover time, which will be determined by the squadron commander, commensurate with operational requirements and capabilities. The recommended length of the alert tour should not exceed 72 hours, but will be determined by the squadron commander.

2.11.1. The alert crew will not be used as a preflight or engine run crew for aircraft other than the alert aircraft, nor will they perform other fatiguing duties.

2.11.2. Crew rest, crew duty day, and scheduling will be IAW AFI 11-202, Volume 3, *General Flight Rules*.

2.12. Alert Aircraft. Rescue-equipped aircraft will be maintained on alert status in compliance with this instruction.

2.12.1. Parking. The alert aircraft will be parked in a designated alert parking area to expedite taxi and takeoff.

2.12.2. Once accepted for alert, the aircraft will be off limits to all personnel except alert crewmembers. No maintenance will be performed without prior approval of the alert crew aircraft commander and notification of the unit operations section. Make the following entry in the AFTO Form 781A, **Maintenance Discrepancy and Work Document**: "Aircraft accepted for alert ___ (time). Aircraft hover checked, probe and hoist checked." To ensure integrity of the crew preflight, an alert crewmember will be present whenever maintenance is performed, or at the completion of the maintenance, to check the area in which maintenance was performed. The check must be performed prior to flight.

2.12.3. Climatic Protective Facilities. During periods of extreme cold or severe weather, every effort should be made to shelter essential AGE and the alert aircraft in a hangar to ensure operational readiness. Engine heaters will be available for use, as required.

2.12.4. Flying Alert Aircraft. Squadron commanders may authorize flying of the alert aircraft if response times can be met.

2.12.5. Rescue Equipment. All hoist equipped alert aircraft will carry an alternate insertion/extraction device on board as an alternate means of insertion/extraction in the event of hoist malfunction/failure.

2.13. Alert Procedures. Alert crews will conduct a general briefing at the beginning of each alert period. Alert crews are authorized to prepare TOLD 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.

2.13.1. 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 120 consecutive hours, and has not flown during that time period, complete another full Dash 1 aircraft preflight and hover check at the end of each 120 hour cycle.

2.14. Reconstitution of Alert. Whenever a squadron's alert forces have been launched on a mission, the squadron should make every effort to reconstitute its alert capability. This will increase the squadron's ability to react to additional missions or assist/augment present operations.

2.15. 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. Protect these weapons, and other installed weapons (including pyrotechnic pistols), in compliance with AFI 31-209, *The Air Force Resource Protection Program*. If a crewmember is armed for the sole purpose of providing security for an aircraft weapon system, they may be armed with any approved Air Force sidearm or M-16/GAU-5.

2.16. Armed Passengers. Passengers (other than MEGP) will not carry weapons or ammunition on their person or in hand-carried baggage aboard an aircraft. At the discretion of the aircraft commander the FE may collect, secure, and transport weapons for passengers who are authorized to carry them.

2.17. Utilization of Civilian Law Enforcement or Medical Personnel. With Wing/CC approval, civilian law enforcement or medical personnel may be transported to mishap/disaster sites. During life or death SAR missions already in progress, when wing commander approval cannot be obtained in a timely manner, the aircraft commander may approve civilian law enforcement/medical personnel to fly aboard their aircraft.

2.18. Maximum Flight Duty Period. IAW AFI 11-202V3.

2.19. Crew Rest Period. IAW AFI 11-202V3.

Chapter 3

MISSION PLANNING/FLIGHT PREPARATION

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

3.2. Briefing/Debriefing Requirements. The aircraft commander or flight lead is responsible for presenting a logical briefing that will promote safe, effective mission accomplishment. The aircraft commander or flight lead is responsible for ensuring appropriate mission/event briefings are completed prior to accomplishment. Mission elements/events may be modified and briefed airborne as long as flight safety is not compromised. Flight lead/aircraft commanders will ensure changes are acknowledged by all flight members/crewmembers. If feasible, an alternate mission will be briefed. The alternate mission must be less complex than the primary mission

3.2.1. All crewmembers/passengers must attend the flight briefing unless previously coordinated with squadron supervisors and aircraft commander/flight lead. Anyone not attending the flight briefing must receive a briefing on mission events, duties and emergency procedures prior to flight. Printed passenger briefing cards will not be used due to the potential FOD hazard.

3.2.2. Mission briefing guides are contained in **Attachment 2**. Briefing guides will be used to provide the flight lead/briefer with a reference list of items that may apply to particular missions. Items listed may be briefed in any sequence. Specific items pertinent to the mission will be covered. Those items understood by all participants, and written in squadron standards, may be briefed as “standard.” Units may augment these guides as necessary and reproduce in user-desired format as long as all items are listed.

3.2.3. For all low-level mission briefings (flight below 500’ AGL) and AHC sorties, specifically brief low altitude flight maneuvering, gross weight, the onset of blade stall angle of bank, and maximum sustainable angle of bank at planned maneuvering speed, obstacle/ground avoidance, and aircraft performance limitations based on the worst-case conditions for the intended sortie. For low altitude training over water/featureless terrain, include specific considerations with emphasis on minimum altitudes and spatial disorientation.

3.2.4. Structure flight briefing to accommodate the capabilities of each crewmember/flight member.

3.2.5. 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.

3.2.6. All missions will be debriefed. The use of Sony EVO-220 and EVO-210 battery–powered, portable VTRs is approved IAW AFI 11-202V3, paragraph 2.5.1.6., to record Heads Down Display (HDD) video and communications, and may be used to enhance capturing of mission lessons learned.

3.2.7. Prior to each flight the aircraft commander will ensure all passengers are briefed in accordance with the applicable section of the aircraft flight manual.

3.3. Weather Minimums:

3.3.1. VFR Minimums. The following minimum weather criteria (ceiling/visibility) apply during all VFR training operations (unless higher is specified):

3.3.1.1. Day training: 700/1.

3.3.1.2. Night training:

3.3.1.2.1. 1,000/3 for unaided operations.

3.3.1.2.2. 700/2 for NVG operations.

3.3.1.2.3. IAW AFI 11-202V3 for night practice emergency procedures.

3.3.1.3. Operational Weather Minimums. In no case will weather minimums be less than AFI 11-202V3 requirements.

3.3.2. IFR Takeoff Minimums:

3.3.2.1. Training Flights. Weather equal to or higher than published approach minimums (ceiling and visibility), but no less than one-half mile (RVR 24) at the departure airfield.

3.3.2.2. Operational Flights:

3.3.2.2.1. Without a departure alternate, visibility at the departure point must be at or above the published visibility minimums required for the appropriate aircraft category for an available approach.

3.3.2.2.2. With a departure alternate, weather at the departure point must be equal to or above one-half the published visibility minimums required for the appropriate aircraft category, but no less than one-quarter mile (1,200 RVR) for an available approach. Published visibility is required if a copter-only approach is used at the departure airfield.

3.3.2.2.2.1. The departure alternate prevailing weather must be equal to or better than the lowest published approach ceiling and visibility minimum (no lower than 1,200 RVR), and forecast to remain so for 1 hour after the time you would expect to arrive.

3.3.2.2.2.2. The departure alternate should be within 60 minutes flight time.

3.3.3. Life or Death Missions. Wing commander may approve helicopters to take off with visibility less than the requirements of paragraph **3.3.2.2.** if an appropriate course of action is available, and a detailed plan developed and briefed. Weather at the recovery and landing areas must meet the minimum requirements of AFI 11-202, Vol 3.

3.3.4. Destination IFR Requirements. IAW AFI 11-202, Vol 3.

3.4. Adverse Weather Planning:

3.4.1. Comply with AFI 11-202V3, paragraph 5.23. and applicable MAJCOM guidance. Without specific MAJCOM guidance, thunderstorm activity must be avoided by a minimum of 5 NM. Do not fly into rain shafts beneath cumulonimbus clouds.

3.4.2. Wind Restrictions:

3.4.2.1. Training/Exercise Missions. 40 knots maximum. ***EXCEPTION:*** Squadron Commanders may authorize individual crews to conduct training and exercise missions with winds greater than 40 knots. The Squadron Commander must consider individual crew experience and mission criticality, and specify the maximum allowable wind limitations for each specific mission. In no case will flight manual limitations be exceeded.

3.4.2.2. Operational Missions. IAW the Flight Manual.

3.5. Fuel Planning:

3.5.1. For instrument flight planning purposes, when visibility-only criterion is used, or when destination weather information may be unreliable, fuel requirements for descent, approach, and missed approach will be 400 pounds. Ensure sufficient fuel remains to arrive at the alternate with appropriate reserves.

3.5.2. For all flights, VFR or IFR, plan to arrive at destination with a 400-pound usable fuel reserve.

3.6. Local Area Hazards Map. Hazards to aircraft will be depicted for the local flying area, and areas of frequent operation, as determined by the squadron commander. They will be plotted on a suitable chart and displayed. Changes will be made as received and brought to the attention of all crewmembers. Authorized Low Level training area will be depicted on the Local Area Hazard Map and within the low level training area, the map will be chummed for obstacles and hazards 50 feet above terrain or natural vegetation. The chart will be reviewed monthly. The person making the review will annotate the chart with his/her name and the date of review. The squadron commander will assign one person to be OPR for the Local Area Hazards Map.

3.7. Landing Zone Surveys:

3.7.1. All landing zone agreements must be approved by the Wing CC (or delegated representative).

3.7.2. Squadron commanders must ensure thorough site surveys are conducted on all training and operational Landing Zones (LZ). All obstructions and/or terrain that could potentially damage the aircraft must be annotated on the survey.

3.7.3. Single-ship training LZs must provide a minimum of 25-foot clearance from any portion of the helicopter to the nearest obstacle. Multiple-ship LZs must be large enough to provide a minimum of one rotor diameter width separation between aircraft, and 25 feet of clearance from all other obstacles.

3.7.4. The following items will be included on survey diagrams: LZ suitability (size, shape, slope, surface condition), site elevation, obstructions, orientation of the long axis, recommended approach and departure headings, prominent landmarks, and any restrictions/limitations (hover operations only, single-/multi-ship operations, etc.).

3.7.5. At a minimum, surveys must be updated/reviewed every 6 months.

3.7.6. Exercise LZ surveys. If an aircrew LZ survey is not possible, squadron commanders may authorize one of the following methods, in order of priority: CCT or ground party, satellite photography survey, or thorough map survey (1:50,000 scale map or less). Aircrew will exercise extreme caution when operating into sites that were surveyed with one of the these methods.

3.8. Low Level Surveys:

3.8.1. Prior to training or exercise operations below 500 feet AGL, a survey of the route/area will be accomplished as follows:

3.8.1.1. An extensive map study will be made of the selected routes and areas. All obstacles and hazards 50 feet above terrain or natural vegetation within the boundaries will be annotated on the

flight map. The Chart Updating Manual (CHUM) will be used to ensure current obstacles are depicted on maps.

3.8.1.2. Surveying an area rather than a specific route for low level navigation will increase the effectiveness of the training by allowing greater flexibility in planning navigation legs. If surveying the entire low level area is not possible, ensure the area within 5 NM of the route is surveyed.

3.8.1.3. The survey will be accomplished during daylight hours, and will be conducted at the lowest practical altitude.

3.8.1.4. If low-level helicopter flight operations have not been conducted in that area/route for 6 months, a resurvey will be accomplished.

3.8.1.5. Units deployed for training, operational, and exercise missions do not have to conduct their own flight surveys if a current master map and flight survey is provided to them by a DOD agency that operates helicopters.

3.9. Illumination Requirements for Helicopter Landing Areas:

3.9.1. Night operations into unprepared/unlighted areas may only be conducted using NVGs. ***EXCEPTION***: Helicopters on operational or support missions may be authorized by the squadron commander to operate into prepared/unlighted areas unaided, provided the crew is aware of all obstacles, and aircraft lighting provides sufficient illumination to clearly see the approach path and landing surface.

3.9.2. Helicopters may operate into prepared/lighted areas (helipad, runway, taxiway, and ramp) unaided, provided the crew is aware of all obstacles, and can clearly see the approach path and landing surface.

3.10. Altitude Restrictions. Conduct all operations at or above 500 feet AGL except when lower altitudes are required for takeoff, departure, arrival, landing, operational missions, training flights in approved areas or routes, or approved exercise missions. Pilots must ensure that flights conducted below 500 feet do not create a hazard to persons or property on the surface.

3.10.1. Helicopters are limited to a base altitude of 100 feet above the highest obstacles (AHO) during day and night tactical NVG operations. ***EXCEPTION***: Flight down to 50 feet AHO is authorized during preplanned tactical missions. Approval to fly at 50 feet AHO is limited to specific route segments for the purpose of defeating threats. Approval authority is squadron ADO/DO/CC, or any H-60 tactical mission qualified IP.

3.10.2. Minimum en route altitude for unaided night navigation, both operationally and for training, is 500 feet AHO within 5 NM.

3.10.3. Minimum en route altitude for non-tactical NVG flight is 500 feet AGL.

3.10.4. Pilots must compute a minimum safe altitude for each leg of a low-level route. ***EXCEPTION***: For flights conducted in a designated low-level area, one minimum safe altitude may be computed for the planned area of operation. The heading and altitude must provide a minimum of 1,000 feet (2,000 feet in mountainous areas) above the highest obstacle within 5 NM either side of the planned route centerline. This altitude will be used in the event of inadvertent IMC.

3.10.5. Obstacle Clearance. If known obstacles cannot be visually identified prior to 1/2 NM, climb to a sufficient altitude to ensure obstacle clearance, and do not descend to planned en route altitude until obstacle clearance is assured.

3.10.6. NVG low level operations may be conducted down to 100 feet (50 feet on approved flight legs) obstacle clearance with sufficient available ambient illumination (city lights reflected from a low overcast, starlight) equivalent to 5% moon disk for operations using ANVIS or F-4949 NVGs. Even if the minimum illumination as stated above is available, the decision on whether there is sufficient available illumination to safely conduct NVG operations down to minimum altitudes rests entirely with the aircraft commander or flight lead.

