BY ORDER OF THE SECRETARY OF THE AIR FORCE

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Operations Support

PARARESCUE OPERATORS BRIEFING CHECKLIST

This checklist complements AFPD 16-12, *Pararescue.* This publication outlines procedures and techniques to conduct Pararescue operations. It applies to Air National Guard and United States Air Force Reserve units or members (AFSOC Special Tactics gained exempt). Send recommended changes, additions, deletions, and any conflict or duplication of other reports to HQ AF/XOOP, Air Force Pentagon, Washington DC 20330-1480, on Air Force (AF) Form 847, **Recommendation for Change of Publicatio**n. AFSOC Special Tactics has the option to use this checklist or the Special Tactics Operator Checklist. MAJCOMs may supplement this instruction. MAJCOMs will send one copy of their printed supplement to HQ AF/XOOP; other

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Certified by: USAF/XOO (Maj Gen. Mentemeyer)
HQ OPR: HQ USAF/XOOP (SMSgt Ryan J. Beckmann)
Pages: 256
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Supersedes MACR 64-2, 1 February 1990

organizations send one copy of each supplement to the next higher headquarters. See **AFI 1612-02, Attachment 1** for a glossary of references and supporting information. ***NOTE:*** This instruction may reference Air Force publications under the old publications scheme (Air Force regulations [AFR] and manuals [AFM]) which remain in force until converted to the new types of publications.

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(*brief applicable items only)*

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NOTE: Refer to specific AIE checklist for detailed information.

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2.6.5. Organic weapons fire application
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2.6.5.2. Target coverage
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NOTE: Refer to specific AIE checklist for detailed information.

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(*brief applicable items only)*

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3.3. Objective area

3.3.1. Specific duties and responsibilities
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3.4. Insertion
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NOTE: Refer to specific AIE checklist for detailed information.

3.5. Actions at objective area
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3.6. Extraction
3.6.1. Specific duties and responsibilities
3.6.1.1. Head count
3.6.1.2. Emergency procedures

NOTE: Refer to specific AIE checklist for detailed information.

3.7. Egress
3.7.1. Specific duties and responsibilities
3.7.1.1. Medical treatment
3.7.1.2. Offensive/defensive weapons
3.7.1.3. Flight following
3.7.1.4. Emergency procedures
3.7.1.5. Transload
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3.9.2. Team Alternate Insertion/Extraction Team Briefing (*page 150*)
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Aircrew Parachutist Insertion Brief

(*brief applicable items only)*

1.1. Number of aircraft involved/call signs
1.2. Type of drop
  1.2.1. SL/HALO/HAHO/tandem/RAMZ
1.3. Type of release
  1.3.1. JMDD/NAV/ground

NOTE: Ensure navigator understands extended light signals (red, green) requirements when conducting RAMZ/JDD directed drops.

1.4. Number of iterations
  1.4.1. Single iteration
  1.4.2. Multiple iterations
1.5. Team information
  1.5.1. Number involved/manifest
  1.5.2. Call signs
  1.5.3. Duties and responsibilities
    1.5.3.1. Team leader
    1.5.3.2. Jumpmaster
    1.5.3.3. Intercom requirements
    1.4.3.4. Equipment delivery
    1.4.3.5. Physiological training officer/oxygen NCO
1.6. DZ information (show on map if available)
  1.6.1. Name/coordinates/elevation

1.6.2. Markings and features
1.6.3. Recognition symbol
1.6.4. Required time on target
1.6.5. Known hazards
1.6.6. Range procedures/requirements
1.6.7. Desired heading
1.6.8. Point of impact
1.6.9. Opening point
1.6.10. Release point
1.6.11. Alternate DZs
1.6.12. Emergency DZs
1.7. Communications
1.7.1. DZ controller call sign (training only)
1.7.2. DZ controller frequencies (training only)
1.7.3. Team call sign/frequencies
1.7.4. Visual signals (day/night)
1.7.4.1. Clear to jump
1.7.4.1.1. Land - target displayed
1.7.4.1.2. Water - target displayed (boat circling off wind line)
1.7.4.2. No drop this pass
1.7.2.1. Land - target removed and replaced by two streamers forming two parallel bars, placed perpendicular to the line of flight and/or red smoke on the DZ
1.7.2.2. Water - boat positioned at target or stationary in water
1.7.4.3. Jump cancelled

1.7.4.3.1. Land - target removed
1.7.4.3.2. Water - target removed
1.7.4.4. Injured jumper - ignite one (1) MK-13 flare or similar flare

NOTE: Air-ground radio communication is required for all night deployments the Pararescueman in charge (PIC) may waive this if procedures in AFI 13-217 and pre-briefed visual DZ markings are used for drop clearance

1.7.5. Communications failure
1.7.6. No comm procedures
1.8. Suggested approach/departure
1.9. Altitude/airspeed/pattern
1.9.1. High altitude airdrops (waiver required above 25,000' MSL)
1.9.1.1. Oxygen requirements and times
1.9.1.2. Physiological technician requirements and briefings (required at or above 18,000' MSL IAW AFI 11-409)
1.9.1.3. Aircraft depressurization
1.9.1.4. Walk around bottle requirements
1.9.1.5. Suspected decompression sickness
1.9.1.5.1. Immobilize affected area
1.9.1.5.2. Place patient horizontal
1.9.1.5.3. Administer 100% oxygen
1.9.1.5.4. Cabin altitude to sea/evacuation level

1.9.1.5.5. Contact nearest facility with flight surgeon
1.9.1.5.6. Fly to nearest hyperbaric chamber
1.10. Deployment procedures
1.10.1. Aircrew duties and responsibilities
1.10.1.1. Aircraft and equipment rigging
1.10.1.2. Safetyman duties
1.10.1.2.1. Working area clear of non-essential equipment
1.10.1.2.2. Monitor static lines
1.10.1.2.3. Relay visual signals
1.10.1.2.3.1. Course corrections
1.10.1.2.3.2. Clear to deploy
1.10.1.2.3.3. No drop
1.10.1.2.4. Advise pilot on exit of deployed personnel
1.10.1.2.5. Advise pilot of condition of deployed personnel
1.10.1.2.5.1. Good chute or malfunction
1.10.1.2.6. Advise pilot when clear to turn

NOTE: During helicopter jump operations; recover static lines prior to giving clearance.

1.10.1.2.7. RAMZ
1.10.1.2.7.1. Positioning - personnel/package
1.10.1.2.7.2. Static line lengths
1.10.1.2.7.3. Tie-down removal

1.10.1.2.7.4. Gate
1.10.1.2.7.5. Deployment bag retrieval
1.10.2. Timing calls/time warnings (20, 10, 5, etc.)
1.10.3. Type of exit (left, right, ramp)
1.10.4. Clearance to deploy
1.10.5. Route of travel (HAHO only)
1.10.5.1. Intended pull altitude
1.10.5.2. Intended route of travel

NOTE: Aircraft will maintain radio contact with team/DZSO until released.

1.10.6. Equipment delivery
1.10.6.1. Hazards
1.10.6.2. Special instructions
1.10.7. Emergency procedures
1.10.7.1. Static line (*refer to Aircrew Emergency Procedures Static Line, page 22*)
1.10.7.2. Freefall - (*refer to Aircrew Emergency Procedures Freefall, page 27*)
1.11. Post insertion information
1.12. Sequence of events (narrative)
1.12.1. Planned number of loads
1.12.2. Planned number of passes (including WDI drops)
1.12.3. Number of sticks
1.13. Next briefing/checklist

Aircrew Emergency Procedures Static Line

(*brief applicable items only)*

2.1. Emergency Parachutist Bail Out Procedures (After Jumpers Stand Up and Hook Up)
- 2.1.1. Under acceptable conditions, pilot maintains altitude and attitude to evacuate the jumpers
- 2.1.2. Evacuation is ordered by green light/briefed alarm bells/signals
  - 2.1.2.1. Evacuate - 1 long ring
  - 2.1.2.2. Bailout - 3 short rings (prepare), 1 long ring (jump)
  - 2.1.2.3. Ditch/Crash Land - 6 short rings (prepare), 1 long ring (prior to impact)
- 2.1.3. Minimum acceptable altitude is 400' AGL for Fixed-wing, 1000' AGL for Static Line Square parachutes and Rotary-wing aircraft
- 2.1.4. Emergency occurs during unacceptable conditions
  - 2.1.4.1. No-drop signal given
  - 2.1.4.2. Red lights turned "ON"
  - 2.1.4.3. Jumpers unhook static lines
  - 2.1.4.4. Take seats and fasten safety belts
  - 2.1.4.5. Prepare for crash landing or ditching

2.2. Inadvertent Reserve Pilot Chute Deployment
- 2.2.1. Contain pilot chute in the aircraft
- 2.2.2. Yell "PILOT CHUTE"

2.2.3. Move away from exits
2.2.4. De-rig and secure jumper and equipment
2.2.5. Exit immediately if any part of the parachute system is pulled outside of aircraft

2.3. Towed Parachutist - Fixed Wing
2.3.1. Stop the stick (JM)
2.3.2. Notify the pilot (LM)
2.3.3. Red lights turned "ON" (CP)
2.3.4. Notify the DZ
2.3.5. Maintain drop airspeed
2.3.6. Maintain at least the minimum drop altitude (AGL)
2.3.7. Avoid flying over water or built up areas
2.3.8. If jumper is SCUBA equipped, avoid flying over land
2.3.9. Identify how the jumper is being towed
2.3.10. If towed by anything other than the static line, the jumpmaster/safetyman will attempt to free the jumper
2.3.11. Towed parachutist indicates conscious/usable reserve
2.3.11.1. Indicated by tight body position with both hands on reserve
2.3.11.2. Static Line Square - Indicated by tight body position with one open hand on cutaway handle and one open hand on reserve ripcord
2.3.12. If towed by static line, jumpmaster/safety recommends to AC whether to retrieve or cut free

2.3.13. AC decides if/when the parachutist is cut free

WARNING: Do not deploy reserve parachute until free of the aircraft

2.3.14. HC-130 - If towed from paratroop door, the aircraft should
2.3.14.1. Avoid turning in direction of parachutist
2.3.14.2. All turns should be shallow and coordinated
2.3.15. C-130 - If towed from paratroop door, the aircraft should
2.3.15.1. Set flaps to 100 percent

WARNING: Other factors may determine a flap setting between 50 and 100 percent

2.3.15.2. Lower landing gear
2.3.15.3. Avoid turning in direction of parachutist
2.3.15.4. All turns should be shallow and coordinated
2.3.16. Tow priorities
2.3.16.1. Door: First - Retrieve
Second - Cut Free
2.3.16.2. Ramp: First - Cut Free
Second - Retrieve

WARNING: Retrieve the parachutist if; unconscious has an unusable reserve, does not signal, cannot be observed, or cannot be cut free

2.4. Towed Parachutist - Rotary Wing
2.4.1. Stop the stick (JM)
2.4.2. Notify the pilot (JM/Safetyman)
2.4.3. Notify the DZ
2.4.4. Maintain drop airspeed
2.4.5. Maintain at least the minimum drop altitude (AGL)
2.4.6. Avoid flying over water or built up areas
2.4.7. If jumper is SCUBA equipped and conscious, avoid flying over land
2.4.8. Recover and store all deployed static lines and deployment bags (JM/Safetyman)
2.4.9. Identify how the jumper is being towed
2.4.10. If towed by anything other than the static line, the jumpmaster/safetyman will attempt to free the jumper
2.4.11. Towed parachutist indicates conscious/usable reserve
2.4.11.1. Indicated by tight body position with both hands on reserve
2.4.11.2. Static Line Square - Indicated by tight body position with one open hand on cutaway handle and one open hand on reserve ripcord

2.4.12. If towed by static line, jumpmaster/safety recommends to AC whether to land or cut free
2.4.13. AC decides if/when the parachutist is cut free

WARNING: Jumper will not deploy reserve parachute until free of the aircraft

2.4.14. Tow priorities: First - Land
Second - Cut Free
2.4.15. Descend slowly to DZ/suitable landing site
2.4.16. Establish a hover
2.4.17. Lower jumper to the ground

WARNING: Unconscious jumper will not be lowered into water

2.4.18. Unhook jumper's static line, deplane, and detach towed parachutist (JM/Safetyman)
2.4.19. If jumper is cut free, attempt to release over center of DZ

2.5. Malfunction/Injury/Unplanned Exit/Towed Jumper Cut Free Procedures (Aircrew)
2.5.1. Air/ground activities directed to support jumper
2.5.2. Track parachutists' descent
2.5.3. Monitor his condition
2.5.4. Relay his position to DZ controller
2.5.5. Deploy additional jumper(s) as briefed

Aircrew Emergency Procedures Freefall

(*brief applicable items only)*

3.1. Emergency parachutist bail out procedures
  3.1.1. Coordinate opening/closing aircraft exits
  3.1.2. 1000' AGL (tandem - 1500') and below
    3.1.2.1. Take aircraft seats and fasten seat belts
    3.1.2.2. Prepare for crash landing or ditching
    3.1.2.3. Egress as directed by aircrew/jumpmaster
  3.1.3. 1000 - 2000' AGL (tandem - 1500 - 4000' AGL)
    3.1.3.1. Exit on jumpmaster command, with pilot's concurrence
    3.1.3.2. Deploy reserve parachute once clear of the aircraft
    3.1.3.3. Attempt to land with other jumpers
  3.1.4. 2000' AGL and above (tandem - 4000' and above)
    3.1.4.1. Exit on jumpmaster command, with pilot's concurrence
    3.1.4.2. Deploy main parachute (tandem - drogue) once clear of aircraft (5-second maximum delay)
    3.1.4.3. Attempt to land with other jumpers
3.2. Inadvertent pilot chute deployment
  3.2.1. Contain pilot chute in the aircraft
  3.2.2. Yell "pilot chute"
  3.2.3. Move away from exits

3.2.4. De-rig and secure jumper and equipment
3.2.5. Exit immediately if any part of the parachute system is pulled outside of aircraft
3.3. Malfunction/injury/unplanned exit procedures (aircrew)
3.3.1. Air/ground activities directed to support jumper
3.3.2. Track parachutists' descent
3.3.3. Monitor his condition
3.3.4. Relay his position to DZ controller
3.3.5. Deploy additional jumper(s) as briefed
3.4. Automatic ripcord release
3.4.1. Type
3.4.2. Desired/minimum arming altitude
3.4.3. Notification procedures for emergency descent
3.4.4. Premature firing (same as inadvertent pilot chute deployment)

Aircrew Alternate Insertion/Extraction Briefing

(*brief applicable items only)*

4.1. Number of Aircraft Involved/Call Signs
4.2. Type of Insertion/Extraction
  4.2.1. Hoist/rescue devices
    4.2.1.1. Climbing harness
    4.2.1.2. Forest penetrator
    4.2.1.3. Rescue net
    4.2.1.4. Rescue strop/horse collar
    4.2.1.5. Stokes litter
    4.2.1.6. Barrelman procedures
    4.2.1.7. Tag-line
  4.2.2. Fast rope
  4.2.3. Rappel
  4.2.4. Rope ladder
  4.2.5. Helo-cast
  4.2.6. T-Duck
  4.2.7. REDS
  4.2.8. SPIE
  4.2.9. STABO

NOTE: Only operational equipment will be used for live deployments.

4.3. Number of iterations
  4.3.1. Single iteration

4.3.2. Multiple iterations
4.4. Team information
4.4.1. Number involved
4.4.2. Call signs
4.4.3. Duties and responsibilities
4.4.3.1. Team leader
4.4.3.2. AIE Master
4.4.3.3. Intercom requirements
4.4.3.4. Equipment delivery
4.5. HLZ information (show on map if available)
4.5.1. Name/coordinates/elevation/slope
4.5.2. Rotor clearance required
4.5.3. Markings and features
4.5.4. Recognition symbol
4.5.5. Required time on target
4.5.6. Known hazards
4.5.7. Range procedures/requirements
4.5.8. Desired heading
4.5.9. Alternates
4.6. Communications
4.6.1. HLZ controller call sign
4.6.2. HLZ controller frequencies
4.6.3. Team call sign/frequencies
4.6.4. Team-helicopter signals
4.6.4.1. OK/affirmative - thumbs up
4.6.4.2. Lower cable without device - climbing rope motion

4.6.4.3. Lower cable with device - arm extended overhead, fist clenched
4.6.4.4. Raise cable (day) - thumbs up, pumping motion
4.6.4.5. Raise cable (night) - chemlight, pumping motion
4.6.4.6. Ready for pickup (day) - arms waving
4.6.4.7. Ready for pickup (night) - strobe
4.6.4.8. Deploy stokes litter - hands cupped, then arms outstretched
4.6.4.9. Deploy rope ladder - fists shoulder width apart, climbing motion
4.6.4.10. Move in/out - wave in/out
4.6.4.11. Cease operations - slashing motion across throat
4.6.4.12. Team recall (day) - crewmember circling arm overhead, finger pointing skyward
4.6.4.13. Team recall (night) - deployment of retrieval device
4.6.4.14. Deploy medical kit - crossed wrists
4.6.4.15. Parachute nearby - closed fits, pumping arm, point with other arm
4.6.4.16. Deploy backup swimmer - breaststroke motion
4.6.4.17. Deploy raft - paddling motion
4.6.4.18. Sharks - hand-clapping motion
4.6.4.19. Emergency - ignite MK-13 flare or similar device

4.6.5. Communications failure
4.6.6. No comm procedures
4.7. Suggested approach/departure
4.8. Survivor line-up/approach
4.9. Altitude/airspeed/pattern
4.10. Deployment procedures
4.10.1. Aircrew duties and responsibilities
4.10.1.1. Aircraft and equipment rigging
4.10.1.2. Safetyman duties
4.10.1.2.1. Working area clear of non-essential equipment
4.10.1.2.2. Relay visual signals
4.10.1.2.2.1. Course corrections
4.10.1.2.2.2. Clear to deploy (ropes, ropes, ropes - thumbs up - etc.)
4.10.1.2.2.3. No drop

WARNING: When unsafe conditions are encountered, stop any additional team members deploying from the aircraft using appropriate hand signals. Make no attempt to physically stop a person in the act of deploying as this may cause the person to lose grip of the rope and increase the probability of injury to the team member.

4.10.1.2.3. Advise pilot on exit of deployed personnel
4.10.1.2.4. Advise pilot of condition of deployed personnel

WARNING: The safetyman will coordinate with the pilot to ensure the aircraft maintains a hover altitude keeping the ropes in contact with the ground.

4.10.1.2.5. Advise pilot when clear for forward flight
4.10.1.2.6. Chemlight activation
4.10.1.2.7. Suspected shock loading
4.10.2. Timing calls/time warnings (20, 10, 5, etc.)
4.10.3. Type of exit (left, right, ramp)
4.10.4. Clearance to deploy

WARNING: The AIE Master will ensure the ropes reach the ground prior to final positioning of team for deployment.

4.10.5. Equipment delivery
4.10.5.1. Hazards
4.10.5.2. Special instructions
4.10.6. Emergency procedures
4.10.6.1. Go-around
4.10.6.2. Abort
4.10.6.3. Shear procedures
4.10.6.4. Team actions - loss of aircraft control/power
4.10.6.5. Team actions - oscillation/drift/premature lift-off
4.10.6.6. Team actions - hung rope

Team Member Equipment Checklist (Round)

(*brief applicable items only)*

1.1. Main parachute
  1.1.1. Serviceable
  1.1.2. Inspection/repack dates - current
  1.1.3. Harness
  1.1.4. Risers - straight and connected
  1.1.5. Static line breakcord tie - routed through static line loop and safety pin attached to static line snap hook
1.2. Reserve parachute
  1.2.1. Serviceable
  1.2.2. Inspection/repack dates - current
  1.2.3. Pins and cones - checked
  1.2.4. Pack opening bands - installed
  1.2.5. Safety pin - installed
1.3. Delivery containers
  1.3.1. Load harness - serviceable
  1.3.2. Lowering line - attached
  1.3.3. Flotation devices
1.4. Medical equipment
  1.4.1. Individual
  1.4.2. Team
  1.4.3. Controlled medications
1.5. Communications equipment
  1.5.1. Radio(s): type, quantity, and frequencies

1.5.2. Communications check
1.5.3. Spare batteries
1.5.4. Rigged for deployment
1.6. Signaling devices
1.6.1. Audible - whistle/other
1.6.2. Pyrotechnic - MK-13/124/pen gun
1.6.3. Visual - signal mirror/flashlight
1.7. Night lighting
1.7.1. Strobe light on back of helmet pointing upward
1.7.2. Additional green chemlight on back of helmet (water)
1.7.3. Red chemlight(s) attached to front of jumper
1.7.4. Equipment load illuminated as required
1.8. Individual equipment (land)
1.8.1. Helmet with visor/goggles
1.8.2. Gloves
1.8.3. Knife
1.8.4. Jump/tree suit
1.8.5. Tree letdown webbing
1.9. Individual equipment (water)
1.9.1. Wetsuit/dry suit
1.9.1.1. Jacket
1.9.1.2. Trousers
1.9.1.3. Hood
1.9.1.4. Gloves
1.9.1.5. Booties
1.9.1.6. Fix-E-Palms

1.9.2. Facemask, fins, and whistle
1.9.3. Jumpers flotation device
1.9.4. Divers knife/tool
1.10. Special mission equipment
1.10.1. Weapons, ammunition, and pyrotechnics
1.10.2. Combat/field/mountain equipment
1.10.3. NVGs
1.11. Special mission water equipment
1.11.1. Protective headgear
1.11.2. Snorkel
1.11.3. SPUDS - gauged and checked
1.11.3.1. Regulator - attached
1.11.3.2. Air valve - on (check regulator)
1.11.4. ML-4 kit
1.11.5. Fanny pack
1.11.6. Divers watch
1.11.7. Depth gauge
1.11.8. Underwater compass
1.11.9. Underwater flashlight
1.11.10. Shark dart
1.11.11. Weight belt with dive weights
1.11.12. Carabineer(s)
1.11.13. Scissors
1.12. Next briefing/checklist
1.12.1. Parachutist Emergency Procedures Brief (Round) (*page 59*)

Team Member Equipment Checklist (Freefall Square)

(*brief applicable items only)*

2.1. Parachute
- 2.1.1. Serviceable
- 2.1.2. Inspection/repack dates - current
- 2.1.3. Ripcords
  - 2.1.3.1. Handles - in pockets and secure
  - 2.1.3.2. Cable routing and travel - checked
  - 2.1.3.3. Pins - checked, ensure reserve cable is on left side of closing loops
  - 2.1.3.4. Reserve static-line ring - around reserve ripcord cable and above fixed guide ring (little-ring - big-ring)
- 2.1.4. Three-ring riser assembly
  - 2.1.4.1. Connections
  - 2.1.4.2. Routing
  - 2.1.4.3. Rings - rotate
  - 2.1.4.4. Nylon coated cable - inspect for damage from end of cable to fabric locking loop
  - 2.1.4.5. Fabric locking loops - inspect for damage and twists
- 2.1.5. Reserve static line
  - 2.1.5.1. Quick release - secured
  - 2.1.5.2. Loop end of static line - on brass marine fitting

2.1.5.3. Static line - free and clear of cutaway cable housing

2.1.6. AAD

2.1.6.1. Calibrated

2.1.6.2. Arming pin - installed and secure

2.1.6.3. Reset indicator bars - aligned

2.1.6.4. Power cable housing - routing checked, locking key attached to stiffener plate

2.1.6.5. Power cable - does not overlap ripcord cable and rubber pad is pushed against cable housing

2.1.6.6. Knurled nut - tightened with at least three threads showing

2.1.6.7. Withdrawal hook - ensure it is attached to pin and not cable, main ripcord cable on top

2.1.7. LPU(s) - secured to harness

2.1.8. Altimeter

2.2. Delivery containers

2.2.1. Load harness - serviceable

2.2.2. Lowering line - attached

2.2.3. Flotation device - attached and serviceable

2.2.4. Additional gear, containers, fanny pack

2.3. Medical equipment

2.3.1. Individual kit

2.3.2. Team kit

2.3.3. Controlled medications

2.4. Communications equipment

2.4.1. Radio(s) - type, quantity, and frequencies

2.4.2. Communications check
2.4.3. Spare batteries
2.4.4. Rigged for deployment
2.5. Oxygen equipment
2.5.1. Oxygen mask
2.5.2. CRU 60/43
2.5.3. Oxygen block
2.5.4. Airox-VIII
2.5.4.1. Quantity (min 1800psi)
2.5.4.2. Flow
2.6. Signaling devices
2.6.1. Audible - whistle/other
2.6.2. Pyrotechnic - MK-13/124/pen gun
2.6.3. Visual - signal mirror/flashlight
2.7. Night lighting
2.7.1. Strobe light on back of helmet pointing upward
2.7.2. Additional green chemlight on back of helmet (water)
2.7.3. Red chemlight(s) attached to front of jumper
2.7.4. Green chemlight(s) attached to rear of jumper
2.7.5. Equipment load illuminated as required
2.7.6. Altimeter - chemlight
2.8. Individual equipment (land)
2.8.1. Helmet
2.8.2. Goggles/visor
2.8.3. Gloves
2.8.4. Altimeter

2.8.5. Jump/tree suit
2.9. Individual equipment (water)
2.9.1. Wetsuit/dry suit
2.9.1.1. Jacket
2.9.1.2. Trousers
2.9.1.3. Hood
2.9.1.4. Gloves
2.9.1.5. Booties
2.9.1.6. Fix-E-Palms
2.9.2. Facemask, fins, and whistle
2.9.3. Jumpers flotation device
2.9.4. Divers knife/tool
2.10. Special mission equipment
2.10.1. Weapons/ammunition/pyrotechnics
2.10.2. Combat/field/mountain equipment
2.10.3. NVGs
2.11. Special mission water equipment
2.11.1. Protective headgear
2.11.2. Snorkel
2.11.3. SPUDS - gauged and checked
2.11.3.1. Regulator - attached
2.11.3.2. Air valve - on (check regulator)
2.11.4. ML-4 kit
2.11.5. Fanny pack
2.11.6. Divers watch
2.11.7. Depth gauge
2.11.8. Underwater compass
2.11.9. Underwater flashlight

2.11.10. Shark dart
2.11.11. Weight belt with dive weights
2.11.12. Carabineer(s)
2.11.13. Scissors
2.12. HAHO special mission equipment (team)
2.12.1. Medical kit - minimum one
2.12.2. Radio with guard capability - one minimum

NOTE: Separate radios are required to communicate with the aircraft and the jumpers if frequencies are not compatible.

2.13. HAHO special mission equipment (individual)
2.13.1. Helmet with communications
2.13.2. Radio
2.13.3. Silva compass on chest mount
2.13.4. Emergency signaling device on person
2.13.5. Warm clothing
2.13.6. GPS
2.13.7. Toggle extensions
2.14. HAHO special mission equipment (navigator)
2.14.1. HAHO compass board
2.14.2. Maps and map board
2.14.3. NVGs
2.14.4. Electronic NAV/aid
2.14.5. Route calculator
2.15. HAHO special mission equipment (team leader)
2.15.1. Map and map board.