3.10.6.1. When sufficient available illumination is not available, the minimum altitude is 500 feet AGL in non-mountainous areas and 500 feet AHO within 2 NM of course centerline in mountainous areas. Approaches must be accomplished with additional light sources (searchlight/LZ lighting). ***NOTE:*** For NVG VFR low level operations, mountainous areas are defined as areas where a 500-foot elevation change occurs within one-half NM.

3.10.7. With the exception of terminal operations, the minimum altitude for night over water flight is 100 feet AWL.

3.10.8. Air Refueling Altitudes. Normal air refueling altitude will be accomplished at a minimum of 1000 feet AGL. Refueling below 1000 feet AGL can be accomplished on operational missions but should be as high as conditions allow.

3.11. Minimum Equipment for NVG Operations:

3.11.1. Radar altitude indications at both pilot and copilot stations.

3.11.2. NVG compatible cockpit lighting.

3.11.2.1. Green/Blue chemlites are considered NVG compatible and may be used to augment lighting, or as backup lighting in the event of failed aircraft lighting. Chemlites should not be used as a routine practice to correct a problem where maintenance should be performed.

3.11.2.2. During overwater operations install low intensity chemlites over each exit and place a chemlite on all emergency egress window handles.

3.11.3. At least one of the following: an operational IR landing light, IR searchlight, variable intensity searchlight, or FLIR.

3.11.4. All primary crewmembers (pilot, copilot, FE, and left scanner) must wear F-4949 or ANVIS NVGs. Each aircraft's primary flight crew should wear the same type of NVG. Do not fly with goggles that fail to meet the prescribed visual acuity standards.

3.12. Life Support Requirements:

3.12.1. Overwater life support equipment (HEEDs, life preservers, anti-exposure suits, and life rafts) are not required when overwater flight is limited to short distances during takeoff/landing, and anytime the aircraft is within autorotational distance of land. Additionally, life rafts are not required when cover is provided by a boat or hoist equipped helicopter. During all other overwater flights aircrew will wear HEEDs, all occupants will wear life preservers, a life raft will be carried, and anti-exposure suits will be worn IAW AFI 11-301, *Aircrew Life Support Program*, and MAJCOM instructions.

Pararescue personnel and Combat Rescue officers (CROs) are exempt from these requirements when wearing mission equipment and/or clothing that meets or exceeds protection afforded by standard aircrew life support equipment.

3.12.2. Survival Vest Requirements. Helicopter crewmembers will wear survival vests/Load Bearing Vest (LBV) on all flights departing the local traffic pattern.

3.13. Tool Kits. The flight engineer or helicopter mechanic will have a tool kit on board for all flights departing the local flying area. Individual units will establish requirements for tools to be included in these kits. As a minimum, the kit will include enough tools to remove and install chip detector plugs. Tool kits will have an inventory list for accountability and will be sealed. If the seal is broken, the flight engineer will inventory the kit and sign the accountability list prior to the next flight.

3.14. Publication Kits. Units will maintain one publication kit per PAI aircraft (N/A for 58 SOW). Prior to departure, the aircraft commander or designated representative will ensure a current kit is aboard the aircraft. Items duplicated in the kit need not be carried by crewmembers. Publication kits are not required during FCFs as long as a flight manual is carried. Units will tailor the contents of the kit to meet local requirements, and list these items in their local **Chapter 8**. **Required Contents**:

3.14.1. Aircraft Dash 1 Technical Order and appropriate checklist.

3.14.2. DD Form 175, **Military Flight Plan** (as required).

3.14.3. DD Form 1801, **DOD International Flight Plan** (as required).

3.14.4. AF Form 15, **USAF Invoice**.

3.14.5. AF Form 315/315A, **USAF AVFuels Invoice**.

3.14.6. IFR Supplement (one each).

3.14.7. VFR Supplement (one each).

3.14.8. Flight Information Handbook (1 each).

3.14.9. En Route Low Altitude Charts (one set for area of operation).

3.14.10. Low Altitude Instrument Approach Procedures (two sets for area of operation).

3.14.11. Maps and Charts (as required).

3.15. Hazardous Cargo Procedures. Normally, helicopters will not transport hazardous cargo. Should an aircraft be called upon to transport such cargo, consult AFJI 11-204, *Operational Procedures For Aircraft Carrying Hazardous Materials*/AFJMAN 24-204, *Preparing Hazardous Materials for Military Air Shipments*.

3.15.1. Hazardous Medical Equipment Aboard Helicopters. Nonstandard medical equipment used during air evacuations should be regarded as potentially hazardous. Nonstandard electronic and oxygen equipment is an item designated by a manufacturer and model number that is not listed in the current "Status Report on Medical Material Items Tested and Evaluated for use in the Aeromedical Evacuation System," Brooks AFB, TX 78235. Authorization for medical material not listed in this report will be addressed to MAJCOM/DO/SG on an individual basis.

3.16. TOLD. Complete Takeoff and Landing Data (TOLD) prior to takeoff. Compute all data applicable to the mission profile.

3.17. Weight and Balance Documentation:

3.17.1. Units will maintain a current weight and balance book for each assigned aircraft. As a minimum, the book will contain:

3.17.1.1. Computed DD Form 365-4, **Weight and Balance Clearance Form F – Transport**, to reflect all missions. Canned DD Forms 365-4 are authorized.

3.17.1.2. Equipment Weight Listing (list of commonly carried equipment).

3.17.1.3. Standard Configuration Equipment Checklist and/or floor plan drawing.

3.17.2. A copy of the equipment checklist and equipment location drawing will be included in the back of each aircraft 781 folder.

3.17.3. A new or corrected DD Form 365-4, need not be recomputed provided the initial takeoff gross weight (item 16) is not changed by more than 500 pounds. The flight engineer will compute in-flight crew/passenger/equipment movement to ensure CG limits are not exceeded. These computations will address the maximum number of personnel/equipment allowed in a specific compartment without exceeding CG limits. Although no written adjustments are required, the flight engineer will compute these changes and brief the aircraft commander of the new CG and TOLD requirements. These computations will be briefed during the crew/mission brief or during flight, as required.

3.17.4. Use of the approved automated weight and balance system is authorized.

3.17.5. Zero fuel weight computations are required on the DD Form 365-4.

3.17.6. Passengers. Item 13 on the DD Form 365-4 will indicate the number of passengers in a compartment/seat/position, their weight, and the compartment/arm/station.

3.18. Aircraft Configuration. All units will establish and publish equipment requirements based on their known taskings. All equipment authorized for and installed on the aircraft will be categorized and managed in accordance with AFI 21-103, *Equipment Inventory, Status, and Utilization Reporting*. Aircraft will not be modified to secure, and/or install equipment, unless authorized by aircraft technical orders or DODI 5000-2 AF Sup 1. A seat will be available for each passenger. Passengers designated as MEGP may be alternate loaded if mission requirements preclude the installation of seats. Additional crewmembers will be in a seat for takeoff and landing unless the installation of seats would compromise safe mission accomplishment.

3.18.1. A hoist cable quick splice device and V-blade knife will be carried on all hoist equipped aircraft.

3.18.2. Cargo/Equipment. Items requiring frequent access weighing less than 200 pounds may be secured with seat belts. Secure cargo/equipment items not requiring rapid removal during an aircraft or medical emergency with devices identified in TO 1C-1-71, *Listing of Cargo Tiedown Equipment Authorized for all Series Cargo Aircraft*.

3.18.3. Rescue training devices used only for hoist training will be clearly distinguishable from operational equipment. Training devices will be configured the same as operational equipment. Only oper-

ational equipment will be used for live hoist. Authorized Rescue Hoist Devices are: Forest Penetrator, Stokes Litter, Rescue Net, and Survivor's Sling (Horse Collar).

3.19. Water Operations:

3.19.1. Conduct all water hoist training a minimum of 100 yards offshore.

3.19.2. Radar altitude indications at both pilot and copilot stations are required for both day and NVG water operations.

3.19.3. Water operations training which require cover by a boat, hoist equipped helicopter, helicopter capable of deploying PJs and/or a life raft, or HC-130 rigged for deployment of MA-1 survival kit(s)/ RAMZ are; live water operations (i.e., actual deployment of personnel) day or night, and NVG water operations.

3.20. Alternate Insertion/Extraction Operations (AIE):

3.20.1. Alternate Loading. When use of standard seating is not possible due to mission requirements, personnel will be secured to the cabin floor using either a seat belt, gunner's belt, or unit approved personal snap link device.

3.20.2. Aircraft Configuration. All nonessential equipment not required for the mission may be removed from the cabin. OG/CC approval is required to remove the FE and AG seats. OG/CC may delegate this authority no lower than SQ/CC.

3.20.3. For rappelling operations, deploying personnel are responsible for aircraft rigging and proper hookup of rappelers. The deploying team is responsible for providing rappel ropes, harnesses, and rappel devices. FEs or AGs will inspect all equipment and hookups to ensure configuration is IAW **Chapter 6** of this volume.

3.20.4. For rope ladder operations, the flight crew is responsible for providing, inspecting, and rigging rope ladders. Rope ladders will be attached using steel locking carabiners. Ladder(s) will be rolled up and secured prior to flight.

3.20.5. For fast rope operations, the deploying team is responsible for providing the ropes and assisting the FE/AG in inspecting them prior to use, and rigging the aircraft.

3.20.6. Pararescuemen/CROs are authorized to use the Barrelman Hoist Technique IAW AFTTP 3-3, Volume 24.

3.20.7. *WARNING*: For all AIE operations, it is the aircraft commander'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.

3.21. Wind Limitations for Personnel Parachute Delivery. Wind limits are IAW AFI 13-217, *Assault Zone Procedures*, and will be prebriefed by the jumpmaster.

3.22. Maintenance Debriefing. The aircraft commander (or designated crewmember) will debrief maintenance personnel on the condition of the aircraft and equipment. Make the following entries in the AFTO Form 781A when appropriate:

3.22.1. Engines subjected to salt spray at _____ feet.

3.22.2. Hoist and (type rescue device) used in salt water.

3.23. Helicopter Fuel Systems:

3.23.1. Helicopter operations should not be conducted with any malfunction in the main fuel tank quantity or warning systems, except on emergency missions. In this case, the fuel tank involved must be fully serviced and visually checked.

3.23.2. Malfunctions of the Enhanced Fuel Quantity Indicating (EFQI) system should not affect main fuel quantity indications and do not restrict the crew from flying the aircraft. However, if mission requirements dictate the use of auxiliary fuel with a malfunction in the EFQI, the tank must be visually checked prior to takeoff, and a crewmember must be designated to monitor the transfer of auxiliary fuel to preclude damaging the auxiliary fuel transfer pumps.

3.24. Shipboard Operations. Units authorized by their MAJCOM to perform shipboard operations will qualify crews IAW AFI 11-2HH-60, Vol 1, and Joint Pub 3-04.1, *Joint Tactics, Techniques, and Procedures for Shipboard Helicopter Operations.*

Chapter 4

NORMAL OPERATING PROCEDURES

4.1. Checklists. Accomplish all Flight Manual checklists using the Challenge-Response (C-R) method for normal checklist procedures, and the Challenge-Response/Response (C-R/R) for emergency procedure checklists.

4.2. Equipment in the Cockpit. Ensure the area around and under both collective sticks is clear of all items that may interfere with proper movement of the collective. The Electronic Linked Mission Overlay (ELMO) display, a Fujitsu 2300 pen-tablet computer, and its EDL ARINC converter are approved for use. WRALC statement of airworthiness is on file at HQ ACC/DOTV.

4.3. Passengers Occupying Crew Positions. Any passenger occupying a crew position will be on intercom with all appropriate restraint devices worn. Passengers will not occupy a seat with access to a set of flight controls.

4.4. Copilot Maneuvering Policy. The following maneuvers will only be performed for training or currency by copilots under the supervision of a qualified instructor pilot at a set of controls:

4.4.1. NVG Water Ops. ***EXCEPTION***: Copilots may log currency with an aircraft commander while performing copilot duties. Copilots may maneuver the aircraft only in an emergency situation or in the pattern (at or above 100 feet AWL) to relieve the aircraft commander.

4.4.2. Air Refueling Contacts. ***EXCEPTION***: Copilots certified to perform contacts IAW AFI 11-2HH-60V1, HH-60 -- Aircrew Training, do not require instructor pilot supervision. Copilots may log currency with an aircraft commander while performing copilot duties.

4.5. Deployment of Non-USAF Personnel. OG/CC may authorize current DoD non-USAF parachutists or AIE qualified personnel to deploy from aircraft under their control. The squadron commander must ensure the personnel are qualified to perform the event, are fully briefed on, and adhere to, USAF procedures and squadron standards. For water personnel deployments utilizing SCUBA equipment, personnel must be certified military SCUBA divers.

4.6. Seat Belts. Either the pilot or copilot will have seat belt and shoulder harness fastened when rotors are engaged. A seat belt, authorized restraint harness, or parachute will be worn by all occupants in the cabin compartment when doors are open during flight. Seatbelts must be on for takeoff and landing except when authorized by the aircraft commander to perform an essential duty.

4.6.1. When gunner's belts or authorized restraint harness are worn they will be properly attached and adjusted to preclude accidental exit from the helicopter.

4.6.2. The gunner's belt and authorized restraint harness attachment point will be the Crew Overhead Restraint System (cors), the cabin ceiling rappel rings, or the cargo tiedown fittings. Only one gunner's belt or restraint harness will be attached per cargo tiedown ring. All restraint devices may be attached to anchor points using a steel locking carabiner and must be adjusted to preclude inadvertent exit from the aircraft.