2.15.2. NVGs
2.16. Next briefing/checklist
2.16.1. Parachutist Emergency Procedures Brief (Freefall Square) (*page 76*)

Team Member Equipment Checklist (Non-Standard Parachute)

(*brief applicable items only)*

3.1. Non-Standard Parachute assembly
  3.1.1. Serviceable
  3.1.2. Inspection/repack dates - current
  3.1.3. Hand deploy pilot chute
    3.1.3.1. Secure in pocket - handle exposed
    3.1.3.2. Bridle - properly routed
  3.1.4. Reserve ripcord
    3.1.4.1. Handle in pocket and secure
    3.1.4.2. Cable routing and travel checked
    3.1.4.3. Pin(s) checked
  3.1.5. Three-ring riser assembly
    3.1.5.1. Connections
    3.1.5.2. Routing
    3.1.5.3. Rings - rotate
    3.1.5.4. Nylon coated cable - inspect for damage from end of cable to fabric locking loop
    3.1.5.5. Fabric locking loops - inspect for damage and twists
    3.1.5.6. Reserve static line - attached
3.2. AAD - functioning and calibrated
3.3. Night lighting
  3.3.1. Strobe light on back of helmet pointing upward

3.3.2. Red chemlight(s) attached to front of jumper
3.3.3. Green chemlight(s) attached to rear of jumper
3.3.4. Altimeter - chemlight
3.4. Individual equipment
3.4.1. Protective headgear
3.4.2. Protective eye wear
3.4.3. Visual altimeter
3.4.4. Audible altimeter
3.4.5. Jumpsuit
3.4.6. Camera(s)
3.4.7. Radios
3.5. Next briefing/checklist
3.5.1. Parachutist Emergency Procedures Brief (Non-Standard Parachute) (*page 84*)

Team Member Equipment Checklist (Static Line Square)

(*brief applicable items only)*

4.1. Parachute
- 4.1.1. Serviceable
- 4.1.2. Inspection/repack dates - current
- 4.1.3. Reserve ripcord
  - 4.1.3.1. Handle - in pocket and secure
  - 4.1.3.2. Cable routing and free travel - checked
  - 4.1.3.3. Pins - checked, ensure cable is on left side of closing loops
  - 4.1.3.4. Reserve static-line ring - around reserve ripcord cable and above fixed guide ring (little-ring - big-ring)
- 4.1.4. Static line assembly
  - 4.1.4.1. Pins - checked
  - 4.1.4.2. Safety pin - attached
  - 4.1.4.3. Static line routing
- 4.1.5. Three-ring riser assembly
  - 4.1.5.1. Connections
  - 4.1.5.2. Routing
  - 4.1.5.3. Rings - rotate
  - 4.1.5.4. Nylon coated cable - inspect for damage from end of cable to fabric locking loop
  - 4.1.5.5. Fabric locking loops - inspect for damage and twists

4.1.6. Reserve static line
4.1.6.1. Quick release - secured
4.1.6.2. Loop end of static line - on brass marine fitting
4.1.6.3. Static line - free and clear of cutaway cable housing
4.1.7. LPU(s) - secured to waist strap
4.2. Delivery containers
4.2.1. Load harness - serviceable
4.2.2. Lowering line - attached
4.2.3. Water proofing and flotation
4.2.4. Lighting
4.2.5. Fanny pack - required for night and water deployments
4.3. Medical equipment
4.3.1. Controlled medications
4.3.2. Team kit
4.3.3. Individual kit
4.4. Communications equipment
4.4.1. Radio(s) - type, quantity, and frequencies
4.4.2. Communications check
4.4.3. Spare batteries
4.4.4. Rigged for deployment
4.5. Signaling devices
4.5.1. Audible - whistle/other
4.5.2. Pyrotechnic - MK-13/124/pen gun
4.5.3. Visual - signal mirror/flashlight
4.6. Night lighting

4.6.1. Strobe light on back of helmet pointing upward
4.6.2. Additional green chemlight on back of helmet (water)
4.6.3. Red chemlight(s) attached to front of jumper
4.6.4. Green chemlight(s) attached to rear of jumper
4.6.5. Equipment load illuminated as required
4.6.6. Altimeter - chemlight
4.7. Individual equipment (land)
4.7.1. Helmet
4.7.2. Goggles/visor
4.7.3. Gloves
4.7.4. Altimeter
4.7.5. Jump/tree suit
4.8. Individual equipment (water)
4.8.1. Wetsuit/dry suit
4.8.1.1. Jacket
4.8.1.2. Trousers
4.8.1.3. Hood
4.8.1.4. Gloves
4.8.1.5. Booties
4.8.1.6. Fix-E-Palms
4.8.2. Facemask, fins, and whistle
4.8.3. Jumpers flotation device
4.8.4. Divers knife/tool
4.9. Special mission equipment
4.9.1. Weapons/ammunition/pyrotechnics
4.9.2. Combat/field/mountain equipment
4.9.3. NVGs

4.10. Special mission water equipment
4.10.1. Protective headgear
4.10.2. Snorkel
4.10.3. SPUDS - gauged and checked
4.10.3.1. Regulator - attached
4.10.3.2. Air valve - on (check regulator)
4.10.4. ML-4 kit
4.10.5. Fanny pack
4.10.6. Divers watch
4.10.7. Depth gauge
4.10.8. Underwater compass
4.10.9. Underwater flashlight
4.10.10. Shark dart
4.10.11. Weight belt with dive weights
4.10.12. Carabineer(s)
4.10.13. Scissors
4.11. Next briefing/checklist
4.11.1. Parachutist Emergency Procedures Brief (Static Line Square) (*page 76*)

Jumpmaster Parachutist Insertion Team Brief

(*brief applicable items only)*

5.1. Roll call
5.2. Parachutist currency and qualifications
  5.2.1. Parachutist training and currency requirements - checked
  5.2.2. Equipment/aircraft restrictions
  5.2.3. Crew rest and duty limitations
5.3. Jump description
  5.3.1. Type of jump
    5.3.1.1. SL/HALO/HAHO/tandem/RAMZ
    5.3.1.1. Combination
  5.3.2. Type of exit (left, right, ramp)
  5.3.3. Number of iterations
    5.3.3.1. Single iteration
    5.3.3.2. Multiple iterations
  5.3.4. Type of release
    5.3.4.1. JMDD/NAV/ground
  5.3.5. Altitude/airspeed/pattern
    5.3.5.1. High altitude airdrops (waiver required above 25,000' MSL)
      5.3.5.1.1. Oxygen requirements and times
      5.3.5.1.2. Physiological technician requirements and briefings (required at or above 18,000' MSL IAW AFI 11-409)
      5.3.5.1.3. Aircraft depressurization

5.3.5.1.4. Walk around bottle requirements
5.3.5.1.5. Suspected decompression sickness
5.4. Team information
5.4.1. Number involved/manifest/orders
5.4.2. Call signs
5.4.3. Duties and responsibilities
5.4.3.1. Team leader/assistant team leader
5.4.3.2. Jump master/assistant jumpmaster
5.4.3.3. Safetyman
5.4.3.4. Navigator/alternate navigator (HAHO only)
5.4.3.5. Medic (primary/alternate)
5.4.3.6. Intercom requirements
5.4.3.7. Equipment delivery
5.4.3.8. Physiological training officer/oxygen NCO
5.4.3.9. DZC/boatmaster/safety swimmer
5.5. Aircraft
5.5.1. Number of aircraft involved/call signs /type/characteristics
5.5.2. Tail number(s)
5.5.3. Load location
5.5.4. RAMZ pre-inspection/jai
5.5.5. Load time
5.5.6. Station time
5.5.7. Take-off time
5.6. Flight
5.6.1. Duration
5.6.2. Route/checkpoints

5.6.3. TOT
5.7. DZ information (show on map if available)
5.7.1. Name/coordinates/elevation
5.7.2. Markings and features
5.7.3. Recognition symbol
5.7.4. Required time on target
5.7.5. Known hazards
5.7.6. Range procedures/requirements
5.7.7. Desired heading
5.7.8. Point of impact
5.7.9. Opening point
5.7.10. Release point
5.7.11. Alternate DZs
5.7.12. Emergency DZs
5.8. Weather
5.8.1. Forecast
5.8.2. Illumination
5.8.3. Temperatures (altitude/surface/water)
5.8.4. Winds (altitude/surface)
5.8.5. Sea state
5.8.6. Cloud cover
5.8.7. Precipitation
5.8.8. Visibility
5.8.9. Altimeter and AAD settings
5.9. Communications
5.9.1. Radio(s): type, quantity, and frequencies
5.9.2. Secure/non-secure
5.9.3. Team call sign(s)/number(s)

5.9.4. Radio check
5.9.5. Radio discipline
5.9.6. Waterproofing
5.9.7. Communications failure
5.9.8. No comm procedures
5.10. Deployment information
5.10.1. Aircraft and equipment rigging
5.10.2. Order of deployment
5.10.2.1. Lift
5.10.2.2. Pass
5.10.2.3. Sticks
5.10.3. Jumpmaster signals/actions in aircraft

NOTE: Signals and time warnings may be abbreviated to meet mission profile.

5.10.3.1. General
5.10.3.1.1. Don parachutes/equipment when instructed
5.10.3.1.2. Price check
5.10.3.1.3. Don helmets - prior to takeoff
5.10.3.1.4. 1000' AGL/pilots command - unfasten seatbelts
5.10.3.2. HALO/HAHO
5.10.3.2.1. 20 minute warning
5.10.3.2.1.1. Don equipment
5.10.3.2.1.2. Drop equipment is pre-positioned
5.10.3.2.1.3. Jumpers receive equipment check

5.10.3.2.1.4. Oxygen NCO gives “oxygen check”
5.10.3.2.1.5. Cabin lighting configured
5.10.3.2.2. 10 minute warning
5.10.3.2.2.1. Red light comes on
5.10.3.2.2.2. JM gives “wind/gust”
5.10.3.2.2.3. JM gives - “arm ARR”

WARNING: Ensure cabin pressure is at least 2,500’ above activation altitude, 3,500’ desired, to prevent inadvertent pilot chute.

5.10.3.2.2.4. Jumpers perform “pin check”
5.10.3.2.2.5. Jumpers perform radio checks
5.10.3.2.2.6. Oxygen NCO gives “oxygen check”
5.10.3.2.3. 6 minute warning
5.10.3.2.3.1. Aircraft slows down
5.10.3.2.3.2. Doors/ramp open
5.10.3.2.3.3. JM inspects exits
5.10.3.2.3.4. Oxygen NCO gives “oxygen check”
5.10.3.2.4. 2 minute warning
5.10.3.2.4.1. JM gives “stand up”
5.10.3.2.4.2. Jumpers perform “pin check”
5.10.3.2.4.3. Jumpers activate chemlights
5.10.3.2.4.4. Jumpers locate oxygen bottle on/off switch and console hose connection

5.10.3.2.5. 1 minute warning
5.10.3.2.5.1. JM gives “move to the rear”
5.10.3.2.5.2. Jumpers turn on oxygen bottle and disconnect from console (oxygen NCO assists)
5.10.3.2.6. 15 seconds
5.10.3.2.6.1. JM gives “stand by”
5.10.3.2.6.2. Jumpers relay signal and move within 1 meter of exit
5.10.3.2.7. Go
5.10.3.2.7.1. Green light comes on
5.10.3.2.7.2. JM give “go”
5.10.3.2.7.3. Jumpers deploy at appropriate interval
5.10.3.2.8. No drop
5.10.3.2.8.1. JM give “no drop”
5.10.3.2.8.2. Jumpers move to assigned seats and re-connect to console
5.10.3.2.9. Re-arm ARR
5.10.3.2.9.1. JM gives “re-arm ARR”

WARNING: The jumpmaster must ensure aircraft does not descend to 2500’ above planned ARR activation altitude.

5.10.3.3. Static line
5.10.3.3.1. 20 minute warning
5.10.3.3.1.1. Don equipment
5.10.3.3.1.2. Drop equipment is pre-positioned

5.10.3.3.1.3. Jumpers receive equipment check
5.10.3.3.1.4. Cabin lighting configured
5.10.3.3.2. 10 minute warning
5.10.3.3.2.1. Red light comes on
5.10.3.3.2.2. JM gives "wind/gust"
5.10.3.3.2.3. Jumpers perform radio checks
5.10.3.3.2.4. JM gives "get ready"
5.10.3.3.2.5. JM gives "stand up"
5.10.3.3.2.6. JM gives "hook up"
5.10.3.3.2.7. JM gives "check static lines"
5.10.3.3.2.8. JM gives "check equipment"
5.10.3.3.2.9. JM gives "sound off for equipment check"
5.10.3.3.3. 6 minute warning
5.10.3.3.3.1. Aircraft slows down
5.10.3.3.3.2. Doors/ramp open
5.10.3.3.3.3. JM inspects exits
5.10.3.3.4. 2 minute warning
5.10.3.3.4.1. Jumpers activate chemlights
5.10.3.3.5. 1 minute warning
5.10.3.3.5.1. JM gives "move to the rear"
5.10.3.3.5.2. Jumpers activate strobe
5.10.3.3.6. 15 seconds
5.10.3.3.6.1. JM gives "stand by/slaps the step"
5.10.3.3.6.2. Jumpers relay signal and move within 1 meter of exit
5.10.3.3.7. Go
5.10.3.3.7.1. Green light comes on

5.10.3.3.7.2. JM give “go/slaps parachutist on thigh”
5.10.3.3.7.3. Jumpers deploy at appropriate interval
5.10.3.3.8. No drop
5.10.3.3.8.1. JM give :no drop”
5.10.3.3.8.2. Jumpers move to assigned seats and re-connect to console
5.10.4. Type of exit, interval’s, and delay’s
5.10.4.1. RAMZ static line - 1st jumper exits 6 second delay but not before d-bags are retrieved
5.10.4.2. RAMZ freefall 2700’-3500’ AWL - 1 second delay, all jumpers clear and pull
5.10.4.3. RAMZ freefall 3500’ AWL or above - 1st jumper 5-second delay, 2nd jumper 3-second delay, all other jumpers 1-second delay and clear and pull
5.10.5. Freefall maneuvers/grouping
5.10.5.1. Opening altitudes
5.10.5.1.1. Break off

NOTE: No less than 1000' above pull altitude begin separation maneuvers to achieve 50-meter pre-opening lateral separation.