4.7. Aircraft Lighting. Operate aircraft lighting in compliance with AFI 11-202V3; AFI 11-214, *Aircrew and Weapons Director Procedures for Air Operations*, applicable MAJCOM supplements, and the following:

4.7.1. Aircraft may be flown with one strobe light inoperative.

4.7.2. Landing/searchlights will be on for all unaided night takeoffs and after turning final for night unaided approaches unless safety, weather, excessive glare or operational mission requirements dictate otherwise.

4.7.3. Aircraft may operate in restricted areas and warning areas with reduced lighting; anti-collision, strobe lights, and position lights off (all lights off or in any combination) IAW AFI 11-202V3, paragraph 5.17.1.

4.7.3.1. FAA Exemption 5891A allows two or more helicopters to operate with reduced lighting (position lights off or IR) while conducting NVG training below 200 feet AGL. (HQ AFFSA ACC Waiver Vol 3/99009 expires 30 Apr 2002.) The following restrictions apply:

4.7.3.1.1. Define the operating area, e.g., the radius area of a point or location.

4.7.3.1.2. Establish in an area of low traffic density.

4.7.3.1.3. Not within 5 NM of any public use airport.

4.7.3.1.4. Must not affect Class D airspace.

4.7.3.1.5. Must be coordinated with the appropriate FAA regional Air Traffic Division and Flight Standards Division office.

4.7.3.1.6. Units will advertise new approved training areas to operators at all airports within 50 NMs of the area 60 days preceding its initial use.

4.7.3.1.7. Aircrews involved in these activities shall receive a briefing on the details of this waiver.

4.7.3.2. HH-60s not operating IAW paragraph **4.7.3.1.** above or in a warning/restricted area will operate with the following lighting configurations:

4.7.3.2.1. Visible (non-IR) position lights and at least one strobe light that provides full 360-degree lighting.

4.7.3.2.2. For formation flights, the lead aircraft will operate with position lights in dim or IR and on. Strobe lights usage is optional. The wingman or last aircraft in the formation will operate with position lights in dim or bright, and at least one strobe light on which is visible for 360 degrees.

4.8. Aircraft Taxi Restrictions:

4.8.1. Without wing walkers, avoid taxi obstructions by 25 feet; with wing walkers, by 10 feet.

4.8.2. When taxi clearance is uncertain, use a wing walker(s). If wing walkers are unavailable, deplane a crewmember(s) to maintain obstruction clearance.

4.8.3. Maximum hover taxi speed: 15 knots ground speed. (N/A for air taxi.)

4.8.4. Maximum ground taxi speed: 10 knots ground speed.

4.9. Rotor Turning Ground Operations:

4.9.1. Passengers will be briefed by the aircraft commander, or designated representative, on procedures to be followed.

4.9.2. The right cabin door will be the primary entrance and exit door. When conducting Infil/Exfil of combat troops (training/operational), with the specific emphasis on minimum exposure, the off/on load may be conducted via either cargo door. Scanners will ensure troops do not go in the immediate vicinity of the tail rotor.

4.9.3. Except during actual combat operations or combat mission training flights when all personnel have been thoroughly briefed on procedures, one crewmember will escort passengers/MEGP through the safe approach zone.

4.9.4. Rotors turning off and onload for crew changes are authorized. The new crew will review aircraft forms, weight and balance, and TOLD.

4.10. Helicopter Maneuvering. Helicopter operations are limited to the maximum sustainable bank angle for planned airspeed, except when conducting aircraft handling characteristics (AHC) training, evasive maneuvering, emergency procedures training, or for tactical reasons when altitude and airspeed allow recovery to a sustainable condition prior to reaching minimum altitude. If at any time the aircraft exceeds the maximum sustainable angle of bank for the current conditions, the pilot flying (or anyone else on the crew noticing the condition) must announce "overbank" to the crew.

4.10.1. For all flights, crews will brief blade stall and maximum sustainable bank angles for planned weights and airspeeds using applicable flight manual and energy maneuverability charts. If a pilot or copilot maneuvers beyond maximum sustainable bank angle (negative energy state), they must ensure they have the altitude/airspeed to prevent descent below the established minimum altitude.

4.11. AFTO Form 781, AFORM, Aircrew/Mission Flight Data Document.

4.11.1. Review the AFTO Form 781 before applying power to the aircraft or operating aircraft systems. The exceptional release must be signed before flight. A maintenance officer, maintenance superintendent, or authorized civilian will sign the exceptional release. If one of these individuals is not available, the aircraft commander may sign the exceptional release. Ensure the AF Form 1896, **USAF Ground Fuel Identaplate**, and a US Government Air Card are aboard the aircraft.

4.11.2. Authority to Clear a Red X . Flight engineers normally are not authorized to clear a Red X. If a situation is encountered where the aircraft is on a Red X and qualified maintenance personnel are not available, the home station chief of maintenance may authorize the flight engineer to clear the Red X condition.

4.12. Aircraft Refueling. When not directly involved in the refueling operation, personnel will remain at least 50 feet from the aircraft. (***EXCEPTION:*** Approved hot refueling/FARP operations). Do not taxi another aircraft within 50 feet of a refueling operation.

4.12.1. Aircrew members qualified in refueling may perform refueling duties. Flight engineers used as refueling supervisors/panel operators will comply with TO 00-25-172, *Ground Servicing of Aircraft and Static Grounding/Bonding*. At bases with MAJCOM support, aircrews will not refuel except in isolated cases when maintenance support is not readily available and the mission would be delayed.

4.12.2. Hot refueling will be conducted in compliance with TO 00-25-172 and the flight manual.

4.13. Forced or Precautionary Landings. If the aircraft commander becomes doubtful of the helicopter's airworthiness or encounters hazardous weather conditions, a precautionary landing should be accomplished. Report all precautionary landings through appropriate chain of command as soon as communications are established.

4.13.1. In the event a forced or precautionary landing occurs at a location where communications are not available, the following procedures apply:

4.13.1.1. If the aircraft commander determines the aircraft is not safe for flight, remain at the landing site and await assistance.

4.13.1.2. If the aircraft is safe for flight, the aircraft commander may authorize further flight.

4.14. Fuel Dumping. Do not initiate fuel dumping except for life and death rescue missions, high priority operational missions, and emergencies. Except during emergencies, fuel will not be dumped below 3,000 feet AGL or over agricultural/populated areas.

4.15. Engine Health Indicator Test (HIT) Checks. Perform the engine HIT check IAW the flight manual. The engine torque factor (ETF)/aircraft torque factor (ATF) combined with the daily HIT check confirms the engine will produce computed power.

4.16. Power Required. Power required charts are based on having ground effect. When landing to a site less than the diameter of your rotor system, such as a pinnacle or ridgeline, aircrews must ensure sufficient power is available. The degree of slope also affects power required due to loss of ground cushion. Power figures will be computed using "without wind" charts for unknown or predicted site conditions. Use the following guidelines:

4.16.1. When landing to a surface area smaller than your rotor diameter, such as a pinnacle, power for an OGE hover must be available.

4.16.2. Landing Zone Power Available Rules:

4.16.2.1. Clear Escape Route:

4.16.2.1.1. For training, power available must be equal to or greater than power required for the intended hover height (no less than 10 ft) + 5%.

4.16.2.1.2. For operational missions, power available must be equal to or greater than the power required for the intended hover height.

4.16.2.2. Restricted Escape Route:

4.16.2.2.1. For training, power available must be equal to or greater than OGE hover power + 5%.

4.16.2.2.2. For operational missions, power available must be equal to or greater than OGE hover power.

4.16.3. Water Operations:

4.16.3.1. For training, power available must be equal to or greater than OGE hover power + 5%.

4.16.3.2. For operational missions, power available must be equal to or greater than OGE hover power.

4.16.3.3. When the anticipated power margin is 10% or less, a second aircrew member will reconfirm power computations using flight manual performance charts or the CDU Calculator Page.

4.16.4. If sufficient power is not available, either lighten the helicopter, locate a more suitable landing site, or abort the mission.

4.17. Non-Surveyed/Unprepared Landing Zone Procedures. Operations will be IAW AFI 11-202V3, paragraph 5.9.4., and the following procedures will be accomplished when landing to non-surveyed or unprepared landing zones. ***EXCEPTIONS***: Operational/Exercise CSAR missions. For exercises ensure compliance with paragraph **3.7.6.** of this instruction, and if conditions permit, terminate the approach in a hover and clear the area beneath the aircraft prior to landing.

4.17.1. Landings at other than surveyed LZs require performance of a high and low recon to ensure the area is suitable and meets the requirements of para **3.7.3.** Approaches will terminate in a hover to visually inspect the area directly below the helicopter prior to landing.

4.17.2. Accomplish a high reconnaissance at a minimum of 300 feet above the site at a minimum airspeed of 50 KIAS.

4.17.3. Accomplish a low reconnaissance at a minimum of 50 feet AHO along the flight path at a minimum of 50 KIAS. At the pilot's discretion, the low reconnaissance may be performed on final approach if OGE power is available.

4.17.4. During landing, scanners will clear the area below the aircraft and advise the crew of obstacles or hazards within 25 feet of the aircraft.

4.18. Remote Site Evaluations Not Requiring a High and Low Reconnaissance:

4.18.1. Tactical approaches.

4.18.2. During successive approaches where conditions are equal to or less stringent than a previous approach to the same area.

4.18.3. During a mission where, in the judgment of the aircraft commander, the accomplishment of the high and low reconnaissance would degrade mission accomplishment.

4.19. Unaided Night Approaches. See Paragraph **3.9.** of this instruction for restrictions.

4.19.1. Brief and conduct an area and site evaluation prior to beginning the approach.

4.19.2. Under no circumstances will the low reconnaissance be conducted.

4.19.3. Do not leave flight altitude until the location of the LZ has been positively identified.

4.20. Cargo Sling Operations:

4.20.1. Compare computed power required to lift the load with power available and ensure power margins comply with paragraph **4.16.** of this instruction.

4.20.2. Avoid flying over personnel, buildings, or equipment as much as possible.

4.21. Training:

4.21.1. While student FE training is being conducted in the cabin, the instructor FE will not be used as a left scanner.

4.21.2. Live Hoist Training:

4.21.2.1. Unit commanders determine eligibility of personnel authorized to ride the hoist during training. Personnel not familiar with AIE operations require a qualified PJ or SERE Specialist to act as a safety observer.

4.21.2.2. Accomplish live hoist training at the minimum altitude required to accomplish desired training, but in no case higher than 40 feet over an obstacle-free area or no higher than 25 feet above the highest obstacle directly below the aircraft, whichever is higher. *NOTE*: Higher hover altitudes may be performed as long as the survivor is not lifted higher than the altitudes specified above.

4.21.2.3. Hoist training over trees may be conducted at sites adjacent to a suitable emergency landing area. 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. 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.

4.21.2.4. Recommended hoist altitude over water or vessels is the minimum altitude necessary to avoid salt spray and/or shipboard obstacles. Do not conduct live hoist training over water or ships if required hover altitude exceeds 50 feet.

4.21.2.5. Do not conduct hoist training with the hoist operator's intercom inoperative.

4.21.2.6. Do not conduct simulated hoist emergency procedure training during live hoist.

4.21.3. Contact/Emergency Procedures. Accomplish all simulated emergency maneuvers according to the flight manual and this chapter.

4.21.3.1. Prohibited Maneuvers. In addition to flight manual prohibited maneuvers, the following will not be practiced in the aircraft: actual engine shutdown in flight, power settling, and dual Electronic Control Unit (ECU)/Digital Electronic Control (DEC) malfunctions.

4.21.3.2. Special Restrictions. Unusual attitude training, Aircraft Handling Characteristics (AHC) sorties, and autorotations will not be accomplished at night or in IMC. Unusual attitude training and emergency procedures training will only be accomplished when an instructor/flight examiner pilot is in command and occupying a seat with a set of controls. Simulated hoist and gun emergencies may be performed at night with the concurrence of the aircraft commander, if an instructor/trainer or evaluator/certifier qualified in the event is on board the helicopter.

4.21.3.3. Planned entry altitude for approaches should be 300 feet AGL unless specified otherwise in this regulation.

4.21.3.4. A 10-foot main wheel clearance or sufficient altitude to clear obstructions will be used for all hovering maneuvers.

4.21.3.5. Accomplish all emergency procedures to runways, taxiways, helipads, or other areas approved by the squadron commander and listed in the local **Chapter 8**.

4.21.3.6. Marginal Power Takeoff. Initiate from the ground or a 10-foot hover using 10-foot hover power. Simulate a 50-foot obstacle. The maneuver is terminated when clear of the simulated obstacle and above safe single engine airspeed (or 80 knots if safe single engine airspeed is not available).

4.21.3.7. Maximum Performance Takeoff. Initiate from the ground or 10-foot hover using a simulated maximum power available of OGE + 5% or as specified by the IP/EP. Simulate a 100-foot obstacle. The maneuver is terminated when clear of the simulated obstacle and above safe single engine airspeed (or 80 knots if safe single engine airspeed is not available).

4.21.3.8. Rolling Takeoff. Simulate max power 10% below hover power.

4.21.3.9. Traffic Pattern. If a rectangular pattern is flown, the downwind leg will be flown at 500 feet AGL and 100 KIAS. During the turn to base, descend to 300 feet AGL and slow the aircraft to 80 KIAS. These altitudes will be used whenever possible if local conditions will permit, otherwise comply with appropriate local traffic patterns. If required, the before landing checklist will be accomplished prior to turning final.

4.21.3.10. Normal/Shallow Approach. Use a 30° apparent angle for a normal approach and a 10° apparent angle for a shallow approach. Initiate the approach from 300 feet AGL and 80 KIAS. The approach may be completed to a touchdown or a 10-foot hover. When terminating to a touchdown, ensure flight manual touchdown limits are not exceeded.

4.21.3.11. Steep Approach. Initiate the approach at 300 feet AGL, 50 knots ground speed, and a 45° apparent angle. The maximum rate of descent is 800 feet a minute. The approach may be completed to a touchdown or a 10-foot hover. When terminating to a touchdown, ensure flight manual touchdown limits are not exceeded.

4.21.3.12. Roll-on Landing. Use an entry airspeed no less than safe single engine airspeed. Maximum touchdown speed is 60 knots ground speed.

4.21.3.13. Practice Single-Engine Landing. Initiation of practice single-engine emergencies will not be lower than 300 feet AGL, 80 KIAS.

NOTE: Practice single-engine emergencies may be initiated below the above listed altitude as long as torque available is limited on both engines versus reducing torque available on the simulated failed engine. Instructors must use caution when simulating single-engine emergencies at low altitudes and airspeeds.

4.21.3.13.1. The following simulated single-engine maneuvers will be practiced by simulating a limited torque available on both engines versus reducing torque by actual throttle manipulation: single-engine air refueling and single-engine approaches to a spot (min-roll).

4.21.3.14. Stabilator Malfunction. Do not initiate a stabilator malfunction when aircraft attitude is greater than 10° nose low. Do not exceed the flight manual stabilator placard limits when manually slewing the stabilator.

4.21.3.15. Boost/SAS-OFF. Initiate on the ground or in straight and level flight at a minimum of 300 feet AGL and 80 KIAS.

4.21.3.16. Electronic Control Unit (ECU)/Digital Electronic Control (DEC) Lockout. Initiate on the ground or in flight at a minimum of 300 feet AGL and 80 KIAS.

4.21.3.17. Unusual Attitude Training. Instructors simulating unusual attitudes for training will not exceed 30 degrees of bank, 20 degree nose high attitude, 10 degree nose low attitude, nor initiate the maneuver below 1,000 feet AGL (N/A for simulator training).

4.21.3.18. Practice Autorotations. Accomplish IAW the flight manual and the following restrictions.

4.21.3.18.1. The maneuver will terminate and a power recovery initiated at the first indication of abnormally high/low rotor RPM, excessive sink rate, low airspeed, ineffective flare, or at any time an inadvertent touchdown might occur.

4.21.3.18.2. All practice autorotations will be terminated with a power recovery no lower than 15 feet AGL with a maximum ground speed of 30 knots.

4.21.3.18.3. Practice autorotations require the aircraft to be aligned within 45 degrees of the wind direction when winds exceed 15 knots, below 15 knots, aircraft heading will be within 90 degrees of the wind.

4.21.3.18.4. Do not practice autorotations in excess of 180 degrees when recovery will be below 500 feet AGL.

4.21.3.18.5. Minimum entry altitude for 180-degree autorotations will be 800 feet AGL; 500 feet AGL for all others. The throttles will remain in fly. For all autorotations, the aircraft must be wings level, have a minimum of 80 KIAS, rotor RPM within limits, and be aligned for landing/recovery heading at no lower than 150 feet. Initiate the flare between 125 and 75 feet AGL with a minimum of 80 KIAS. If any of these conditions are not met, initiate a power recovery immediately. The wings level requirement does not prohibit minor heading corrections on final.

4.22. Aircraft Handling Characteristics (AHC). Aircraft Handling Characteristics maneuvers are designed to familiarize the aircrew with aircraft performance and limitations. The maneuvers accomplished on the annual AHC sortie should be performed together as a portion of the overall sortie or on a dedicated sortie. Selective maneuvers should be performed as a warm-up prior to low-level operations. See AFTTP 3-3, Volume 24 for detailed descriptions of each AHC maneuver.

4.22.1. Aircraft Handling Characteristics Maneuvers General Guidance. Except as noted below, all maneuvers will be entered from a minimum of 1000 feet AGL, at chart or cruise airspeed, and the recovery completed above 500 feet AGL.

4.22.1.1. Pitch Up. Enter at a fixed cruise power setting at a minimum of 500 feet AGL.

4.22.1.2. Pitch Down. Enter from straight and level flight at 60-80 KIAS and at a minimum altitude of 1500 feet AGL.

4.22.1.3. Overbank. Enter at a minimum altitude of 1500 feet AGL.

4.22.1.4. Two Step Climbing Turn. Enter at a minimum altitude of 500 feet AGL.

4.22.1.5. Low-Level AHC maneuvers will be initiated at a minimum of 100 feet AHO, and recovered no lower than 100 feet AHO, except for quickstop (low-level deceleration) maneuvers.

4.22.1.5.1. Initiate quickstops at a minimum of 80 KIAS and 50 feet AHO. Terminate quickstop maneuvers no lower than 50 feet AHO, and at no time will any part of the helicopter be below 50 feet AHO.

4.22.1.5.2. Quickstop training will only be accomplished to open prepared surfaces (runway or taxiway), or surveyed LZs. OGE hover power + 5% power is required for low-level quickstops. Pilots will not perform this maneuver with a tail wind condition of greater than 10 knots.

4.22.2. Airspeed for onset of blade stall must be computed using the chart in TO 1H-60(U)A-1, Flight Manual USAF Series HH-60G Helicopters. AFTTP 3-3V24 energy maneuvering charts may be used for all other computations.

4.23. Shipboard Operations will be conducted IAW Joint Pub 3-04.1 and AFTTP 3-3V24.

Chapter 5

INSTRUMENT PROCEDURES

5.1. Simulated Instrument Flight. The following procedures supplement AFM 11-217, *Instrument Flight Procedures*, Volumes 1 & 2.

5.1.1. The use of a hood or other artificial vision-restricting device is not authorized for any phase of flight. Simulated instrument flight may be flown and logged without use of a vision-restricting device.

5.2. Advisory Calls:

5.2.1. Nonprecision Approaches. The pilot not flying calls:

5.2.1.1. 100 feet above minimum descent altitude (MDA).

5.2.1.2. “Minimums” at MDA.

5.2.1.3. “Runway in sight” when the runway environment is in sight. Do not call too soon when obstructions to vision (such as fog, haze, low stratus clouds, etc.) are present.

5.2.1.4. “Go-around.” Call at missed approach point if the runway environment is not in sight or if the aircraft is not in a position for a normal landing.

5.2.2. Precision Approaches . Pilot not flying calls:

5.2.2.1. 100 feet above decision height (DH).

5.2.2.2. "Land." Call at decision height if the runway environment is in sight and the aircraft is in a position for a normal landing.

5.2.2.3. "Go-around." Call at decision height if the runway environment is not in sight or if the aircraft is not in a position for a normal landing.

5.2.3. Altitude Advisories (climbs/descents). Within 1,000 feet and 100 feet of intended altitude.

5.2.4. The pilot not flying the aircraft will announce heading deviations of 10 degrees, airspeed deviations of 10 knots, or when altitude deviation exceeds 100 feet. Any crewmember seeing a deviation of 100 feet altitude or potential terrain or obstruction problem will immediately tell the pilot. Deviations from prescribed procedures for the approach being flown also will be announced.

Chapter 6

COMBAT RESCUE/MISSION OPERATIONS

6.1. Low-Level Operations:

6.1.1. Evasive maneuvers will be performed IAW AFTTP 3-1, Vol 24, *Tactics—HH-60*. Training rules (TR's) and maneuvering category will be IAW AFI 11-214.

6.1.1.1. Initiate and maintain all training evasive maneuvers above 100 feet obstacle clearance.

6.1.1.2. Aircrew will make crew advisory calls prior to all turns, and will continuously clear the flight path throughout the turn.

6.1.1.3. Prior to making a break call ensure the aircraft is cleared in the direction of turn. If a break is required to the opposite side of the scanner calling the break, the opposite scanner is responsible for immediately clearing the aircraft and calling "CLEAR RIGHT/LEFT" or "STOP TURN."

6.1.1.4. Flight Lead/Aircraft Commanders are responsible for ensuring that planned evasive maneuver training takes into account aircraft performance, environmental conditions, formation spacing, and crew/flight experience.

6.1.2. Unknown Position. During training, if unable to establish aircraft position, climb to a safe altitude and reorient your position before resuming low level navigation.

6.1.3. Tactical low-level approaches will only be flown during tactical training missions and operational missions. Conduct combat rescue terminal operations IAW AFTTP 3-1, Vol 24.

6.1.4. Low Level Checklist and FENCE Check. Crews will accomplish the **Attachment 2**, Low Level Checklist prior to conducting low-level operations. FENCE checks will be performed at the appropriate times during the mission.

6.1.5. Map annotations. As a minimum annotate course line, waypoints, hazards, MSA, and threats.

6.1.6. Pilots will ensure scanners and deploying personnel are updated on the status of the flight, and advised of events that impact the mission and their duties. As a minimum, the pilot should alert scanners and deploying personnel at 20 minutes, 10 minutes, 5 minutes, and 1 minute prior to the objective.

6.2. Formations. See AFTTP 3-3, Vol 24, *Fundamentals—HH-60 Helicopter* for formation positions and definitions. The minimum separation between the closest portions of any two helicopters in a formation is one rotor diameter. Maximum formation separation is based on environmental conditions, visibility, illumination, crew experience, threat situation, and mission requirements. Refer to paragraph **6.3.** for further formation separation restrictions. Rotor disk (RD) separation will be based on the largest rotor disk diameter.

6.3. Formation Maneuvering. There are eleven basic Tactical Formation Maneuvers (TFM) aircrews may employ: break, shackle, check, split, dig, hook, tac, cross, pinch, cover, and center. See AFTTP 3-3 Volume 24 for maneuver performance and description. TFM should not be conducted from the echelon position.

6.3.1. Tactical Formation Maneuvering Restrictions. The following restrictions will be adhered to when conducting TFM:

6.3.1.1. When flying in formation with less than 3-rotor disks separation, the only authorized Tactical Formation Maneuvers are: shackle, split, cover, and dig.

6.3.1.2. All maneuvers that result in the crossing of aircraft flight paths or the wingman changing sides in the formation will be conducted with enough spacing to ensure aircraft separation.

6.3.1.3. Center turns will not be accomplished at night and will only be accomplished with sufficient spacing to accomplish the turn safely. If an overshoot is unavoidable the wingman will climb or descend to establish vertical spacing and pass behind lead ensuring lateral spacing. Sufficient visual reference must be available to determine lead's aspect angle during the turn.

6.3.1.4. Cross turns will not be flown at night.

6.3.2. NVG Formation and Maneuvering Restrictions. Restrictions are defined in terms of the effective available illumination. Low illumination is defined as less than 10% equivalent moon illumination. Medium illumination is defined as 10-40% equivalent moon illumination. High illumination is defined as above 40% equivalent moon illumination. The restrictions in the following paragraphs assume ideal training conditions and aircrew proficiency with the maneuvers listed.

6.3.2.1. En Route. The formations and formation separation restrictions below apply when relying on visual means to ensure aircraft deconfliction and determining formation aspect and closure rates relative to the other aircraft. En Route formation spacing and aspect angle may be increased beyond the below restrictions as long as non-visual means are used to ensure aircraft separation/deconfliction. Altitude splits, TACAN, and geographic or timing separation are all means that can be used to ensure deconfliction. Flight leads are ultimately responsible for ensuring the conditions are appropriate for the planned formation spacing/maneuvering and a deconfliction plan is briefed. Aircrews will limit maneuvering at night while over featureless terrain or water since the visual cues required for safe maneuvering are dramatically reduced. When conducting basic tactical maneuvering at night, formation lead will specify roll out headings during break, split, hook, and tac turns.

6.3.2.1.1. The restrictions for low effective illumination are:

6.3.2.1.1.1. Aircraft separation of 1-3 rotor disks.

6.3.2.1.1.2. Maximum angle offset of 30° left or right except during refueling in echelon formation.

6.3.2.1.1.3. Maneuvering based on staggered and fluid trail formations.

6.3.2.1.2. The restrictions for medium effective illumination are:

6.3.2.1.2.1. Aircraft separation 1-10 rotor disks.

6.3.2.1.2.2. Maximum angle offset of 45° left or right.

6.3.2.1.2.3. Maneuvering based on staggered and fluid trail formations.

6.3.2.1.3. The restrictions for high effective illumination are:

6.3.2.1.3.1. Minimum aircraft separation is 1 rotor disk. The maximum separation is based on environmental conditions, crew experience, threat situation, and mission requirements.

6.3.2.1.3.2. Maximum angle offset using combat cruise formation angles.

6.3.2.1.3.3. Maneuvering using tactical formations IAW AFTTP 3-3V24.

6.3.2.2. Terminal Ops. The formation separation during terminal area operations will be dependent on the planned LZ Option. See AFTTP 3-1, Vol 24, *Fundamentals—HH-60 Helicopter* for formation positions and definitions. Planned LZ Option must take into account the environmental conditions and illumination in order to ensure aircraft deconfliction. When conditions and LZ Option may result in the loss of visual means for deconfliction, a non-visual deconfliction plan that may include altitude splits, TACAN, geographic or timing separation will be briefed to ensure aircraft deconfliction.

6.4. Dissimilar Formation. Formation flights with dissimilar aircraft are authorized when all participating crewmembers are briefed and thoroughly familiar with the other aircraft's performance and tactics. Rotor disk separation is based on the largest rotor disk diameter. MAJCOM/DO approval is required to fly formation with non-DoD aircraft.

6.5. Communication. Formation flight will not be initiated without positive radio communications capability. Whenever possible, conduct a communication check of all aircraft in the formation prior to takeoff.

6.6. Taxi. Aircraft will taxi with a minimum of 100 feet spacing from main rotor to tail rotor.

6.7. Turning Rejoins. Turning Rejoins. Formation Lead establishes an angle of bank (no greater than 20° at night). Wingmen then turn inside of lead/preceding aircraft until established in position. If an overshoot becomes unavoidable, the joining aircraft should pass behind the preceding aircraft so as not to lose visual contact. Never pass directly under or over any aircraft in the formation.