NOTE: Pre-brief all jumpers with the tandem pair that at no less than 1500' above pull altitude to begin separation maneuvers to achieve 200 meter pre-opening lateral separation from the tandem pair.

5.10.5.1.2. Wave-off
5.10.5.1.3. Pull
5.10.5.2. Cloud entry procedures
5.10.5.2.1. Entry/exit and regrouping
5.10.5.2.2. Freefall maneuvers
5.10.5.2.3. Pulling in clouds
5.10.5.2.4. Canopy flying
5.10.5.3. HAHO formation
5.10.5.3.1. Type, jumpers positions
5.10.5.3.2. Color of NAV jumpsuit/chemlight
5.10.5.3.3. Intended pull altitude
5.10.5.3.4. Intended route of travel
5.10.5.3.4.1. Compass heading to DZ
5.10.5.3.4.2. Distance to DZ (enroute points, altitudes)
5.10.5.3.4.3. Terrain features/checkpoints on route
5.10.6. Static line maneuvers/grouping
5.10.7. Landing pattern
5.10.8. Actions at DZ
5.11. Special considerations
5.11.1. Unconscious jumper/major separation
5.11.2. Missing jumper on landing
5.12. Sequence of events (narrative)
5.12.1. Planned number of loads
5.12.2. Planned number of passes (including WDI drops)
5.12.3. Number of sticks

Parachutist Emergency Procedures Brief (Round)

(*brief applicable items only)*

6.1. Emergency parachutist bail out procedures (after jumpers stand up and hook up)
- 6.1.1. Under acceptable conditions, pilot maintains altitude and attitude to evacuate the jumpers
- 6.1.2. Evacuation is ordered by green light and briefed alarm bells/signals
  - 6.1.2.1. Evacuate - 1 long ring
  - 6.1.2.2. Bailout - 3 short rings (prepare), 1 long ring (jump)
  - 6.1.2.3. Ditch/crash land - 6 short rings (prepare), 1 long ring (prior to impact)
- 6.1.3. Minimum acceptable altitude is 400' AGL for fixed-wing, 1000' AGL for rotary-wing
- 6.1.4. Emergency occurs during unacceptable conditions
  - 6.1.4.1. No-drop signal given
  - 6.1.4.2. Red lights turned "on"
  - 6.1.4.3. Jumpers unhook static lines
  - 6.1.4.4. Take seats and fasten safety belts
  - 6.1.4.5. Prepare for crash landing or ditching

6.2. Inadvertent reserve pilot chute deployment
- 6.2.1. Contain pilot chute in the aircraft
- 6.2.2. Yell "pilot chute"
- 6.2.3. Move away from exits

6.2.4. De-rig and secure jumper and equipment
6.2.5. Exit immediately if any part of the parachute system is pulled outside of aircraft
6.2.6. If jumper makes an unplanned exit
6.2.6.1. Follow him down
6.2.6.2. Monitor his condition
6.2.6.3. Relay his position to DZ controller
6.2.6.4. Deploy additional jumper(s) as briefed
6.3. Towed parachutist - fixed wing
6.3.1. Stop the stick (JM)
6.3.2. Red lights turned "on"
6.3.3. Towed parachutist indicates conscious/usable reserve. (indicated by tight body position with both hands on reserve)
6.3.4. HC-130 - if towed from paratroop door, expect the aircraft to avoid turning in direction of parachutist
6.3.5. C-130 - if towed from paratroop door, expect the aircraft to:
6.3.5.1. Lower landing gear
6.3.5.2. Set flaps to 100 percent
6.3.5.3. Avoid turning in direction of parachutist
6.3.6. Tow priorities
6.3.6.1. Door: First - retrieve
Second - cut free
6.3.6.2. Ramp: First - cut free
Second - retrieve

WARNING: Retrieve the parachutist if unconscious has an unusable reserve, does not signal, cannot be observed, or cannot be cut free.

6.3.7. If jumper is cut free, attempt to release over center of DZ

WARNING: Jumper will not deploy reserve parachute until free of the aircraft.

6.4. Towed parachutist - rotary wing

6.4.1. Jumpmaster/safetyman stops the stick and recovers all static lines/deployment bags

6.4.2. Towed parachutist indicates conscious/usable reserve. (indicated by tight body position with both hands on reserve)

6.4.3. Aircraft descends slowly to DZ/suitable landing site

6.4.4. Aircraft establishes a hover and lowers jumper to the ground

WARNING: Unconscious jumper will not be lowered into water.

6.4.5. If jumper is cut free, attempt to release over center of DZ

WARNING: Do not deploy reserve parachute until free of the aircraft.

6.5. Emergency use of reserve parachute
6.5.1. Total malfunction (pull-drop method)
6.5.1.1. Enter good, tight body position
6.5.1.2. Keep feet and knees together
6.5.1.3. Grasp reserve carrying handle with left hand
6.5.1.4. Turn head left or right
6.5.1.5. Pull ripcord handle with right hand and drop it to the ground.

NOTE: For center pull reserve, pull ripcord with both hands.

6.5.2. Partial malfunction (down-and-away method)
6.5.2.1. Enter good, tight body position
6.5.2.2. Keep feet and knees together
6.5.2.3. Place left hand over front of reserve
6.5.2.4. Pull ripcord handle with right hand, prevent pilot chute from escaping with left hand.

NOTE: Strong pressure must be maintained with the left hand to prevent the pilot chute and reserve canopy from springing out.

6.5.2.5. Reach into reserve pack with right hand between canopy and pack

6.5.2.6. Grasp canopy and pilot chute with both hands, lift out of pack, and raise over either shoulder

6.5.2.7. Throw down and out vigorously, if spinning throw in direction of spin

6.6. Parachute collision avoidance

6.6.1. Lower jumper has "right-of-way"

6.6.2. Maintain 50-foot lateral and vertical separation (25-feet for T-10C)

6.6.3. If jumper lands on another jumper's canopy run off immediately

6.6.4. If collision cannot be avoided, spread eagle and attempt to bounce off the other jumper's suspension lines

6.6.5. If a parachutist enters another parachutists suspension line - protect ripcord with right hand, attempt to avoid becoming entangled

6.6.6. MC1-1B/C entanglement - immediately upon entanglement, both jumpers will activate their reserves using the down and away method

6.6.7. T-10C - move hand-under-hand to eye level and perform a good PLF.

NOTE: If both parachutes lose lift - both jumpers will activate their reserves using the down and away method.

6.7. Emergency landings (brief only if obstacles are present)
- 6.7.1. Trees
  - 6.7.1.1. Do not lower equipment, if lowered, jettison
  - 6.7.1.2. Maintain canopy control until contact with the trees
  - 6.7.1.3. Rotate forearms to front of face and chest
  - 6.7.1.4. Prepare to execute a PLF if breaking through the trees
  - 6.7.1.5. If hung up - consider activating the reserve and climbing down
- 6.7.2. Wires
  - 6.7.2.1. Avoid at all cost
  - 6.7.2.2. Lower and jettison equipment
  - 6.7.2.3. Arms extended, place palms on the inside of front risers, feet and knees together, before contact
  - 6.7.2.4. Push forward on the front risers, bending at the waist, initiating a rocking motion in an attempt to work through the wires
  - 6.7.2.5. If passing through - prepare for PLF
  - 6.7.2.6. If hung up - remain motionless until power is disconnected

6.7.2.7. If on the ground - activate canopy releases and move away

6.7.3. Water (unplanned)

6.7.3.1. Jettison headgear, lower equipment

6.7.3.2. Unsnap left side of reserve and release waistband

6.7.3.3. Release chest strap, locate quick ejectors on leg straps

6.7.3.4. Upon contact with water, release leg straps, throw arms up and arch out of the harness

6.7.3.5. Prepare for PLF if the water is shallow

6.8. Next briefing/checklist

6.8.1. Jumpmaster Aircraft Inspection Checklist (*page 134*)

Parachutist Emergency Procedures Brief (Static Line Square)

(*brief applicable items only)*

7.1. Emergency parachutist bail out procedures (after jumpers stand up and hook up)
- 7.1.1. Under acceptable conditions, pilot maintains altitude and attitude to evacuate the jumpers
- 7.1.2. Evacuation is ordered by green light/briefed alarm bells/signals
- 7.1.3. Minimum acceptable altitude is 1000' AGL for fixed and rotary-wing
- 7.1.4. Emergency occurs during unacceptable conditions
  - 7.1.4.1. No-drop signal given
  - 7.1.4.2. Red lights turned "on"
  - 7.1.4.3. Jumpers unhook static lines
  - 7.1.4.4. Take seats and fasten safety belts
  - 7.1.4.5. Prepare for crash landing or ditching

7.2. Inadvertent reserve pilot chute deployment
- 7.2.1. Contain pilot chute in the aircraft
- 7.2.2. Yell "pilot chute"
- 7.2.3. Move away from exits
- 7.2.4. De-rig and secure jumper and equipment
- 7.2.5. Exit immediately if any part of the parachute system is pulled outside of aircraft
- 7.2.6. If jumper makes an unplanned exit

7.2.6.1. Follow him down
7.2.6.2. Monitor his condition
7.2.6.3. Relay his position to DZ controller
7.2.6.4. Deploy additional jumper(s) as briefed

7.3. Towed parachutist - fixed wing
7.3.1. Stop the stick (JM)
7.3.2. Red lights turned "on"
7.3.3. Towed parachutist indicates conscious/usable reserve. (indicated by tight body position with one open hand on cutaway handle and one open hand on reserve ripcord)

WARNING: Do not deploy reserve parachute until free of the aircraft.

7.3.4. HC-130 - if towed from paratroop door, expect the aircraft to avoid turning in direction of parachutist
7.3.5. C-130 - if towed from paratroop door, expect the aircraft to
7.3.5.1. Lower landing gear
7.3.5.2. Set flaps to 100 percent
7.3.5.3. Avoid turning in direction of parachutist
7.3.6. Tow priorities
7.3.6.1. Door: First - retrieve
Second - cut free
7.3.6.2. Ramp: First - cut free
Second - retrieve

WARNING: Retrieve parachutist if he is unconscious, has an unusable reserve, does not signal, cannot be observed, or cannot be cut free.

7.3.7. If jumper is cut free, attempt to release over center of DZ

7.4. Towed parachutist - rotary wing

7.4.1. Jumpmaster/safetyman stops the stick and recovers all static lines/deployment bags

7.4.2. Towed parachutist indicates conscious/usable reserve. (indicated by tight body position with one open hand on cutaway handle and one open hand on reserve ripcord)

WARNING: Do not deploy reserve parachute until free of the aircraft.

7.4.3. Aircraft descends slowly to DZ/suitable landing site

7.4.4. Aircraft establishes a hover and lowers jumper to the ground

WARNING: Unconscious jumper will not be lowered into water.

7.4.5. Jumpmaster/safetyman unhooks jumper's static line, deplanes, and detaches towed parachutist

7.4.6. If jumper is cut free, attempt to release over center of DZ

7.5. Cutaway procedure

7.5.1. Look at and grab the cutaway handle

7.5.2. Look at and grab the reserve ripcord

7.5.3. Arch

7.5.4. Pull cutaway handle

7.5.5. Pull reserve ripcord

7.5.6. Check to ensure the reserve pilot chute has deployed

7.5.7. Perform the post opening procedures

7.6. Post opening procedures

7.6.1. Steer to avoid. Use rear risers to avoid other jumpers - turn to the right to avoid head on collisions

7.6.2. Release brakes

7.6.3. Check canopy

7.6.4. Resolve post-opening malfunctions

7.6.5. If controllability is questionable, perform a controllability check

7.6.6. If a malfunction cannot be resolved and canopy is uncontrollable, cutaway no lower than 2,000 feet AGL.

NOTE: For RAMZ and HAHO operations, cutaways should be initiated immediately if any main canopy performance is questionable.

7.6.7. Orient yourself to the DZ

7.6.8. Locate other jumpers and achieve separation
7.6.9. Activate strobe light
7.6.10. Maintain altitude awareness
7.7. Controllability check.

NOTE: Controllability check is accomplished only when canopy controllability is questionable.

7.7.1. Maintain altitude awareness
7.7.2. Release brakes (if not already accomplished)
7.7.3. Look left, turn left 90 degrees
7.7.4. Look right, turn right 90 degrees
7.7.5. Determine stall point.

NOTE: If canopy requires more than 50% opposite toggle to counter turn, canopy is uncontrollable. If canopy stalls prior to 50% brakes, it is uncontrollable.

7.7.6. If the canopy is uncontrollable - perform cutaway procedures
7.8. Opening and post-opening malfunctions
7.8.1. Pilot chute over the nose
7.8.2. Broken lines/rips/tears/tension knots
7.8.3. Broken control lines
7.8.4. Dual main and reserve deployment
7.8.4.1. If both parachutes deploy completely - cutaway main

7.8.4.2. If only the reserve pilot chute and bridle deploy - attempt to contain them

7.8.4.3. If the reserve parachute partially deploys - slow the main parachute, and be prepared to cut away should the reserve parachute fully inflate

7.8.5. Horseshoe, bag lock, streamer, and riser separation

7.8.6. Snivel

7.8.7. Hung slider/closed end cells

7.8.8. Premature brake release

7.8.9. Line twists

7.8.10. Floating ripcord

7.8.11. Hard pull

7.8.12. Pack closure

7.8.13. Pilot chute hesitation

7.8.14. Altimeter failure or loss

7.8.15. Collision on exit

7.9. Parachute collision avoidance

7.9.1. Lower jumper has "right-of-way"

7.9.2. Maintain safe separation distance (25 meters to the rear and above).

NOTE: Except CRW.