6.8. Night Formation. NVGs are the primary method of conducting night formation. Unaided night formation should only be accomplished when environmental conditions preclude the use of NVGs. Unaided formation light settings must be adjusted to provide sufficient illumination and visual references for all aircraft in the formation.

6.9. Changing Formation. Unless briefed otherwise, Formation Lead will direct and two will set the formation. Lead changes should only be directed by Flight Lead.

6.10. Water Operations:

6.10.1. During NVG water operations do not exceed 30° bank angle when below 100 ft AWL.

6.10.2. Water patterns:

6.10.2.1. Initiate climbing turns at a minimum of translational lift airspeed and 50 feet AWL. Do not descend below 50 feet AWL until established on final.

6.10.2.2. Low and slow altitude is 10 feet AWL, and the maximum ground speed is 10 knots.

WARNING. Wave height/action can make it difficult for aircrew to maintain low and slow parameters, and momentary deviations should be expected. Altitude and ground speeds exceeding 10 feet and 10 knots increase the potential for injuring a swimmer, and altitudes below 10 feet increase the potential of the aircraft contacting the water. When conditions make it difficult to maintain safe parameters, the aircraft commander should evaluate mission urgency and consider other methods of swimmer deployment--such as a fast rope or hoist.

6.10.2.3. If swimmer deployment is not required, make the observation pass above translational lift at a minimum of 25 feet AWL.

6.10.2.4. When conducting NVG Water operations ensure all crewmembers have adequate visual references to assess aircraft position, altitude, and ground speed/drift. Any crewmember that loses visual references will immediately bring it to the attention of the rest of the crew. Except during terminal operations maintain a minimum of 50 KIAS.

6.11. Mission Essential Ground Personnel Loading/Off Loading:

6.11.1. Personnel will have weapons pointed down and safetied, and radio antennas collapsed prior to entering the rotor plane. They should enter the rotor plane area only when cleared by a crewmember and should always enter from the sides and/or forward of the helicopter.

6.11.2. Once the aircraft has completed the approach to a hover or landing (as briefed), or when cleared by the Aircraft Commander, the restraint devices may be released. Exit only when cleared by the aircraft commander.

6.12. General AIE Procedures (Fast Rope, Rappel, Rope Ladder, Hoist):

6.12.1. Mission Briefing. Prior to deployment, the aircraft commander will ensure the applicable items from the alternate insertion/extraction briefing in **Attachment 2** are completed for the device to be used.

6.12.2. Safetyman. For all AIE operations, one crewmember in the cabin will be designated as the safetyman. Unless designated differently in the briefing, the FE will perform this duty. The safetyman will monitor intercom and be secured with a crewman's harness. The safetyman will be in a position to observe the entire operation, and will relay commands to the deploying team. The safetyman will continuously evaluate the safety of the operation, and immediately inform the rest of the crew, and take the necessary action to avert a hazardous situation.

6.12.3. Rope Master. The rope master is the deploying team leader, and is responsible for making the final determination on the safety of the deployment. During operations where the rope master cannot safely determine operational parameters (aircraft altitude, drift, obstacles, and rope position), the rope master will coordinate with the safetyman for assistance.

6.12.4. During AIE operations, all personnel will ensure that non-essential equipment, and/or personnel, do not interfere with the deployment operations.

6.12.5. Deployment Procedures:

6.12.5.1. During all AIE operations, the pilot flying the approach will give the command "ROPES, ROPES, ROPES" when the aircraft is in a position to safely deploy the device and the team. This is the pilot's clearance for the team to deploy. The device will be deployed on the first command "Ropes."

6.12.5.2. Following the pilot's clearance for the team to deploy and during operations where the rope master can safely determine operational parameters, the team will deploy at the discretion of the rope master.

6.12.5.3. During operations where the rope master cannot safely determine operational parameters (aircraft altitude, drift, obstacles, and rope position), the safety man will evaluate parameters and advise the rope master when, in the judgment of the safety man, the operation can safely be conducted. The final decision to deploy the team remains with the rope master.

WARNING: Altitude deviations while personnel are on the ropes will have an adverse effect on their braking ability and can cause serious injury. During the hover, scanners must relay sufficient information to the pilots to ensure the ropes do not leave the ground during altitude deviations.

6.12.6. During NVG operations the safetyman must ensure the rope master can see the appropriate hand signals.

6.12.7. Ropes will be released or retrieved prior to commencing forward flight to prevent possible entanglement.

6.12.8. During night deployments, chemlites will be used to identify all ropes and exits.

6.13. Fast Rope:

6.13.1. If the H-bar is used it will be extended and locked prior to final approach.

6.13.2. When requested by the deploying rope master, the aircraft may have a maximum forward ground speed of 5 kts.

6.14. Rappelling:

6.14.1. The rappelling ropes will be attached to the cabin ceiling rappel rings, upper cargo net attaching points, or the H-Bar/FRIES release mechanism using steel locking carabiners. The H-Bar/FRIES must be extended when the release mechanism is being used to perform rappelling operations.

6.14.2. Once hooked to the rappelling equipment, personnel may release other restraints in preparation for the exit. On short final, personnel may position themselves to facilitate immediate deployment.

6.15. Rope Ladder Operations:

6.15.1. The rope ladders will be attached to the cabin floor tiedown fittings or cabin ceiling rappel rings using steel locking carabiners.

6.15.2. The maximum number of personnel on a ladder is limited to three.

6.15.3. In an emergency, or if the aircraft comes under fire, personnel will secure themselves to the ladder and the aircraft may depart the immediate area. Slow forward flight to a safe area may be accomplished if flight characteristics and power requirements allow. Care should be taken during forward flight due to the twisting and turning of the ladder. Airspeed should not exceed 40 KIAS.

6.15.4. If mission conditions permit, close the cabin door not being used for recoveries prior to personnel entering the aircraft.

6.16. Hoist Procedures:

6.16.1. ***WARNING:*** Failure to properly inspect, monitor, and report hoist and/or cable deficiencies may result in undetected cable damage that could result in cable failure. All aircrew must thoroughly understand and comply with TO 1H-60(U)A-1 and MAJCOM hoist operating procedures/limitations.

6.16.2. Commanders will ensure live hoist operations are limited to operational missions, aircrew qualification/evaluations, exercises, and proficiency training. Crews will evaluate the potential hazards associated with live hoist operations, and consider all recovery options during operational missions and exercises.

6.16.3. Hoist Operator Procedures:

6.16.3.1. All crewmembers must be vigilant for shock loads to the cable. If shock loading is observed, cease live hoist operations and replace the cable prior to the next mission. *NOTE*: During water operations, the dynamic action of waves increases the potential for shock loading. Additionally, the increased drag of the stokes litter/personnel in the water increases the total force applied to the cable.

6.16.3.2. Do not ground the hoist near spilled fuel.

6.16.3.3. Except during water recoveries, lower the stokes litter to the survivor after the helicopter is established in a hover. For water recoveries, the stokes litter may be deployed utilizing low and slow deployment procedures.

6.16.3.3.1. The stokes litter will only be lowered and raised with the hoist from a stabilized hover. During emergencies, a maximum airspeed of 40 KIAS may be used during the recovery to stop a swinging or rotating litter.

6.16.3.4. The rescue net may be lowered on final approach at airspeeds below 30 knots. While in slow forward flight for a water recovery, the 10-foot line may be allowed to contact the water prior to reaching the survivor.

6.16.3.5. If mission conditions permit, close the left cabin door prior to conducting live hoists.

6.17. Parachute Delivery Operations:

6.17.1. Mission Briefing. A thorough briefing will be conducted. All aircrew members and the jumpmaster will attend. Ensure the briefing covers the use of restraining devices, exits, and movement in cargo compartment. When conducting operations with jumpers from other services, the procedures outlined in this instruction and AFTTP 3-3, Vol 24, will be used unless different procedures are authorized by the MAJCOM.

6.17.2. Personnel will exit the aircraft on command of a qualified jumpmaster, after clearance is received from the aircraft commander. The primary exit for parachute operations is the left door.

6.17.3. Abort Procedures. When conditions are not safe for the drop, or if the drop is aborted for any reason, the following procedures will apply: The term "Abort" will be used to alert the crew of an aborted deployment. A crewmember will display a closed fist to personnel not on intercom.

6.17.4. The minimum pattern altitude is 1,500 feet AGL/AWL. Specific airspeed must be briefed prior to takeoff.

6.17.5. Static lines will not be attached until the aircraft is 1,000 feet AGL/AWL.

6.17.6. When delivering parachutists from only one side, ensure the door on the opposite side of the cabin is closed.

6.17.7. The pilot will give 10-minute, 5-minute, and 1-minute warnings prior to reaching the drop zone. The pilot will call 1 minute prior to drop and will announce "clear to drop" after he receives the response "safetyman check completed." The final decision whether or not to jump rests with the aircraft commander. The jumpmaster will acknowledge all calls from the pilot.

6.18. Air Combat Maneuvering (ACM) Training. Helicopter air combat maneuvering training against fixed wing and rotary wing aircraft is authorized. Training will be conducted IAW AFI 11-2HH-60, Vol 1, AFI 11-214, AFTTP 3-1/3-3, Vol 24, and the following:

6.18.1. All crewmembers must be trained and current in Aircraft Handling Characteristics IAW AFI 11-2HH-60, Vol 1.

6.18.2. Maneuvering restricted to the Limited Maneuvering Category as described in AFI 11-214 may be conducted by all combat mission qualified H-60 crews.

6.18.3. Maneuvering beyond the Limited Maneuvering Category restrictions of AFI 11-214 may only be conducted when an instructor certified in ACM is in command of the flight, or the entire crew has received initial ACM training and certification IAW AFI 11-2HH-60, Vol 1.

6.19. Weapons Employment:

6.19.1. Units will ensure that weapon systems employment procedures and training standards are included in the unit weapons and tactics training program. Refer to AFI 11-214, AFTTP 3-1 Vol 24, AFTTP 3-3 Vol 24, and local range procedures/restrictions for guidance. Units will ensure that detailed local weapons procedures are included in their local **Chapter 8**.

Chapter 7

ABNORMAL OPERATING PROCEDURES

7.1. Blind Procedures. Use the following procedures when one or more flight members/elements lose visual contact within the formation in VMC:

7.1.1. Two conditions may result in the formation losing visual contact:

7.1.1.1. Anticipated Blind - Examples: Holding one aircraft in terrain while the other unmasks for line of sight to the survivor; Crews see terrain that will come between the formation.

7.1.1.2. Unanticipated Blind - Example: The wingman loses lead in ground lights or while maneuvering independently such as during evasive maneuvering.

7.1.2. Anticipated Blind Procedures:

7.1.2.1. If any flight member/element calls "Blind," then the other flight member/element will immediately acknowledge with "Visual" and an informative position call or acknowledge with “Blind”.

7.1.2.2. Flight lead will direct the prebriefed deconfliction plan.

7.1.3. Unanticipated Blind Procedures:

7.1.3.1. If any flight member/element calls "Blind," then the other flight member/element will immediately acknowledge with "Visual" and an informative position call or acknowledge with “Blind”.

7.1.3.2. If the other flight member/element is also "Blind" then the flight lead will take action to ensure altitude separation between flight members/elements. The flight lead will specify either AGL or MSL when directing the formation to deconflict with altitude. When directed to “deconflict”, a minimum of 200 feet altitude separation will be used. Climbs/descents through the deconfliction altitude should be avoided if possible.

7.1.4. 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.

7.1.5. If visual contact is still not regained, the flight lead will take additional positive action to ensure flight path deconfliction within the flight to include a Terminate/Knock-It-Off if necessary. Scenario restrictions such as sanctuary altitudes and/or adversary blocks must be considered.

7.1.6. Aircraft will maintain altitude separation until a visual is regained and, if necessary, will navigate with altitude separation until visual mutual support is regained.

7.2. 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. In such a case, the aircraft losing contact will call, "Call Sign, Position, Lost Wingman." Formation lead will immediately initiate the breakup by announcing "Call Sign, Execute," the type of breakup (i.e. mountainous or non-mountainous) unless prebriefed, base “heading” (magnetic), base “airspeed”, and base “Minimum Safe Altitude” (MSA). Formation lead will maintain base parameters and all wingmen will take action based on the base heading, airspeed and MSA. 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.

7.2.1. If another aircraft in the formation calls lost wingman and you still have sight of the preceding aircraft, maintain formation position on that aircraft. If you then lose sight of the preceding aircraft, execute lost wingman procedures for your original position in the formation.