7.9.3. Look before turning

7.9.4. If unable to avoid collision - spread arms and legs in an attempt to bounce off canopy/lines

7.10. Canopy entanglements

7.10.1. Communication between jumpers and altitude awareness is the key to successful disengagement
7.10.2. Above 2000' AGL - top jumper has a good canopy
7.10.2.1. Top jumper attempts to clear himself of the canopy
7.10.2.2. If the canopy clears it should reopen in 150-200'
7.10.2.3. If canopy cannot be cleared - check altitude
7.10.2.4. Above 2000' - lower jumper perform cutaway
7.10.3. Between 1000 - 2000' AGL - top jumper has a good canopy
7.10.3.1. Lower jumper has two options
7.10.3.1.1. Perform cutaway if above 1000' AGL
7.10.3.1.2. Stay with top jumper and perform procedures for "below 1000' AGL"
7.10.4. Below 1000' AGL - top jumper has a good canopy
7.10.4.1. Top jumper - maintain control of lower jumpers canopy
7.10.4.2. Lower jumper - jettison equipment
7.10.4.3. Top jumper - flies a straight and level final approach and lands with 50% brakes.

NOTE: Stall point is higher with added suspended weight.

7.10.4.4. Both jumpers - perform a PLF

WARNING: Turns can cause a severe pendulum effect and should be avoided at low altitude. Do not attempt a flared landing.

7.10.5. Both jumpers entangle and neither has a good canopy at any altitude

7.10.5.1. Top jumper clears himself of entangled lines and performs cutaway (altitude permitting)

7.10.5.2. Lower jumper performs cutaway after top jumper clears the entanglement (altitude permitting)

WARNING: Top jumper may be fatally engulfed in the canopy of the low jumper if the low jumper performs a cut away prior to the top jumper.

7.10.5.3. Last resort - both jumpers deploy reserves in an attempt to slow descent

7.10.5.3.1. If only one deploys - jumper with the good canopy brings the other entangled jumper to the ground

7.10.5.3.2. If both reserves deploy - both jumpers cutaway from entanglement

7.11. Emergency landings

7.11.1. Trees

7.11.1.1. Do not lower equipment, jettison if already lowered
7.11.1.2. Turn canopy into wind
7.11.1.3. Brake to achieve vertical descent
7.11.1.4. Prepare for PLF
7.11.1.5. Use forearms to protect face and neck
7.11.2. Wires
7.11.2.1. Throw away ripcord
7.11.2.2. Turn off oxygen
7.11.2.3. Avoid contact at all cost, even if downwind
7.11.2.4. Streamline body
7.11.2.5. If hung up - remain motionless until power is disconnected
7.11.2.6. Prepare for PLF after passing through wires
7.11.2.7. If the chute is hung up and jumper contacts ground - pull cutaway handle

NOTE: If time and altitude permit - unhook RSL and jettison equipment.

7.11.3. Water (unintentional)
7.11.3.1. Jettison O2 mask and equipment
7.11.3.2. Disconnect reserve static line
7.11.3.3. Sit well back in the harness
7.11.3.4. Release chest strap and waist strap
7.11.3.5. Inflate flotation device

7.11.3.6. Turn canopy in wind and slow forward speed
7.11.3.7. Release the right toggle so the right hand is free to cutaway parachute (if being dragged)
7.11.3.8. If dragged - jettison canopy
7.11.3.9. Release leg straps and swim free of harness/chute

7.12. Next briefing/checklist
7.12.1. Jumpmaster Aircraft Inspection Checklist (*page 134*)

Parachutist Emergency Procedures (Freefall Square)

(*brief applicable items only)*

8.1. Emergency parachutist bail out procedures
- 8.1.1. Below 1000 ft AGL
  - 8.1.1.1. Take aircraft seats and fasten seat belts
  - 8.1.1.2. Prepare for crash landing or ditching
- 8.1.2. 1000 - 2000 ft AGL
  - 8.1.2.1. Exit at jumpmaster's command
  - 8.1.2.2. Deploy reserve parachute when clear of aircraft
  - 8.1.2.3. Attempt to land with other jumpers
- 8.1.3. Above 2000 ft AGL
  - 8.1.3.1. Exit at jumpmaster's command
  - 8.1.3.2. Deploy main parachute after maximum 5-second delay
  - 8.1.3.3. Attempt to land with other jumpers

8.2. Inadvertent pilot chute deployment
- 8.2.1. Contain pilot chute in the aircraft
- 8.2.2. Yell "pilot chute"
- 8.2.3. Move away from exits
- 8.2.4. De-rig and secure jumper and equipment
- 8.2.5. Exit immediately if any part of the parachute system is pulled outside of aircraft
- 8.2.6. If jumper makes an unplanned exit
  - 8.2.6.1. Follow him down

8.2.6.2. Monitor his condition
8.2.6.3. Relay his position to DZ controller
8.2.6.4. Deploy additional jumper(s) as briefed
8.3. Cutaway procedures
8.3.1. Throw away the main ripcord
8.3.2. Look at and grab the cutaway handle
8.3.3. Look at and grab the reserve ripcord
8.3.4. Arch
8.3.5. Pull cutaway handle
8.3.6. Pull reserve ripcord
8.3.7. Check to ensure the reserve pilot chute has deployed
8.3.8. Perform the post opening procedures
8.4. Post opening procedures
8.4.1. Steer to avoid.
8.4.1.1. Use rear risers to avoid other jumpers
8.4.1.2. Turn to the right to avoid head on collisions
8.4.2. Release brakes
8.4.3. Check canopy
8.4.4. Resolve post-opening malfunctions
8.4.5. If controllability is questionable, perform a controllability check
8.4.6. If a malfunction cannot be resolved and canopy is uncontrollable, cutaway no lower than 2,000 feet AGL.

NOTE: For RAMZ and HAHO operations, cutaways should be initiated immediately if any main canopy performance is questionable.

8.4.7. Orient yourself to the DZ

8.4.8. Locate other jumpers and achieve separation
8.4.9. Activate strobe light
8.4.10. Maintain altitude awareness

8.5. Controllability check.

NOTE: Controllability check is accomplished only when canopy controllability is questionable.

8.5.1. Maintain altitude awareness
8.5.2. Release brakes (if not already accomplished)
8.5.3. Look left, turn left 90 degrees
8.5.4. Look right, turn right 90 degrees
8.5.5. Determine stall point.

NOTE: If canopy requires more than 50% opposite toggle to counter turn, canopy is uncontrollable. If canopy stalls prior to 50% brakes, it is uncontrollable.

8.5.6. If the canopy is uncontrollable - perform cutaway procedures

8.6. Opening and post-opening malfunctions
8.6.1. Pilot chute over the nose

8.6.2. Broken lines/rips/tears/tension knots
8.6.3. Broken control lines
8.6.4. Dual main and reserve deployment
8.6.4.1. If both parachutes deploy completely - cutaway main
8.6.4.2. If only the reserve pilot chute and bridle deploy - attempt to contain them
8.6.4.3. If the reserve parachute partially deploys - slow the main parachute, and be prepared to cut away should the reserve parachute fully inflate
8.6.5. Horseshoe, bag lock, streamer, and riser separation
8.6.6. Snivel
8.6.7. Hung slider/closed end cells
8.6.8. Pre-mature brake release
8.6.9. Line twists
8.6.10. Floating ripcord
8.6.11. Hard pull
8.6.12. Pack closure
8.6.13. Pilot chute hesitation
8.6.14. Altimeter failure or loss
8.6.15. Collision on exit
8.7. Parachute collision avoidance
8.7.1. Lower jumper has "right-of-way"
8.7.2. Maintain safe vertical and horizontal separation (25 meters to the rear and above).

NOTE: Except CRW.

8.7.3. Look before turning
8.7.4. If unable to avoid collision - spread arms and legs in an attempt to bounce off canopy/lines
8.8. Canopy entanglements
8.8.1. Communication between jumpers and altitude awareness is the key to successful disengagement
8.8.2. Above 2000' AGL - top jumper has a good canopy
8.8.2.1. Top jumper attempts to clear himself of the canopy
8.8.2.2. If the canopy clears it should reopen in 150-200'
8.8.2.3. If canopy cannot be cleared - check altitude
8.8.2.4. Above 2000' - lower jumper perform cutaway
8.8.3. Between 1000 - 2000' AGL - top jumper has a good canopy
8.8.3.1. Lower jumper has two options
8.8.3.1.1. Perform cutaway if above 1000' AGL
8.8.3.1.2. Stay with top jumper and perform procedures for "below 1000' AGL"
8.8.4. Below 1000' AGL - top jumper has a good canopy
8.8.4.1. Top jumper - maintain control of lower jumpers canopy

8.8.4.2. Lower jumper - jettison equipment
8.8.4.3. Top jumper - flies a straight and level final approach and lands with 50% brakes.

NOTE: Stall point is higher with added suspended weight.

8.8.4.4. Both jumpers - perform a PLF

WARNING: Turns can cause a severe pendulum effect and should be avoided at low altitude. Do not attempt a flared landing.

8.8.5. Both jumpers entangle and neither has a good canopy at any altitude
8.8.5.1. Top jumper clears himself of entangled lines and performs cutaway (altitude permitting)
8.8.5.2. Lower jumper performs cutaway after top jumper clears the entanglement (altitude permitting)

WARNING: Top jumper may be fatally engulfed in the canopy of the low jumper if the low jumper performs a cut away prior to the top jumper.

8.8.5.3. Last resort - both jumpers deploy reserves in an attempt to slow descent

8.8.5.3.1. If only one deploys - jumper with the good canopy brings the other entangled jumper to the ground

8.8.5.3.2. If both reserves deploy - both jumpers cutaway from entanglement

8.9. Emergency landings

8.9.1. Trees

8.9.1.1. Do not lower equipment, jettison if already lowered

8.9.1.2. Turn canopy into wind

8.9.1.3. Brake to achieve vertical descent

8.9.1.4. Prepare for PLF

8.9.1.5. Use forearms to protect face and neck

8.9.2. Wires

8.9.2.1. Throw away ripcord

8.9.2.2. Turn off oxygen

8.9.2.3. Avoid contact at all cost, even if downwind

8.9.2.4. Streamline body

8.9.2.5. If hung up - remain motionless until power is disconnected

8.9.2.6. Prepare for PLF after passing through wires

8.9.2.7. If the chute is hung up and jumper contacts ground - pull cutaway handle

NOTE: If time and altitude permit - unhook RSL and jettison equipment.

8.9.3. Water (unintentional)
8.9.3.1. Jettison O2 mask and equipment
8.9.3.2. Disconnect reserve static line
8.9.3.3. Sit well back in the harness
8.9.3.4. Release chest strap and waist strap
8.9.3.5. Inflate flotation device
8.9.3.6. Turn canopy in wind and slow forward speed
8.9.3.7. Release the right toggle so the right hand is free to cutaway parachute (if being dragged)
8.9.3.8. If dragged - jettison canopy
8.9.3.9. Release leg straps and swim free of harness/chute
8.10. Next briefing/checklist
8.10.1. Jumpmaster Aircraft Inspection Checklist (*page 134*)

Parachutist Emergency Procedures Brief (Non-Standard Parachute System)

(*brief applicable items only)*

9.1. Emergency parachutist bail out procedures
- 9.1.1. Below 1000 ft AGL
  - 9.1.1.1. Take aircraft seats and fasten seat belts
  - 9.1.1.2. Prepare for crash landing or ditching
- 9.1.2. 1000 - 2000 ft AGL
  - 9.1.2.1. Exit at jumpmaster's command
  - 9.1.2.2. Deploy reserve parachute when clear of aircraft
  - 9.1.2.3. Attempt to land with other jumpers
- 9.1.3. Above 2000 ft AGL
  - 9.1.3.1. Exit at jumpmaster's command
  - 9.1.3.2. Deploy main parachute after maximum 5-second delay
  - 9.1.3.3. Attempt to land with other jumpers

9.2. Inadvertent pilot chute deployment
- 9.2.1. Contain pilot chute in the aircraft
- 9.2.2. Yell "pilot chute"
- 9.2.3. Move away from exits
- 9.2.4. De-rig and secure jumper and equipment
- 9.2.5. Exit immediately if any part of the parachute system is pulled outside of aircraft
- 9.2.6. If jumper makes an unplanned exit
  - 9.2.6.1. Follow him down

9.2.6.2. Monitor his condition
9.2.6.3. Relay his position to DZ controller
9.2.6.4. Deploy additional jumper(s) as briefed

9.3. Cutaway procedures
9.3.1. Look at and grab the cutaway handle
9.3.2. Look at and grab the reserve ripcord
9.3.3. Arch
9.3.4. Pull cutaway handle
9.3.5. Pull reserve ripcord
9.3.6. Check to ensure the reserve pilot chute has deployed
9.3.7. Perform the post opening procedures

9.4. Post opening procedures
9.4.1. Steer to avoid. Use rear risers to avoid other jumpers - turn to the right to avoid head on collisions
9.4.2. Release brakes
9.4.3. Check canopy
9.4.4. Resolve post-opening malfunctions
9.4.5. If controllability is questionable - perform a controllability check
9.4.6. If a malfunction cannot be resolved and canopy is uncontrollable - cutaway no lower than 2,000 feet AGL.

NOTE: For RAMZ and HAHO operations, cutaways should be initiated immediately if any main canopy performance is questionable.

9.4.7. Orient yourself to the DZ
9.4.8. Locate other jumpers and achieve separation
9.4.9. Activate strobe light
9.4.10. Maintain altitude awareness
9.5. Controllability check.

NOTE: Controllability check is accomplished only when canopy controllability is questionable.

9.5.1. Maintain altitude awareness
9.5.2. Release brakes (if not already accomplished)
9.5.3. Look left, turn left 90 degrees
9.5.4. Look right, turn right 90 degrees
9.5.5. Determine stall point.

NOTE: If canopy requires more than 50% opposite toggle to counter turn, canopy is uncontrollable. If canopy stalls prior to 50% brakes, it is uncontrollable.

9.5.6. If the canopy is uncontrollable - perform cutaway procedures
9.6. Opening and post-opening malfunctions
9.6.1. Pilot chute-in tow
9.6.1.1. Vigorous over the shoulder check

9.6.1.2. If pilot chute does not deploy, pull reserve
9.6.2. Broken lines/rips/tears/tension knots
9.6.3. Broken control lines
9.6.4. Dual main and reserve deployment
9.6.4.1. If both parachutes deploy completely - cutaway main
9.6.4.2. If only the reserve pilot chute and bridle deploy - attempt to contain them
9.6.4.3. If the reserve parachute partially deploys - slow the main parachute, and be prepared to cut away should the reserve parachute fully inflate
9.6.5. Horseshoe, bag lock, streamer, and riser separation.
9.6.5.1. If horseshoe is around arm
9.6.5.1.1. Attempt to clear
9.6.5.1.2. If not clear by 2000 feet - pull reserve
9.6.6. Snivel
9.6.7. Hung slider/closed end cells
9.6.8. Premature brake release
9.6.9. Line twists
9.6.10. Lost hand deploy - pull reserve
9.6.11. Hard pull
9.6.11.1. Pull in direction of pocket once more
9.6.11.2. If unsuccessful - pull reserve
9.6.12. Pack closure
9.6.13. Altimeter failure or loss
9.6.14. Collision on exit

9.7. Parachute collision avoidance
9.7.1. Lower jumper has "right-of-way"
9.7.2. Maintain safe vertical and horizontal separation (25 meters to the rear and above)

NOTE: Except CRW.

9.7.3. Look before turning
9.7.4. If unable to avoid collision - spread arms and legs in an attempt to bounce off canopy/lines
9.8. Canopy entanglements
9.8.1. Communication between jumpers and altitude awareness is the key to successful disengagement
9.8.2. Above 2000' AGL - top jumper has a good canopy
9.8.2.1. Top jumper attempts to clear himself of the canopy
9.8.2.2. If the canopy clears it should reopen in 150-200'
9.8.2.3. If canopy cannot be cleared - check altitude
9.8.2.4. Above 2000' AGL - lower jumper perform cutaway
9.8.3. Between 1000 - 2000' AGL - top jumper has a good canopy
9.8.3.1. Lower jumper has two options
9.8.3.1.1. Perform cutaway if above 1000' AGL

9.8.3.1.2. Stay with top jumper and perform procedures for “below 1000’ AGL”

9.8.4. Below 1000' AGL - top jumper has a good canopy

9.8.4.1. Top jumper - maintain control of lower jumpers canopy

9.8.4.2. Lower jumper - jettison equipment

9.8.4.3. Top jumper - flies a straight and level final approach and lands with 50% brakes

NOTE: Stall point is higher with added suspended weight.

9.8.4.4. Both jumpers - perform a PLF

WARNING: Turns can cause a severe pendulum effect and should be avoided at low altitude. Do not attempt a flared landing.

9.8.5. Both jumpers entangle and neither has a good canopy at any altitude

9.8.5.1. Top jumper clears himself of entangled lines and performs cutaway (altitude permitting)

9.8.5.2. Lower jumper performs cutaway after top jumper clears the entanglement (altitude permitting)

WARNING: Top jumper may be fatally engulfed in the canopy of the low jumper if the low jumper performs a cut away prior to the top jumper.

9.8.5.3. Last resort - both jumpers deploy reserves in an attempt to slow descent

9.8.5.3.1. If only one deploys - jumper with the good canopy brings the other entangled jumper to the ground

9.8.5.3.2. If both reserves deploy - both jumpers cutaway from entanglement

9.9. Emergency landings

9.9.1. Trees

9.9.1.1. Do not lower equipment, jettison if already lowered

9.9.1.2. Turn canopy into wind

9.9.1.3. Brake to achieve vertical descent

9.9.1.4. Prepare for PLF

9.9.1.5. Use forearms to protect face and neck

9.9.2. Wires

9.9.2.1. Throw away ripcord

9.9.2.2. Turn off oxygen

9.9.2.3. Avoid contact at all cost, even if downwind

9.9.2.4. Streamline body

9.9.2.5. If hung up - remain motionless until power is disconnected

9.9.2.6. Prepare for PLF after passing through wires
9.9.2.7. If the chute is hung up and jumper contacts ground - pull cutaway handle

NOTE: If time and altitude permit, unhook RSL and jettison equipment.

9.9.3. Water (unintentional)
9.9.3.1. Jettison O2 mask and equipment
9.9.3.2. Disconnect reserve static line
9.9.3.3. Sit well back in the harness
9.9.3.4. Release chest strap and waist strap
9.9.3.5. Inflate flotation device
9.9.3.6. Turn canopy in wind and slow forward speed
9.9.3.7. If dragged - jettison canopy
9.9.3.8. Release leg straps and swim free of harness/chute
9.10. Next briefing/checklist
9.10.1. Jumpmaster Aircraft Inspection Checklist (*page 134*)

Parachutist Emergency Procedures Brief (Tandem)

(*brief applicable items only)*

10.1. Emergency parachutist bail out procedures
- 10.1.1. Below 1500 ft AGL
  - 10.1.1.1. Take aircraft seats and fasten seat belts
  - 10.1.1.2. Prepare for crash landing or ditching
- 10.1.2. 1500 - 4000 ft AGL
  - 10.1.2.1. Exit at jumpmaster's command
  - 10.1.2.2. Deploy reserve parachute when clear of aircraft
  - 10.1.2.3. Attempt to land with other jumpers
- 10.1.3. Above 4000 ft AGL
  - 10.1.3.1. Exit at jumpmaster's command
  - 10.1.3.2. Deploy drogue when clear of aircraft and release it as soon as it inflates
  - 10.1.3.3. Attempt to land with other jumpers

WARNING: Do not release drogue before throwing it. This will cause a slow deployment of the main parachute, especially at low deployment airspeeds.

10.2. Inadvertent pilot chute deployment
- 10.2.1. Contain pilot chute in the aircraft
- 10.2.2. Yell "pilot chute"
- 10.2.3. Move away from exits

10.2.4. De-rig and secure jumper and equipment
10.2.5. Exit immediately if any part of the parachute system is pulled outside of aircraft
10.2.6. If jumper makes an unplanned exit
10.2.6.1. Follow him down
10.2.6.2. Monitor his condition
10.2.6.3. Relay his position to DZ controller
10.2.6.4. Deploy additional jumper(s) as briefed
10.3. Cutaway procedures
10.3.1. Initiate cutaways at 2500' AGL or higher
10.3.2. Tell passenger to assume freefall position and of your intentions to cutaway
10.3.3. Scissor student legs between yours
10.3.4. Look at and grasp cutaway handle with right hand
10.3.5. Look at and grasp reserve ripcord with left hand
10.3.6. Pull cutaway handle
10.3.7. Pull reserve ripcord

NOTE: For easy pull, handles must be peeled upward and outward and then pulled down.

10.3.8. Throw away cutaway handle and reserve ripcord
10.3.9. Arch and ensure reserve pilot chute has deployed
10.3.10. Perform post-opening procedures

10.4. Post opening procedures
10.4.1. Steer to avoid - use rear risers to avoid other jumpers - turn to the right to avoid head on collisions
10.4.2. Release brakes
10.4.3. Check canopy
10.4.4. Resolve post-opening malfunctions
10.4.5. If controllability is questionable - perform a controllability check
10.4.6. If a malfunction cannot be resolved and canopy is uncontrollable - cutaway no lower than 2,500 feet AGL.

NOTE: For RAMZ and HAHO operations - cutaways should be initiated immediately if any main canopy performance is questionable.

10.4.7. Orient yourself to the DZ
10.4.8. Locate other jumpers and achieve separation
10.4.9. Activate strobe light
10.4.10. Maintain altitude awareness
10.4.11. Locate other jumpers and maintain separation
10.4.12. Hand toggles to passenger
10.4.13. Release passenger waist tie-down straps
10.4.14. Assist passenger with steering
10.5. Controllability check

NOTE: Controllability check is accomplished only when canopy controllability is questionable.

10.5.1. Maintain altitude awareness
10.5.2. Release brakes (if not already accomplished)
10.5.3. Look left, turn left 90 degrees
10.5.4. Look right, turn right 90 degrees
10.5.5. Determine stall point

NOTE: If canopy requires more than 50% opposite toggle to counter turn, canopy is uncontrollable. If canopy stalls prior to 50% brakes, it is uncontrollable.

10.5.6. If the canopy is uncontrollable - perform cutaway procedures

10.6. Opening and post-opening malfunctions

WARNING: Time is of the essence when dealing with high-speed tandem malfunctions. The inertia generated by a tandem pair at tandem terminal exceeds the reserve's and the tandem pair's category rating for opening shock. Perform the correct emergency procedure before you reach tandem terminal.

10.6.1. Student interference

NOTE: Prevention is the key to keeping free from student interference. Keep your arms out of the passenger's reach until after the main canopy has opened.

NOTE: Do not attempt release of captured arm with your free arm.

10.6.1.1. Yell at passenger to release your arm(s)
10.6.1.2. Pull arm(s) down and back away from passenger
10.6.1.3. Use free arm or your forehead to incapacitate passenger
10.6.1.4. If right arm is free
10.6.1.4.1. Throw drogue
10.6.1.4.2. Release drogue using secondary release
10.6.1.5. If left arm is free - pull reserve
10.6.2. Lost drogue
10.6.2.1. Re-identify landmarks and attempt to locate drogue once more
10.6.2.2. If unsuccessful - pull reserve
10.6.3. Drogue hard pull
10.6.3.1. Pull in direction of pocket once more, locking elbow against side of the container
10.6.3.2. If unsuccessful, pull reserve
10.6.4. Pulled drogue release before deploying drogue
10.6.4.1. Deploy drogue immediately

10.6.4.2. This will result in a near normal main canopy opening

10.6.5. Drogue hesitation/un-inflated drogue

10.6.5.1. Vigorous over the shoulder check

10.6.5.2. If drogue is still on your back

10.6.5.2.1. Check vigorously, again

10.6.5.2.2. If drogue does not deploy fully - pull reserve

10.6.5.3. If drogue is fully deployed but not inflated

10.6.5.3.1. Pull drogue release(s)

10.6.5.3.2. Main should deploy slower than normal, if releases fail - pull reserve

10.6.6. Entanglement with drogue/drogue bridle

10.6.6.1. Un-inflated drogue - pull reserve

10.6.6.2. Inflated drogue

10.6.6.2.1. Analyze and attempt to clear, quickly

10.6.6.2.2. Pull reserve if unable to clear

NOTE: Do not release drogue before pulling reserve during a drogue/drogue bridle entanglement.

10.6.7. Inflated drogue-in tow

10.6.7.1. Pull other drogue release

10.6.7.2. If drogue does not release - pull reserve

10.6.7.3. After reserve opening reach back and reel in the drogue, if main is deploying - cutaway

10.6.8. Deflated drogue-in-tow

10.6.8.1. Pull other drogue release
10.6.8.2. If no "trap door"/drogue release - pull reserve
10.6.8.3. After reserve opening reach back and reel in the drogue, if main is deploying - cutaway
10.6.9. Drogue/canopy entanglement - perform controllability check
10.6.10. Horseshoe, bag lock, streamer, and riser separation - cutaway
10.6.11. Snivel - if sniveling through 2500' AGL - cutaway
10.6.12. Hung slider, closed end cells, premature brake release, broken control lines/broken lines, line twists, rips, tears, tension knots, pilot chute over the nose, and combinations - perform controllability check
10.6.13. Dual main and reserve deployment
10.6.13.1. If both parachutes deploy completely - cutaway main
10.6.13.2. If only the reserve pilot chute and bridle deploy - attempt to contain them
10.6.13.3. If the reserve parachute partially deploys - slow the main parachute, and be prepared to cut away should the reserve parachute fully inflate
10.7. Parachute collision avoidance
10.7.1. Pre-brief all other jumpers on the same pass that the tandem pair has "right-of-way"

10.7.2. Since others jumpers may forget or not receive the brief - always give the lower jumper the "right-of-way".
10.7.3. Maintain safe vertical and horizontal separation (25 meters to the rear and above)
10.7.4. Look before turning
10.7.5. If unable to avoid collision - spread arms and legs in an attempt to bounce off canopy/lines
10.8. Canopy entanglements
10.8.1. Communication between jumpers and altitude awareness is the key to successful disengagement
10.8.2. Above 2500' AGL - top jumper has a good canopy
10.8.2.1. Top jumper attempts to clear himself of the canopy
10.8.2.2. If the canopy clears it should reopen in 150-200'
10.8.2.3. If canopy cannot be cleared - check altitude
10.8.2.4. Above 2500' AGL - lower jumper perform cutaway
10.8.3. Between 1500 - 2500' AGL - top jumper has a good canopy
10.8.3.1. Lower jumper has two options
10.8.3.1.1. Perform cutaway if above 1500' AGL
10.8.3.1.2. Stay with top jumper and perform procedures for "below 1500' AGL"

10.8.4. Below 1500' AGL - top jumper has a good canopy

10.8.4.1. Top jumper - maintain control of lower jumpers canopy

10.8.4.2. Lower jumper - jettison equipment

10.8.4.3. Top jumper - flies a straight and level final approach and lands with 50% brakes

NOTE: Stall point is higher with added suspended weight.

10.8.4.4. Both jumpers - perform a PLF

WARNING: Turns can cause a severe pendulum effect and should be avoided at low altitude. Do not attempt a flared landing.

10.8.5. Both jumpers entangle and neither has a good canopy at any altitude

10.8.5.1. Top jumper clears himself of entangled lines and performs cutaway (altitude permitting)

10.8.5.2. Lower jumper performs cutaway after top jumper clears the entanglement (altitude permitting)

WARNING: Top jumper may be fatally engulfed in the canopy of the low jumper if the low jumper performs a cut away prior to the top jumper.