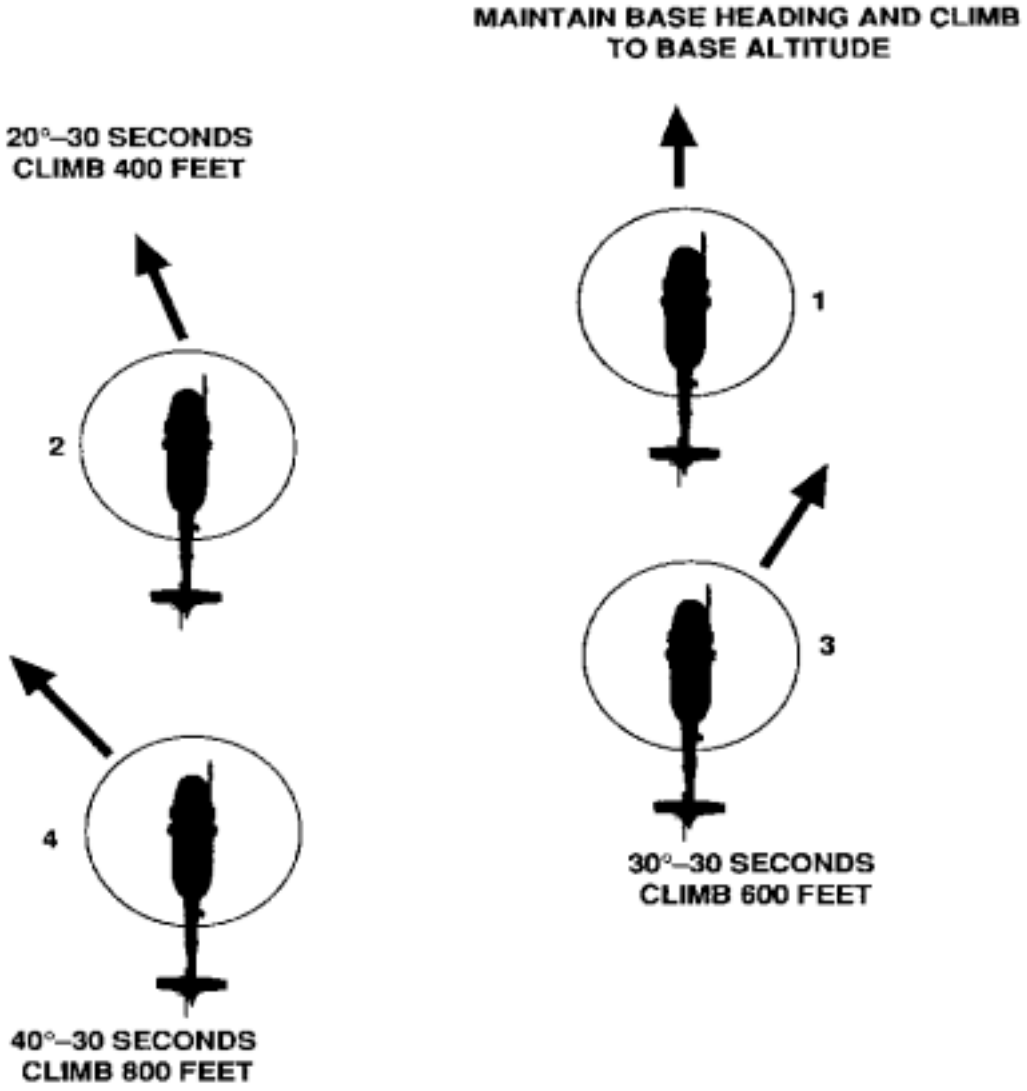
7.2.2. If a wingman calls lost wingman and lead is still VMC and able to ensure terrain/obstacle clearance, lead should stay VMC. Formation lead must still make heading, airspeed, and MSA calls for the wingman executing the lost wingman procedure.

7.2.3. Non-Mountainous Procedures. The following lost wingman procedures are for non-mountainous operations (**Figure 7.1.**). In operational situations, where the risk of actual enemy detection/engagement is greater than low altitude marginal weather operations, alternate breakup procedures may be briefed/executed.

7.2.3.1. Formation lead maintains base heading (usually straight-ahead), airspeed, and climbs to MSA.

7.2.3.2. Wingmen turn away from the preceding aircraft and climb according to the following procedure: multiply your position by 10° for your heading offset and by 200 feet for your altitude above MSA. Timing for all wingmen is 30 seconds and starts when you reach your altitude. At the end of your timing, return to the announced heading.

Figure 7.1. Lost Wingman (Non-mountainous Terrain Procedures).



7.2.4. Mountainous Procedures. The following lost wingman procedures are for mountainous operations (**Figure 7.2.**). In operational situations, where the risk of actual enemy detection/engagement is greater than low altitude marginal weather operations, alternate breakup procedures may be briefed/executed.

7.2.4.1. Formation lead will maintain announced base airspeed or higher and climb as prebriefed. If possible, lead should accelerate to allow the formation more maneuvering room and to avoid excessively slow airspeeds for wingmen.

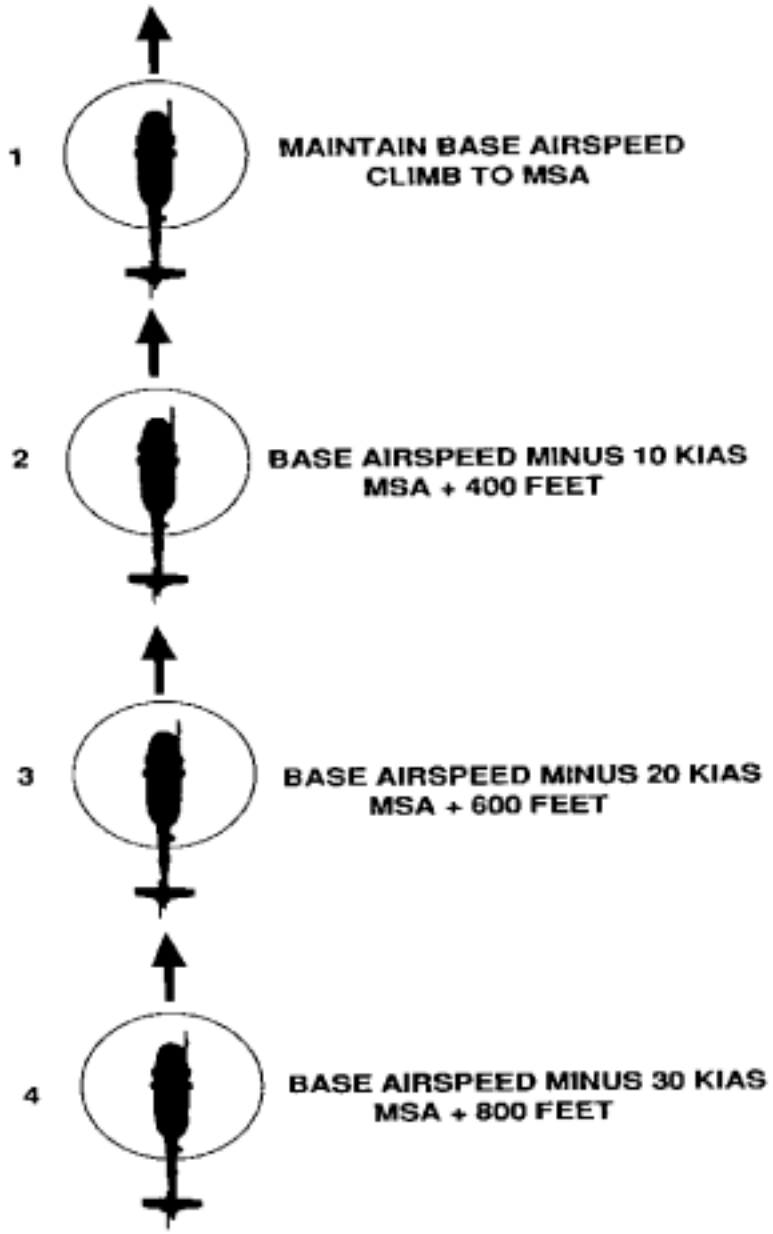
7.2.4.2. Aircraft number two will adjust to maintain announced airspeed minus 10 knots, and climb 400 feet above MSA.

7.2.4.3. Aircraft number three will adjust to maintain announced airspeed minus 20 knots, and climb 600 feet above MSA.

7.2.4.4. Aircraft number four will adjust to maintain announced airspeed minus 30 knots, and climb 800 feet above MSA.

7.2.4.5. As each aircraft reaches its assigned altitude, maintain heading and assigned airspeed for 3 minutes, then accelerate to a base airspeed.

Figure 7.2. Lost Wingman (Mountainous Terrain Procedures).



Chapter 8

LOCAL OPERATING PROCEDURES

8.1. Requirements. This chapter is reserved for unit local operating procedures. Procedures herein will not be less restrictive than those contained elsewhere in this instruction, nor is this chapter intended to be a single source document for procedures contained in other directives or instructions. Unnecessary repetition of guidance provided in other established directives should be avoided; however, references to those directives is acceptable when it serves to facilitate location of information necessary for local operating procedures. The title of this supplement will be IAW AFI 33-360V1, Publication Management Program, (e.g., "AFI 11-2HH-60, Volume 3, Chapter 8, MAFB Sup 1"). Follow instructions on page 1 of this volume for approval/distribution of supplements.

8.2. Organization. The local chapter will be organized in the following format and will include, but is not limited to, the following:

8.2.1. Introduction.

8.2.2. General Policy.

8.2.3. Mission Planning/Preparation.

8.2.4. Normal Operations.

8.2.5. Instrument Procedures.

8.2.6. Combat Rescue Operations.

8.2.6.1. Weapons Employment

8.2.7. Abnormal Procedures.

8.2.7.1. Blind Procedures

8.2.7.2. Lost Wingman Procedures

8.2.8. Squadron Briefing Standards (May be published as a separate document)

8.2.9. This chapter will include procedures for the following, if applicable:

8.2.9.1. Filing flight plans.

8.2.9.2. Taxi/parking procedures.

8.2.9.3. Scramble procedures.

8.2.9.4. Traffic pattern and landing areas.

8.2.9.5. Air operations security.

8.2.9.6. Local gunnery and range procedures/restrictions.

8.2.9.7. OPSEC/COMSEC procedures.

8.3. Forms Adopted. AF Form 15, USAF Invoice; AF Form 315/315A, USAF AVFuels Invoice; AF Form 847, Recommendation for Change of Publication; AF Form 1381, USAF Certification of Aircrew Training; AF Form 1896, USAF Ground Fuel Identaplate; AFTO Form 781, AFORM, Aircrew/Mission

Vehicle Flight Data Document; AFTO Form 781A, Maintenance Discrepancy and Work Document; DD Form 175, Military Flight Plan ; DD Form 365-4, Weight and Balance Clearance Form F – Transport; DD Form 1801, DOD International Flight Plan.

ROBERT H. FOGLESONG, Lt General, USAF
DCS/Air & Space Operations

Attachment 1

GLOSSARY OF REFERENCES AND SUPPORTING INFORMATION

References

AFI 10-801, *Assistance to Civilian Law Enforcement Agencies*

AFI 11-202V1, *Aircrew Training*

AFI 11-202V2, *Aircrew Standardization/Evaluation Program*

AFI 11-202V3, *General Flight Rules*

AFI 11-214, *Aircrew ,Weapons Director, and Terminal Attack Controller Procedures for Air Operations*

AFI 11-2HH-60V1, *HH-60—Aircrew Training*

AFI 11-2HH-60V2, *HH-60--Aircrew Evaluation Criteria*

AFI 11-301, *Aircrew Life Support Program*

AFI 11-401, *Flight Management*

AFI 11-402, *Aviation and Parachutist Service, Aeronautical Ratings and Badges*

AFI 13-217, *Assault Zone Procedures*

AFI 21-101, *Maintenance Management of Aircraft*

AFI 21-103, *Equipment Inventory, Status, and Utilization Reporting*

AFI 31-207, *Arming and Use of Force by Air Force Personnel*

AFI 31-101, *The Air Force Resource Protection Program*

AFI 33-360V1, *Publications Management Program*

AFJI 11-204, *Operational Procedures for Aircraft Carrying Hazardous Materials*

AFJMAN 24-204, *Preparing Hazardous Materials for Military Air Shipments*

AFMAN 11-217V1, *Instrument Flight Procedures*

AFPD 11-2, *Aircraft Rules and Procedures*

AFPD 11-4, *Aviation Service*

AFTTP 3-1 , *Mission Employment Tactics*

AFTTP 3-1V24, *Tactics—HH-60 Helicopter*

AFTTP 3-3, *Combat Aircraft Fundamentals*

AFTTP 3-3V24, *Fundamentals - HH-60 Helicopter*

Joint Pub 3-04.1, *Joint Tactics, Techniques, and Procedures for Shipboard Helicopter Operations*

Joint Pub 3-50.2, *Doctrine for Joint Combat Search and Rescue*

Joint Pub 3-50.21, *Joint Tactics, Techniques, and Procedures for Combat Search and Rescue*

TO1C-1-71, *Listing of Cargo Tiedown Equipment Authorized for all Series Aircraft*