10.8.5.3. Last resort - both jumpers deploy reserves in an attempt to slow descent

10.8.5.3.1. If only one deploys - jumper with the good canopy brings the other entangled jumper to the ground

10.8.5.3.2. If both reserves deploy - both jumpers cutaway from entanglement

10.9. Emergency landings

10.9.1. Trees

10.9.1.1. Do not release or loosen waist straps

10.9.1.2. Turn canopy into wind

10.9.1.3. Brake to achieve vertical descent

10.9.1.4. Prepare for PLF and tell passenger to put feet and knees together

10.9.1.5. Tell passenger to use forearms to protect face and neck

10.9.1.6. Place your hands on the passenger's head and bury your face to the side of his head

10.9.2. Wires

10.9.2.1. Throw away ripcord

10.9.2.2. Turn off oxygen

10.9.2.3. Avoid contact at all cost, even if downwind

10.9.2.4. Scissor passenger's legs between yours, streamlining pair
10.9.2.5. If hung up - remain motionless until power is disconnected
10.9.2.6. Prepare for PLF and tell student to put feet and knees together
10.9.2.7. If the chute is hung up and pair is on the ground - pull cutaway handle

NOTE: If time and altitude permit - unhook RSL and jettison equipment.

10.9.3. Water (unintentional)
10.9.3.1. Jettison O2 mask and equipment
10.9.3.2. Disconnect reserve static line
10.9.3.3. Release both chest straps
10.9.3.4. Release passenger's waist quick ejector snaps and remove the shoulder snap locking pins
10.9.3.5. Inflate any flotation equipment you are carrying
10.9.3.6. Secure or throw away any handles you may have tucked in the top of your jump suit
10.9.3.7. Tell passenger that the pair may go underwater initially but should surface with small kicks from the pair
10.9.3.8. Tell passenger to take a deep breath, cross their arms in front of them, and to prepare for a normal tandem "skid" landing

10.9.3.9. Turn canopy in wind and slow forward speed
10.9.3.10. Flare without passenger assistance
10.9.3.11. Release the right toggle so the right hand is free to cutaway parachute (if being dragged)
10.9.3.12. If dragged - jettison canopy
10.9.3.13. After water entry - unhook the passenger keeping your hands and arms away from the passenger
10.9.3.14. Release tandem harness and swim free of harness/chute

10.10. Next briefing/checklist
10.10.1. Tandem Passenger Briefing Guide (*147*)

DZC/DZSO/Malfunction Officer Duties Brief

(*brief applicable items only)*

1.1. Number of jumpers
1.2. Type of drop (static line/HALO/HAHO/tandem)
1.3. Primary DZ (show on map)
1.4. Emergency DZ/HLZ(s) (show on map)
1.5. Times
  1.5.1. On station
  1.5.2. Aircraft TOT
  1.5.3. Jumpers TOT (HAHO)
  1.5.4. Abort time
1.6. Communications
  1.6.1. Call signs
    1.6.1.1. DZ/DZC
    1.6.1.2. Aircraft
    1.6.1.3. Jumpers
  1.6.2. Type radio's (primary/alternate)
  1.6.3. Frequencies (primary/alternate)
  1.6.4. Listening time(s)
  1.6.5. Contact procedures
  1.6.6. Cell phone number(s) (if available)
  1.6.7. Recognition symbol
  1.6.8. Visual signals (day)
    1.6.8.1. Clear to jump
      1.6.8.1.1. Land - target displayed

1.6.8.1.2. Water - target displayed, boat circling off wind line
1.6.8.2. No drop this pass
1.6.8.2.1. Land - target removed
1.6.8.2.2. Water - boat positioned at target or stationary in water
1.6.8.3. Jump canceled
1.6.8.3.1. Land - target removed and replaced with two crossed streamers forming an "x"
1.6.8.3.2. Water - target removed
1.6.8.4. Emergency no drop/injured jumper - red smoke/flare

NOTE: Air/ground radio communication is required for all night deployments unless waived by the PJ superintendent.

NOTE: Separate radios may be required to communicate with both the aircraft and the jumpers.

1.7. Wind limitations (in knots)
1.7.1. AF static line (land) - 13
1.7.2. AF static line (water) - 25
1.7.3. AF MFF (land) - 17
1.7.4. AF MFF (water) - 25
1.7.5. AF intentional tree jumps - 22
1.7.6. AF equipment - 17
1.7.7. AF CDS using G-12 parachutes – 13

1.7.8. AF CDS using G-13/14 parachutes - 20
1.7.9. Catching tandems - 10
1.8. Equipment
1.8.1. DZ kit
1.8.1.1. Malfunction officer equipment(including camera)
1.8.1.2. Wind meters
1.8.1.3. Panels/lights
1.8.1.4. Pyrotechnics
1.8.1.5. Streamers
1.8.1.6. Spare radio batteries
1.8.1.7. Maps
1.8.1.8. AFJ 13-210(J)
1.8.2. Medical equipment required
1.8.2.1. Litter
1.8.2.2. Medical kit
1.8.2.3. Mast trousers
1.8.2.4. Spine board
1.8.2.5. Oxygen
1.8.2.6. Other
1.8.3. Parachute bags
1.8.4. Water jug
1.8.5. Tree extraction equipment
1.8.6. Night drops
1.8.6.1. NVGs
1.8.6.2. Compass/GPS
1.8.6.3. DZ lighting and discipline
1.9. Malfunction/injury procedures

1.9.1. Treatment of injured takes priority over other DZ activities
1.9.2. Advise aircraft of jumper's status and evacuation requirements
1.9.3. Isolate jumpers equipment, note surface winds, type landing, and any unusual circumstances
1.9.4. DZC/DZSO/malfunction officer duties will be IAW AFJ 13-210(J)

1.10. Off DZ procedures
1.10.1. Maintain communications with team and aircraft
1.10.2. Follow vectors from aircraft to teams positions
1.10.3. Recover personnel and equipment

1.11. Boat and Safety Swimmer Requirements (Water)

Jumpmaster Personnel Inspection
(Round)

(*brief applicable items only)*

2.1. Gentex/protec helmet - on and secure
2.2. PASGT helmet (front)
  2.2.1. Front and sides - inspect for sharp edges
  2.2.2. Locking nuts - present and secured
  2.2.3. Attaching clips - down, visible, and secured
  2.2.4. Pull-the-dot fastener - secured - ensure that three of the four plies of nylon run through the snap portion
  2.2.5. Chin strap and parachutists retention strap - properly routed and buckled
2.3. Goggles/face plate/face mask - adjusted on and secure
2.4. Helmet lighting
  2.4.1. Strobe light - secured to rear of helmet, light up - check function
  2.4.2. Additional green chemlight (night water) - secured to back of helmet
2.5. Wetsuit/dry suit
  2.5.1. Above water temperature 70 degrees F - optional
  2.5.2. Jacket - required below water temp 70 degrees F

2.5.3. Trousers, hood, gloves, booties - required below water temp 60 degrees F

2.5.4. Dry suit - recommended below water temp 40 degrees F

2.6. Canopy release assemblies

2.6.1. Turn one-quarter turn out and inspect both assemblies for cracked components, free of all foreign matter, and properly assembled

2.6.2. Water jumps - open and close canopy releases

2.7. Personnel flotation device

2.7.1. BC or UDT vest - chest strap routed underneath, actuator exposed, relief valve present

2.7.2. LPUs - actuators exposed, ensure inflation pockets are not between parachute harness and body

2.8. Chest strap

2.8.1. Check routing

2.8.2. Inspect for twists, cuts, or frays

2.8.3. Quick release - properly seated

2.9. Weapon M-16/GAU-5 and M-203/M-148 (if attached)

2.9.1. Sling - routed outside of chest strap, over left shoulder, under main lift web, and outside of the buttstock

2.9.2. Placement - pistol grip to rear, muzzle down

2.9.3. Tie downs - 12 inch, bow-tied from sling to diagonal back strap

NOTE: If weapon extends past the knee apply additional 24 inch tie down for leg from front sight.

2.9.4. Waistband - through carrying handle
2.9.5. Charging handle, magazine, hand guards, sights, muzzle - taped/padded (plastic muzzle cap may be used)
2.9.6. M-203/M-148 - taped to hand guard
2.9.7. M-203/M-148 muzzle, trigger group, and sights - removed/taped as necessary

2.10. Waistband
2.10.1. Inspect from jumpers' right to left
2.10.2. Routed over main lift web, under d-rings, with no twists
2.10.3. Properly routed through adjuster with a two to three finger quick release

2.11. Parachute LPU - attached to waist strap

2.12. Reserve parachute
2.12.1. Left connector snap - secured, has spring tension, and safety wire is not installed
2.12.2. Right connector snap - secured, does not have spring tension
2.12.3. Safety wire - through right connector hole, attached to lanyard, bent downward, and cannot be pulled out
2.12.4. Ripcord grip - not winterized (as required), right spring band not over ripcord grip
2.12.5. Steel swedge ball - present/serviceable

2.12.6. Ripcord protector flap - open
2.12.7. Reserve pins - seated, not bent or corroded, cable not frayed
2.12.8. Ripcord protector flap - close
2.12.9. Pack opening spring bands - no exposed metal on bands, proper routing, and spring tension
2.12.10. Reserve pack tray - no exposed canopy, oil, excessive dirt, or tears
2.12.11. Raise reserve - "hold"
2.13. Jumper lighting (front)
2.13.1. Red chemlight - attached to front of jumper
2.13.1.1. Attached to d-ring with 80 lb test tape or rubber band
2.13.1.2. Bottom of chemlight - attached to the main lift web using a rubber band/retaining band
2.13.1.3. Water jumps - red chemlight moved to the waistband, next to the life preserver unit (LPU)
2.13.2. Does not interfere with quick releases or reserve ripcord
2.13.3. Should not be seen from rear of jumper
2.14. Fanny pack - secure - zippers closed
2.15. ALICE pack (H-harness)
2.15.1. Right snap hook - checked
2.15.2. Friction adapter - 2 to 3 finger quick release, excess secured
2.15.3. Left snap hook - checked
2.15.4. Friction adapter - 2 to 3 finger quick release, excess secured

2.15.5. Lift ALICE pack - “hold”
2.15.6. Retainer straps - under frame, crossed, correctly routed through friction adapters
2.15.7. Friction adapters - 2 to 3 finger quick release, excess taped and not secured to quick release
2.16. ALICE pack (single-point release)
2.16.1. Right snap hook - checked
2.16.2. Attaching loops - white through triangle, green through white, red through green and grommet of leg strap release
2.16.3. Release cable - through red loop and retainer on leg strap release
2.16.4. Left snap hook and release assembly - same as above
2.16.5. Release handle assembly - lanyard attached, lanyard routing
2.16.6. Equipment retainer straps - front
2.16.7. Adjustable cross strap - below center pouch, slack removed
2.16.8. Lift ALICE pack - “hold”
2.16.9. Retainer straps - under frame
2.16.10. Shoulder pack straps - adjusted tight, slack secured
2.16.11. Retainer straps - crossed and correctly routed through friction adapters
2.16.12. Friction adapters - 2 to 3 finger quick release, excess taped and not secured to quick release
2.16.13. Leg straps - connected, excess in retainer

2.17. HPT lowering line
2.17.1. Girth hitch - around x formed by both retainer straps, not attached to metal frame support
2.17.2. Routing - from X, over left shoulder strap to HPT retainer on top left side of pack (jumpers bottom, left)
2.17.3. Ejector snap routing - around weapons case (if attached), gate seated towards jumper on lowering line adapter, (if LLA not present, gate may be attached as outermost item on left d-ring, ensure gate is closed)
2.18. Equipment lighting - use the applicable color for the direction of flight

WARNING: Chemlights will be attached in such a manner to allow breaking away from the eyelet or rubber band if entangled by the parachute deployment sequence.

2.19. Equipment flotation - secure and serviceable
2.20. SPUDS
2.20.1. Gauged full - confirm with jumper
2.20.2. Harness - secured
2.20.3. Reserve lever - up
2.20.4. Regulator - attached
2.20.5. Air valve - on
2.20.6. Modified hose (40 inches) routing and serviceability - checked
2.20.7. Air flow and regulator - checked and secured

2.21. Leg straps
2.21.1. "Squat" - not twisted, cut, or frayed
2.21.2. Right leg strap - routed over kit bag
2.21.3. Right ejector snap - seated
2.21.4. Left leg strap - routed over the bottom and under the top of exposed kit bag handle
2.21.5. Left ejector snap - seated
2.21.6. Kit bag - secured with sewn/reinforced portion toward JM
2.21.7. Tap parachutist on thigh - "recover"
2.22. Static line
2.22.1. Static line - route over shoulder
2.22.2. Snap hook - attach to reserve carrying handle
2.22.3. Safety wire lanyard - attached to looped portion of static line
2.22.4. Safety wire -
2.22.4.1. Not too long, short, or excessively bent
2.22.4.2. Attached to lanyard
2.22.5. Static line
2.22.5.1. Inspect from inside of loop to top of shoulder. "Turn"
2.22.5.2. Inspect from top of shoulder to first stow
2.22.5.3. Form a bight and re-stow slack into static line slack retainer
2.22.5.4. Pull each stow 1 to 2 inches towards the center - inspect static line and stows from top to bottom
2.23. Pack opening loop

2.23.1. Ensure last stow is routed from the right
2.23.2. Ensure pack-opening loop is at 7 o'clock position
2.24. Pack closing tie
2.24.1. Ensure the 80 lb test line goes through the pack-opening loop and all pack closing loops
2.24.2. Tied at the 5 o'clock position
2.25. PASGT helmet (back)
2.25.1. Command - "Tilt your head forward"
2.25.2. Inspect back and sides for sharp edges
2.25.3. Retention straps - routing and security
2.25.4. Impact pad - secured
2.25.5. Helmet lighting - strobe light secured to rear of helmet, light up - check function
2.26. Riser assemblies
2.26.1. Inspect from canopy release assemblies to pack tray
2.26.2. Routing and security
2.27. Main pack tray
2.27.1. Inspect from top left corner, counter clockwise around entire pack tray
2.27.2. Free of oil, mud, dirt, grease, or tear/s
2.27.3. "Arch your back"
2.28. Diagonal back straps
2.28.1. Back strap retainer routing - through sizing channels and around back strap keepers on feed tray
2.28.2. Pull-the-dot fasteners - secure
2.28.3. Back straps - inspect for twists, cuts, or frays