TO1H-60 (U) A-1, *Flight Manual USAF Series H-60*

TO 00-25-172, *Ground Servicing of Aircraft and Static Grounding/Bounding*

Abbreviations and Acronyms

AC—Aircraft Commander

ACC—Air Combat Command

ACM—Air Combat Maneuvering

ADO—Assistant Director of Operations

AETC—Air Education Training Command

AF—Air Force

AFCS—Automatic Flight Control System

AFRC—Air Force Reserve Command

AFTO—Air Force Technical Order

AG—Aerial Gunner

AGE—Aircraft Ground Equipment

AGL—Above Ground Level

AHC—Aircraft Handling Characteristics

AHO—Above Highest Obstacle

AIE—Alternate Insertion or Extraction

ANG—Air National Guard

ANVIS—Aviator Night Vision Imaging System

AR—Air Refueling

ARCP—Air Refueling Control Point

ARCT—Air Refueling Control Time

AREP—Air Refueling End Point

ARIP—Air Refueling Initial Point

ATF—Aircraft Torque Factor

ATIS—Airport Terminal Information System

AWL—Above Water Level

BL—Buttline

CAF—Combat Air Forces

CC—Commander

CCT—Combat Control Team

CG—Center of Gravity

CHUM—Chart Update Manual

CM—Countermeasures

COMSEC—Communications Security

CORS—Crew Overhead Restraint System

CP—Copilot

CRM—Cockpit/Crew Resource Management

CRO—Combat Rescue Officer

CSAR—Combat Search and Rescue

CSARTF—Combat Search and Rescue Task Force

CW—Continuous Wave

DEC—Digital Electronic Control

DH—Decision Height

DLEA—Drug Law Enforcement Agencies

DO—Director of Operations

DOC—Designed Operational Capability

DOD—Department of Defense

ECU—Electronic Control Unit

EFQI—Enhanced Fuel Quantity Indicator

EM—Energy Maneuverability

EMCON—Emissions Control

EP—Emergency Procedure

EPA—Evasion Plan of Action

ETF—Engine Torque Factor

FAA—Federal Aviation Administration

FARP—Forward Area Refueling Point

FCF—Functional Check Flight

FCIF—Flight Crew Information File

FE—Flight Engineer

FLIR—Forward Looking Infrared

GS—Ground Speed

GSI—Glide Slope Indicator

HEED—Helicopter Emergency Escape Device

HHQ—Higher Headquarters

HIT—Health Indicator Check

HSI—Horizontal Situation Indicator

IAW—In Accordance With

ID—Identify/Identification

IFE—Inflight Emergency

IFF—Identification Friend or Foe

IFR—Instrument Flight Rules

ILS—Instrument Landing System

IMC—Instrument Meteorological Conditions

IP—Instructor Pilot or Initial Point

IR—Infrared

IRCM—Infrared Counter Measures

KIAS—Knots Indicated Airspeed

LARS—Lightweight Airborne Recovery System

LBV—Load Bearing Vest

LOC—Localizer

LZ—Landing Zone

MAJCOM—Major Command

MB—Marker Beacon

MDA—Minimum Descent Altitude

MEA—Minimum En Route Altitude

MEP—Mission Essential Personnel

MSA—Minimum Safe Altitude

N/A—Not Applicable

NBC—Nuclear, Biological, and Chemical

NM—Nautical Mile

NOTAM—Notice to Airman

NT—Night

NVD—Night Vision Device

NVG—Night Vision Goggles

OGE—Out of Ground Effect

OPR—Office of Primary Responsibility

OPSEC—Operations Security

ORE—Operational Readiness Exercise

ORI—Operational Readiness Inspection

PACAF—Pacific Air Forces

PAI—Primary Aircraft Inventory

PAR—Precision Approach Radar

PJ—Pararescue Jumper

QUAL—Qualification

RAMZ—Rigging Alternate Method Zodiac

RD—Rotor Disk

RLSO—Regional Logistics Support Office

RPM—Revolutions Per Minute

RQS—Rescue Squadron

RVR—Runway Visibility Range

RWR—Radar Warning Receiver

SA—Situational Awareness, Strategic Attack

SAV—Staff Assistance Visit

SAR—Search and Rescue

SCUBA—Self-Contained Underwater Breathing Apparatus

SPINS—Special Instructions

TACAN—Tactical Air Navigation

TO—Technical Order

TOLD—Takeoff and Landing Data

TOT—Time Over Target

TR—Training Rules

T/R—Transmit/Receive

USAF—United States Air Force

USAFR—United States Air Force Reserve

USAFWS/WSR—United States Air Force Weapons School HH-60 Division

USCG—United States Coast Guard

VFR—Visual Flight Rules

VMC—Visual Meteorological Conditions

VOR—VHF Navigation Aid

VSI—Vertical Situation Indicator

WOPS—Water Operations

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.

Air Taxi—Helicopter/VTOL aircraft movement conducted above the surface but normally not above 100 feet above ground level. The aircraft may proceed either via hover taxi or flight speeds more than 20 knots. The pilot is solely responsible for selecting a safe airspeed/altitude for the operation being conducted.

Certification—The process of qualifying aircrew to perform tactical employment and special weapons capabilities, procedures, and rules.

Chaff—Passive form of electronic countermeasure used to deceive airborne or ground based radar.

Combat Profile—Normally, a mission designed to penetrate and operate within a combat environment (training or operational). The specific profile that will be flown is predicated on type and degree of threat.

Crew Resource Management (CRM)—Training concept that emphasizes team effectiveness by enhancing individual and aircrew performance in communication, situational awareness, effective leadership and management, and crew coordination

Formation Flight—More than one aircraft which, by prior arrangement between crews, operates as a single aircraft with regard to navigation and position reporting. Separation between aircraft within the formation is the responsibility of the flight leader and the crews of the other aircraft in the flight. This includes transition periods when aircraft within the formation are maneuvering to attain separation from each other to effect individual control and during join up and breakaway. Such a group is treated for air traffic control purposes as a single aircraft.

Hover Taxi—Helicopter/Vertical takeoff-landing aircraft movement conducted above the surface and in ground effect at airspeeds less than approximately 20 knots. The actual height will vary, and some helicopters may require hover taxi above 25 feet above ground level to reduce ground effect turbulence or provide clearance for cargo slingloads.

Low-Level Operations—Flight conducted below 500 feet above ground level

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

Tactical Mission—A mission designed to penetrate and operate within a combat or threat environment

Attachment 2

HELICOPTER CREW BRIEFING GUIDE

A2.1. GENERAL AIRCREW BRIEFING

A2.1.1. Roll Call

A2.1.2. Time Hack

A2.1.3. Mission

A2.1.3.1. Primary and Alternate

A2.1.3.2. Mission Objective

A2.1.3.3. Sequence of Events

A2.1.3.4. Route of Flight/Hazards to Flight

A2.1.4. Weather

A2.1.5. Flight Planning

A2.1.5.1. Aircraft Number, Call Sign

A2.1.5.2. Fuel Load, Bingo Fuel, and Aircraft Configuration

A2.1.5.3. Weight and Balance

A2.1.5.4. Seat Time, Start Time, Takeoff, Duration

A2.1.5.5. NOTAM, FCIF, Passengers

A2.1.5.6. Anti-Hijacking

A2.1.5.7. Performance Data/TOLD

A2.1.6. Crew Duties and Responsibilities

A2.1.6.1. Changing Control of Aircraft

A2.1.6.2. Emergency Actions/Intentions

A2.1.6.2.1. Landing/Ditching

A2.1.6.3. Primary FE

A2.1.6.4. Scanner’s Duties

A2.1.7. Equipment

A2.1.7.1. Flight Publications

A2.1.7.2. Life Support Equipment

A2.1.7.3. ID Tags

A2.1.8. Specialized Mission Briefings

A2.2. ALERT CREW BRIEFING

A2.2.1. Alert Period

A2.2.2. Response Time

A2.2.3. Notification Procedures

A2.2.4. Scramble Procedures

A2.3. MISSION BRIEFING

NOTE: This briefing guide is intended for Tactical, Formation, and NVG missions. It incorporates the essential elements of the General Aircrew and AIE briefings.

A2.3.1. Roll Call

A2.3.2. Time Hack (give source)

A2.3.3. Classification

A2.3.4. Situation/ Orders of Battle

A2.3.5. Mission

A2.3.5.1. Primary/ Alternate

A2.3.5.2. Mission Objectives

A2.3.5.3. Sequence of Events

A2.3.5.4. Mission Precedence (Mandatory, Emergency, Priority, Routine)

A2.3.5.5. Smart Packs/ Kneeboard Cards/ Comm Card

A2.3.6. Flight Planning

A2.3.6.1. Aircraft Numbers, Call Signs, Positions, Support Assets

A2.3.6.2. Weather

A2.3.6.2.1. Takeoff/ En Route/ Destination

A2.3.6.2.2. Sunset/Sunrise/ Moonrise/ Moon set/% Illum/ Azimuth/Elevation/ Isothermal Crossover Times

A2.3.6.3. Fuel Load, Mission Capable Fuel, and Bingo

A2.3.6.4. Aircraft and Load Configurations

A2.3.6.5. Personnel (MEGP), Ordnance, Chaff load and Settings, IRCM, AIE Devices

A2.3.6.6. Aircraft Taping and Lighting

A2.3.6.7. Seats time, Communication Check-In, Start, Taxi, Takeoff, Duration

A2.3.6.8. NOTAMS, FCIF, Special Interest Items

A2.3.6.9. Anti-Hijacking

A2.3.7. Weight and Balance

A2.3.8. Performance Computations/ TOLD

A2.3.8.1. Takeoff and Worst Case

A2.3.8.2. EM Data and Dash One Blade Stall numbers

A2.3.9. Departure Taxi, Takeoff, and Join Up

A2.3.9.1. Lineup/ Positions

A2.3.9.2. Communications Procedures

A2.3.9.3. Type of Formation

A2.3.9.4. Aborts/ Bumps

A2.3.9.5. Goggle Up Procedures

A2.3.10. En Route

A2.3.10.1. Navigation Responsibilities

A2.3.10.2. Altitudes/Airspeeds

A2.3.10.3. Type Formation(s)

A2.3.10.4. Lead Changes

A2.3.10.5. HIT Check

A2.3.10.6. Communications

A2.3.10.7. Evasive Tactics/ Scatter Plans/ Rejoin Procedures

A2.3.11. Terminal Operations-Primary/ Alternate

A2.3.11.1. Objective/ TOT

A2.3.11.2. Communications Procedures/ Authentication methods

A2.3.11.3. LZ Options (IAW AFTTP 3-1 Vol 24, or as briefed)

A2.3.11.4. Approaches and Landings

A2.3.11.4.1. Type Formation and Spacing

A2.3.11.4.2. Landing Areas / Site Evaluations

A2.3.11.4.3. Go-Around/ Wave off Procedures

A2.3.11.4.4. AIE Considerations

A2.3.11.4.4.1. Devices

A2.3.11.4.4.2. Intended Hover Heights

A2.3.11.4.4.3. Emergency Procedures

A2.3.11.4.4.3.1. Loss of Power (Aircraft)

A2.3.11.4.4.3.2. Hoist Malfunctions

A2.3.11.4.4.3.3. Communications Failures

A2.3.11.5. Egress Takeoff/ Route of Flight

A2.3.12. Weapons Conditions/ Rules of Engagement

A2.3.12.1. Ingress

A2.3.12.2. Terminal Area

A2.3.12.3. Egress/ Retrograde

A2.3.13. Recovery Taxi, Parking Plan, Removing Goggles

A2.3.14. Contingencies

A2.3.14.1. IMC Loss Wingman

A2.3.14.2. VMC Blind

A2.3.14.3. Aborts/ Minimum Package Requirements/Minimum Mission Equipment

A2.3.14.4. Lost Communications/ Degraded Communications

A2.3.14.5. Equipment

A2.3.14.5.1. Flight Publications

A2.3.14.5.2. Life Support Equipment

A2.3.14.5.3. NVD's

A2.3.14.5.4. Maps/ Charts

A2.3.14.5.5. Chemlites

A2.3.14.6. Personal Equipment

A2.3.14.6.1. ID Tags

A2.3.14.6.2. Personal Weapons

A2.3.14.6.3. Classified Material/ COMSEC

A2.3.15. Crew Duties and Responsibilities

A2.3.15.1. Changing Control of the Aircraft

A2.3.15.2. Scanners Duties

A2.3.15.3. Emergency Actions/ Intentions

A2.3.15.3.1. Takeoff

A2.3.15.3.2. En Route

A2.3.15.3.3. Objective

A2.3.15.3.4. NVD Malfunction

A2.3.15.3.5. Crash Landing

A2.3.15.3.6. Ditching

A2.3.15.4. FE Responsibilities

A2.3.15.5. Left Scanner Responsibilities

A2.3.15.6. Crash/ Forced Landing Procedures

A2.3.15.6.1. Water

A2.3.15.6.2. Medical Kits

A2.3.15.6.3. NBC Gear

A2.3.15.6.4. EPA

A2.3.15.6.5. Sanitization/Destruction of Classified/ Aircraft Destruction

A2.3.15.6.5.1. Weapons/ Ammunition

A2.3.15.6.5.2. Shot Records/ ID Card

A2.3.16. Questions

A2.4. ALTERNATE INSERTION/EXTRACTION BRIEFING

A2.4.1. Load

A2.4.2. Pickup Point and Destination

A2.4.3. Site Description

A2.4.3.1. Go Around

A2.4.4. Device To Be Used, Intended Hover Height

A2.4.5. Protective Equipment

A2.4.6. Power Available/Required

A2.4.7. Emergency Procedures

A2.4.7.1. Loss of Power (Aircraft/Hoist)

A2.4.7.2. Equipment Malfunction

A2.4.7.3. Oscillation

A2.4.7.4. Damaged Cable (Shock-loaded/Overloaded/Abrasion)

A2.4.7.4.1. Identifying/Reporting

A2.4.7.4.2. Alternate Recovery Options

A2.4.7.5. Communication Failure

A2.5. AIR REFUELING BRIEFING

A2.5.1. Tanker/Receiver Call Signs

A2.5.2. AR Options

A2.5.3. Radio Frequencies

A2.5.4. Aircraft Lighting

A2.5.5. IFF/TACAN/Altimeter Settings

A2.5.6. Type of Rendezvous

A2.5.7. ARIP, ARCP, AREP or Track

A2.5.8. ARCT

A2.5.9. Join Up/Refuel Altitude/Airspeed

A2.5.10. EMCON Procedures

A2.5.11. Lost Visual Contact Procedures

A2.5.12. Abort Point

A2.5.13. Emergency Recovery Bases

A2.6. ORDNANCE DELIVERY BRIEFING

A2.6.1. Range/Mission Number/Range Time

A2.6.2. Range Clearing Operations

A2.6.3. Range Restrictions

A2.6.3.1. LASER Procedures

A2.6.4. Arming Procedures

A2.6.5. Patterns

A2.6.5.1. Altitude/Airspeed

A2.6.5.2. Fields of Fire

A2.6.6. Communications

A2.6.6.1. Air-To-Air/Air-To-Ground

A2.6.6.2. Interplane

A2.6.7. Weapons Malfunction

A2.6.7.1. Hot Gun Route/Dearming Location

A2.6.8. Chaff/Flare Operations

A2.6.9. Smoke Deployment

A2.6.10. Range Exiting Procedures

A2.6.11. Safety Considerations

A2.7. FORWARD AREA REFUELING POINT (FARP) BRIEFING

A2.7.1. Location

A2.7.2. TOT

A2.7.3. Communications

A2.7.3.1. Call Signs

A2.7.3.2. Air-To-Ground Frequencies

A2.7.4. Marshaling Procedures

A2.7.5. Onload

A2.7.6. Equipment

A2.7.7. Emergency Procedures

A2.7.8. Departure Instructions

A2.8. AIRDROP BRIEFING–PERSONNEL

A2.8.1. Type Of Drop

A2.8.2. Drop Zone

A2.8.2.1. Markings

A2.8.2.2. Visual Signals

A2.8.3. Communications

A2.8.3.1. Air-To-Ground

A2.8.3.2. Intercom

A2.8.3.3. Hand Signals

A2.8.4. Drop Procedures

A2.8.4.1. Altitude/Airspeed

A2.8.4.2. Drop Order

A2.8.4.3. Track

A2.8.4.4. Door Procedures

A2.8.5. Emergency Procedures

A2.8.5.1. Hung Jumper

A2.8.5.2. Inadvertent Chute Deployment

A2.8.6. Post Deployment Procedures

A2.9. CARGO SLING/EXTERNAL LOAD OPERATIONS BRIEFING

A2.9.1. Load Description

A2.9.1.1. Anticipated Weight

A2.9.1.2. Rigging

A2.9.1.3. Location

A2.9.2. Power Available/Required

A2.9.3. Sling Arming/Dearming

A2.9.4. Hand Signals

A2.9.5. Hookup

A2.9.5.1. Grounding

A2.9.5.2. Eye Protection

A2.9.5.3. External Lighting

A2.9.6. En Route

A2.9.6.1. Airspeed/Altitude

A2.9.7. Destination

A2.9.8. Release

A2.9.9. Emergency Actions

A2.9.10. Safety Considerations

A2.10. SEARCH BRIEFING

A2.10.1. Objective

A2.10.1.1. Number of Survivors/Description/Medical Condition

A2.10.1.2. Signaling Devices/Equipment

A2.10.1.3. Specialized Aircraft Equipment Required

A2.10.2. Search Area

A2.10.3. On Scene SAR Forces/On Scene CC

A2.10.3.1. Communications/Frequencies (Position Reporting)

A2.10.4. Weather (En Route/On Scene/Recovery)

A2.10.5. Method of Search (Visual/Electronic)

A2.10.5.1. Type of Pattern

A2.10.5.2. Altitude/Airspeed

A2.10.5.3. LARS Frequency/Code

A2.10.6. Bingo Fuel

A2.10.6.1. Refueling Options

A2.10.7. Actions Upon Sighting Objective

A2.10.8. Medical Facilities

A2.11. INSTRUMENT BRIEFINGS

A2.11.1. NAVIGATION EQUIPMENT CHECK

A2.11.1.1. VOR SELF TEST

A2.11.1.1.1. Tune a VOR Frequency

A2.11.1.1.2. HSI CRS - set 315°

A2.11.1.1.3. VOR/MB TEST switch - Down and hold (MB light on VSI should illuminate)

A2.11.1.1.4. HSI VOR/LOC course bar and VSI course deviation pointer centered ± 1 dot

A2.11.1.1.5. NO.2 bearing pointer - Centers @ 315° ± 5°

A2.11.1.1.6. TO - FROM arrow should indicate - TO

A2.11.1.1.7. VOR/MB TEST switch - Release

A2.11.1.2. TACAN SELF-TEST *NOTE: Allow 90 seconds for warm-up*

A2.11.1.2.1. Function Selection Switch - T/R

A2.11.1.2.2. Set - 180° Course in HSI CRS window

A2.11.1.2.3. Depress the test button and observe:

A2.11.1.2.3.1. Indicator Light - 1 Sec

A2.11.1.2.3.2. DME indicates _ _ _ . _ for 7 Seconds

A2.11.1.2.3.3. NO. 2 bearing pointer - 270 °

A2.11.1.2.3.3.1. DME - 0 0 0 . 0 ± . 5

A2.11.1.2.3.3.2. NO. 2 bearing pointer - 180 ° ± 3 °

A2.11.1.2.3.3.3. CDI - Centered ± 1/2 Dot

A2.11.1.2.3.3.4. To/From Indicator - TO

A2.11.1.2.4. Note : If indicator light stays on during test, reaccomplish the check in the REC mode. If check is good, the malfunction is in the transmitter and bearing information is valid.

A2.11.1.3. ILS. (Tune and Identify prior to check)

A2.11.1.3.1. Check Marker Beacon Volume Control - On

A2.11.1.3.2. Nav Mode Switch - As Required

A2.11.1.3.3. Select Proper Approach Course

A2.11.1.3.4. Check CDI and GSI Indications

A2.11.1.4. ADF. (Tune and Identify prior to check)

A2.11.1.4.1. CW, VOICE, TEST switch - TEST and hold

A2.11.1.4.2. NO. 2 bearing pointer changes about 180° and stops

A2.11.1.4.3. CW, VOICE, TEST switch release

A2.11.1.4.4. NO. 2 bearing pointer should return to original bearing

A2.11.1.5. Anti-Ice. Check As Required

A2.11.1.6. Pitot Heat. Check As Required

A2.11.2. GROUND CHECKPOINT TEST

A2.11.2.1. TACAN/VOR. (Tune and Identify prior to check)

A2.11.2.1.1. Nav Mode Switch. As Required

A2.11.2.1.2. Bearing Pointers - Point To Station ± 4 ° Error From Known Checkpoint

A2.11.2.1.3. DME - 1/2 Mile Or 3 % Error, Whichever Is Greater

A2.11.2.1.4. CDI - Check Centered, Right And Left, ± 4 ° Error From Known Checkpoint

A2.11.2.1.5. Check - To/From Indicator Ambiguity

A2.11.3. INSTRUMENT DEPARTURE BRIEFING. Note: Accomplished immediately before initial simulated/actual instrument profile.

A2.11.3.1. Navigation/Communication Radio Settings

A2.11.3.2. Departure Instructions/Restrictions

A2.11.3.3. Emergency Return Approach

A2.11.3.3.1. DH/MDA

A2.11.3.3.2. Inbound Course

A2.11.3.3.3. Emergency Safe/Sector Altitude

A2.11.3.4. Hazardous Terrain/Obstacles

A2.11.3.5. Emergency Intentions

A2.11.4. INSTRUMENT APPROACH BRIEFING

A2.11.4.1. ATIS/Airport Information

A2.11.4.2. Type Of Approach/Weather Required

A2.11.4.3. Navigation and Communication Radio Settings

A2.11.4.4. Heading and Attitude Systems

A2.11.4.5. Altimeter–Barometric/Radar

A2.11.4.6. Final Approach Fix/Final Approach Course

A2.11.4.7. DH/MDA/Descent Rate

A2.11.4.8. Missed Approach Point and Intentions

A2.11.4.9. Airdrome Sketch

A2.11.4.10. Crew Duties

A2.11.4.11. Lost Comm Intentions

A2.11.4.12. Backup Approach

A2.11.4.13. Before Landing Checklist/Landing Light

NOTE: When accomplishing successive approaches, brief items that changed.

A2.12. MISSION CHECKLISTS

A2.12.1. H-60 Low Level Checklist:

A2.12.1.1. Performance Data - Compute/Confirm

A2.12.1.2. Visors (N/A for NVGs) or eye protection – Down or On as required

A2.12.1.3. VAWS – As required

A2.12.1.4. Shoulder Harness – As required

A2.12.1.5. Before Landing Checklist - Complete

A2.12.2. MISSION DEBRIEF GUIDE

A2.12.2.1. Roll Call

A2.12.2.2. Classification

A2.12.2.3. Mission Objectives

A2.12.2.4. Mission Accomplishments

A2.12.2.5. Mission Reconstruction

A2.12.2.5.1. Preflight

A2.12.2.5.2. Ground Procedures

A2.12.2.5.3. Departure

A2.12.2.5.4. En Route

A2.12.2.5.5. Terminal Operations and AIE

A2.12.2.5.6. Mission Events

A2.12.2.5.7. Recovery

A2.12.2.6. Flight Discipline/Effectiveness

A2.12.2.7. Communications

A2.12.2.8. Lessons Learned

A2.12.2.9. Comments/ Questions

A2.12.3. MISCELLANEOUS BRIEFINGS/INFORMATION

A2.12.3.1. FENCE CHECK- See AFTTP 3-1, Vol 24, and AFTTP 3-3, Vol 24, for expanded information

A2.12.3.1.1. F - Fire Power/Fuel - check weapons, fuel computations

A2.12.3.1.2. E - Emitters - (radar, radar altimeter, TACAN, Doppler, lighting) as required

A2.12.3.1.3. N - Navigation equipment - check accuracy and set as required

A2.12.3.1.4. C - Communications - set up as required

A2.12.3.1.5. E - Electronic Countermeasures/Self Protection- IRCM, Chaff/Flares, RWR, Armor Wings – as required

Figure A2.1. Visual Detection Chart.

VISUAL DETECTION CHART (Ranges Shown in Miles)					
Equipment Item	Down Sun	Cross Sun	Up Sun	Overcast	Night
Yellow Life Raft (1- or 7- man)	1.9	1.4	1.1	1.0	—
Signaling Mirror	6.3	7.0	4.8	—	—
Dye Marker	3.8	2.5	2.2	—	—
Smoke	8.3	7.4	7.1	6.7	—
Life Jacket	0.2	.18	.16	.15	—
Life Jacket Light	—	—	—	—	0.5
2-Cell Flashlight	—	—	—	—	2.4
Hand-held star signal	—	—	—	—	32.0
Very Cartridge	—	—	—	—	17.5

A2.13. HELICOPTER/EN ROUTE LIGHT SIGNALS. (Echo all signals to sender)

A2.13.1. A DOT "." Momentary Flash From A Flashlight

A2.13.2. A DASH "–" Two Second Hold Down From A Flashlight

A2.13.3. Attention Signal - Circular Motion

A2.13.4. Execute Signal - Infinity Symbol (Horizontal Figure 8 Motion)

Figure A2.2. Helicopter Light Signals.

SIGNAL	MEANING
. .	RTB - Return To Base
. . . .	Lost Comm/Assume Radio Responsibilities
–	Lead Change
– –	Push Primary Air to Air Frequency
– – –	Check Navigation

A2.14. COMMUNICATIONS - OUT AIR REFUELING LIGHT SIGNALS

A2.14.1. From Receiver to Tanker (flashlight)

A2.14.1.1. One White - Reset Real Response.

A2.14.1.2. Multiple White Flashes - Require more gas than planned

A2.14.2. From Tanker to Receiver (ALDIS day; flashlight–night)

A2.14.2.1. One Green - Cleared to contact (wet or dry) or clear to crossover to the other side

A2.14.2.2. One White - Go to observation position

A2.14.2.3. Two White - Crossover to other side

A2.14.2.4. One Amber - Prepare For Turn

A2.14.2.5. Two Amber - Go to Spare Tanker

A2.14.2.6. Flashing Red - Breakaway

A2.14.3. Receiver to Receiver: During simultaneous refueling, place position light to flash 5 seconds prior to disconnect to preclude simultaneous disconnects.

Figure A2.3. Swimmer/Helicopter Signals.

MEANING	ACTION
Need Medical Kit	Crossed Wrists
Deploy Backup Swimmer	Breast Stroke Motion
Deploy Raft	Paddling Motion
Deploy Stokes Litter	Hands Cupped, Then Arms Out-stretched
Lower Rescue Cable Without Device	Climbing Rope Motion
Lower Penetrator	One Arm Extended Overhead, Fist Clenched
Helicopter Move In/Out	Wave In/Out
Emergency	- MK-13 Flare and/or Inflated LPU
Affirmative	Thumbs Up
Sharks	Hand Clapping Motion
Cease Operation	Slashing Motion Across Throat
Unable to Recover, Must Depart	Flashing Landing Light
Team Recall	Circling Arm Over Head, Finger Pointing Skyward

Figure A2.4. Distress/Emergency Frequencies.

FREQUENCY	AGENCY/PURPOSE
500 kHz	International Distress
2182 kHz	Maritime Mobile Distress
2670 kHz	USCG Emergency Coordination
8364 kHz	International SAR
40.50 MHz	VHF-FM Emergency
121.5 MHz	International Aeronautical Emergency
123.1 MHz	NATO/ICAO Scene of Action (SAR)
156.8 MHz	International Maritime Mobile Safety and Distress (Channel 16)
243.0 MHz	International Aeronautical Emergency
282.8 MHz	International Scene of Action (SAR)

A2.15. AIR/SHIP/AIR Calling Frequencies. May be used by any aircraft to communicate with stations/ships in the maritime mobile service.

A2.15.1. 4192 kHZ

A2.15.2. 6273 kHZ

A2.15.3. 12546 kHZ

A2.15.4. 16728 kHZ

A2.15.5. 22245 kHZ

Figure A2.5. Equipment Required For Flight.

Equipment	DAY	DAY TAC	NIGHT/IMC	OVERWATER
Barometric Altimeters	1	1	2	2
VSIs	1	1	2	2
HSIs	1	1	2	2
Airspeed Indicators	1	1	2	2
Engine Instruments	YES	YES	YES	YES
Communication Radios	YES	YES	YES	YES
Mode 3/C Transponder	YES	YES	YES	YES
Radar Altimeters	0	1	2	2
Anticollision Lights	1	1	1	1
Position Lights	YES	YES	YES	YES
Landing/Search Lights	1	1	1*	1
Cockpit Instrument Lights	NO	NO	YES	NO
Pitot Heat, Anti/Deice	IAW DASH ONE based on Environmental Conditions			

* NVG flight requires, in addition to visible landing or search light, an IR or Variable Intensity landing or search light.

NOTE: When only one instrument is available it must be on the side occupied by the pilot in command