2.28.4. Inspect right diagonal back strap from adjuster to main lift web

2.29. Horizontal back strap

2.29.1. "Bend forward at the waist"

2.29.2. Inspect horizontal strap - no twists, cuts, or frays, routed through retainers

2.29.3. Retainers - routed through back strap keepers

2.29.4. Pull-the-dot fasteners - secure

2.29.5. Inspect left diagonal back strap from main lift web to adjuster

2.30. Saddle

2.30.1. Inspect from left accessory attachment ring, across jumper's buttocks to right accessory ring

2.30.2. Signal jumper to recover with a light tap

2.31. Fins - secured with Fix-E-Palms or taped

2.32. Special mission gear

2.32.1. Water deployment/RAMZ gear

2.32.1.1. Snorkel and whistle - checked

2.32.1.2. Divers knife and MK-13 - secured in fanny pack or on leg as required

2.32.1.3. ML-4 kit

2.32.1.3.1. Secure with quick release on left accessory V-ring

2.32.1.3.2. Yellow lanyard is attached to the right accessory V-ring

2.32.2. Tree deployment

2.32.2.1. Pararescue tree suit - complete

2.32.2.2. Gloves - required

2.32.2.3. Visor - required
2.32.2.4. Let-down tape - as required
2.32.3. Radios - checked and secured
2.32.4. Narcotics - checked and secured

Expanded Jumpmaster Personnel Inspection (Freefall Square)

(*brief applicable items only)*

3.1. Oxygen

3.1.1. Mask fit - connect bayonet connectors (2 clicks is correct sizing) and inspect - release left connector

3.1.2. Mask internal components - cleanliness and proper assembly

3.1.3. Mask body - no cracks, excess straps are stowed

3.1.4. Delivery tube - inspect hose from mask to AIROX VIII for kinks, holes, and dry rot

3.1.5. Quick disconnect and valve - disconnect hose from AIROX VIII, verify spring tension of valve

3.1.6. O-ring - present and not upside-down

3.1.7. AIROX VIII screen - lift cover, screen present and free of debris, reconnect hose

3.1.8. Oxygen block - ensure AIROX VIII is locked into the oxygen block fitting

3.1.9. Pre-breathing adapter - verify spring tension of valve, o-ring is present and not upside-down, and screen present and free of debris

3.1.10. Hose fitting - tight and spot paint dot is not broken

3.1.11. Delivery hose - routing between horizontal adjustment strap and waistband, behind back, not kinked, elbow fitting secure
3.1.12. On/off valve - can be locked in the on position - return to off position
3.1.13. Pressure gauge - gauge needle is to the right of the number "1" on 1,800 psi
3.1.14. Bailout system pouch - between waistband and flap, waistband extension routed through keepers, hook and pile tabs are secure

3.2. Harness fit
3.2.1. Canopy releases - rest evenly in pockets of shoulder
3.2.2. Harness - adjust (if necessary) before continuing

3.3. Helmet
3.3.1. Helmet - serviceable
3.3.2. Chin strap - secured

3.4. Goggles/face plate
3.4.1. Clear of smudges, not cracked, no scratches that will obscure vision
3.4.2. Straps snug under helmet or secured to helmet

3.5. Helmet lighting
3.5.1. Strobe light - secured to rear of helmet, light up - check function
3.5.2. Additional green chemlight (night water) - secured to back of helmet

3.6. Wetsuit/dry suit

3.6.1. Above water temperature 70 degrees F - optional
3.6.2. Jacket - required below water temp 70 degrees F
3.6.3. Trousers, hood, gloves, booties - required below water temp 60 degrees F
3.6.4. Dry suit - recommended below water temp 40 degrees F
3.7. Right riser
3.7.1. Riser - not twisted
3.7.2. Three-ring release - properly assembled, turn medium and small rings 1/4 turn - lift nylon loop and inspect for frays and twists
3.7.3. Cutaway cable - excess stowed in channel
3.8. Main ripcord
3.8.1. Handle - properly seated
3.8.2. Swedge ball/s - present
3.8.3. Cable - not frayed
3.8.4. Cable housing - tacked to protective sleeve
3.9. Cutaway handle
3.9.1. Handle - mated to hook and pile tape
3.9.2. Cables - routed into cable housings and cable housings are tacked
3.10. BC/UDT vest/LPUs
3.10.1. BC or UDT vest - chest strap routed underneath, actuator exposed, does not interfere with ripcords or breakaway handle, relief valve present
3.10.2. LPUs - actuators exposed, ensure inflation pockets are not between parachute harness and body

3.11. Chest strap - not twisted, properly routed through friction adapter, and excess strap stowed

3.12. Weapon M-16/GAU-5 and M-203/M-148 (if attached)

3.12.1. Sling - routed outside of chest strap, over left shoulder, under main lift web, and around outside of buttstock

3.12.2. Tie-down - attached to the sling and weapon tie-down loop with a bow knot

3.12.3. Taping - muzzle, front sight (if M-16), hand guards, magazine and ejector port, charging handle

3.12.4. Weapon position - rotated pistol grip to rear, between waistband and parachutist.

3.12.5. M-203/M-148 - taped to hand guard

3.12.6. M-203/M-148 muzzle, trigger group, and sights - removed/taped as necessary

3.13. Reserve ripcord handle

3.13.1. Handle - properly seated

3.13.2. Swedge balls - present

3.13.3. Cable - routed free and clear of reserve static line and cutaway cable housing, not frayed

3.13.4. Cable housing - tacked to protective sleeve

3.14. Left riser

3.14.1. Riser - not twisted

3.14.2. Three-ring release - properly assembled, turn medium and small rings 1/4 turn - lift nylon loop and inspect for frays and twists

3.14.3. Cutaway cable - excess stowed in channel

3.15. Reserve static line
3.15.1. Quick release - secured
3.15.2. Loop end of static line - on brass marine fitting
3.15.3. Static line - free and clear of cutaway cable housing
3.16. Jumper lighting (front)
3.16.1. Red chemlight - attached to front of jumper
3.16.1.1. Attached to d-ring with 80 lb test tape or rubber band
3.16.1.2. Bottom of chemlight - attached to the main lift web using a rubber band/retaining band
3.16.1.3. Water jumps - red chemlight moved to the waistband, next to the LPU
3.16.2. Does not interfere with ripcords or quick releases
3.16.3. Should not be seen from rear of jumper
3.17. Combat pack
3.17.1. Quick releases - attached to equipment rings
3.17.2. Attaching straps - routed to the outside of all other equipment
3.17.3. Modified h-harness or sling - properly assembled
3.17.4. Lowering line - attached to right V-ring, outside of front mounted kit bag, and excess stowed in retainer pocket

WARNING: All rear-mounted packs with frames will be lowered to prevent injury.

3.17.5. Retainer pocket - secured to pack frame (right side for front mount, left side for rear mount) with two retainer bands - additional double looped retainer band around the middle

3.17.6. Girth hitch - secured to harness/sling and not pack frame

3.17.7. Combat pack shoulder straps - snug around parachutist's legs, quick-ejector releases taped to preclude inadvertent release in freefall

3.18. Equipment lighting - use the applicable color for the direction of flight

WARNING: Chemlights will be attached in such a manner to allow breaking away from the eyelet or rubber band if entangled by the parachute deployment sequence.

3.19. Equipment flotation - secure and serviceable

3.20. Left main lift web - not twisted, excess stowed

3.21. Right main lift web - not twisted, excess stowed

3.22. Waistband

3.22.1. Inspect from right to left, waistband behind rucksack

3.22.2. Not twisted, properly routed through friction adapter, and excess strap stowed

3.23. Parachute LPU - attached to waist strap

3.24. Kit bag (if rear mounted) - ensure waistband is through both handles on right side of jumpers' back
3.25. Fanny pack - secure - zippers closed
3.26. Right leg strap
  3.26.1. Not twisted
  3.26.2. Snap hook gate - has spring tension and is closed
3.27. Kit bag (if front mounted) - ensure one leg strap is through both handles
3.28. Left leg strap
  3.28.1. Not twisted
  3.28.2. Snap hook gate - has spring tension and is closed
3.29. SPUDS
  3.29.1. Gauged full - confirm with jumper
  3.29.2. Harness - secured
  3.29.3. Reserve lever - up
  3.29.4. Regulator - attached
  3.29.5. Air valve - on
  3.29.6. Modified hose (40 inches) routing and serviceability - checked
  3.29.7. Air flow and regulator - checked and secured
3.30. Wrist mounted altimeter
  3.30.1. Altimeter - set
  3.30.2. Tap dial to see if needle is frozen
  3.30.3. Altimeter lighting - as required
  3.30.4. "Turn"
3.31. Gloves

3.32. Jumper lighting (rear) (w)
3.32.1. Green chemlight - attached to parachute carrying handle w/80 lb test tape
3.32.2. Centered on the protective flap for the reserve ripcord pins

WARNING: Attempt to use as little 80 lb test tape as necessary and trim excess tail, to prevent entanglement with reserve bridle cord (in the event of reserve parachute deployment).

3.32.3. Local manufactured plastic container with velcro to flap may be used
3.32.4. Rubber band - around the protective flap securing the chemlight
3.32.5. Should not be seen from front of jumper
3.33. Reserve ripcord rings and cable
3.33.1. Reserve protective flap - open
3.33.2. Reserve ripcord cable housing - tacked
3.33.3. Reserve static-line ring - around reserve ripcord cable and above fixed guide ring (little-ring - big-ring)
3.33.4. Cable - moves freely in cable housing, and is routed to the left side of the top grommet
3.34. Reserve ripcord pins
3.34.1. Top pin - at a 45-degree angle to the cable
3.34.2. Both pins - fully seated, do not push the raised edge of the ripcord pins on top of the grommets

- the pins must be fully seated with no slack in the ripcord cable between the top and bottom pins

3.34.3. Reserve protective flap - close.

3.35. Main ripcord pin/s

3.35.1. Main container - ensure flaps are closed in proper order (bottom, left, right, top)

3.35.2. Main ripcord protective flap - open

3.35.3. Main ripcord pin/s - properly seated - do not push the raised edge of the ripcord pins on top of the grommets

3.35.4. Closing loop - coreless type iii nylon and is not frayed

3.35.5. Main ripcord cable - no frays

3.35.6. Cable housing - tacked

3.36. AAD

3.36.1. Withdrawal hook - routed around pin between closing loop and ripcord cable - ensure it is attached to pin and not cable

3.36.2. Knurled nut - tightened with at least three threads showing

3.36.3. AAD power cable - inspect for frays - does not cross the main ripcord cable

3.36.4. Rubber washer - present

3.36.5. Locking key - attached to stiffener plate

3.36.6. Power cable housing - inspect from stiffener plate to stow pocket

3.36.7. Main ripcord protective flap - close

3.36.8. Knurled locking nut - ensure tight to base of AAD
3.36.9. Arming pin - present and locked with spring tension
3.36.10. Stow pocket straps and snaps - inspect secure
3.36.11. Reset indicator - aligned
3.36.12. Millibar setting - set
3.37. Fins - secured with Fix-E-Palms or taped
3.38. Special mission gear
3.38.1. Water deployment/RAMZ gear
3.38.1.1. Mask, snorkel, and whistle - checked
3.38.1.2. Divers knife and MK-13 - secured in fanny pack or on leg as required
3.38.1.3. ML-4 kit
3.38.1.3.1. Secure with quick release on left accessory V-ring
3.38.1.3.2. Yellow lanyard is attached to the right accessory V-ring
3.38.2. Tree deployment
3.38.2.1. Pararescue tree suit - complete
3.38.2.2. Gloves - required
3.38.2.3. Visor - required
3.38.2.4. Let-down tape - as required
3.38.3. Radios - checked and secured
3.38.4. Narcotics - checked and secured
3.38.5. HAHO
3.38.5.1. Helmet with communications

3.38.5.1.1. Radio - on
3.38.5.1.2. Frequency - set
3.38.5.1.3. Comm check - accomplished
3.38.5.2. Compass - checked
3.38.5.3. NVGs - secured as required
3.38.5.4. Navigator and/or team leader
3.38.5.4.1. HAHO compass board - serviceable, secured to combat pack/waist strap as required
3.38.5.4.2. Maps and map protectors - secured
3.38.5.4.3. GPS - serviceable and secured

Jumpmaster Personnel Inspection
(Non-Standard Parachute)

(*brief applicable items only)*

4.1. Harness fit
4.2. Helmet
4.3. Goggles/face plate
4.4. Helmet lighting
4.5. Right riser, three-ring release, and cutaway cable
4.6. Cutaway handle
4.7. Chest strap
4.8. Reserve ripcord handle
4.9. Left riser, three-ring release, and cutaway cable
4.10. Reserve static line
4.11. Jumper lighting (front)
4.12. Left main lift web
4.13. Right main lift web
4.14. Waistband
4.15. Kit bag (if rear mounted)

NOTE: For rigs with leg strap mounted hand deploy.

4.16. Fanny pack
4.17. Right leg strap
4.18. Leg strap hand deploy pilot chute
  4.18.1. Secure in pocket - handle exposed
  4.18.2. Bridle - properly routed
  4.19. Kit bag (if front mounted)

NOTE: For rigs with bottom of container (BOC) hand deploy.

4.20. Left leg strap
4.21. Wrist mounted altimeter
4.22. Altimeter lighting
4.23. Gloves
4.24. Jumper lighting (rear)
4.25. AAD - set and activated
4.26. Reserve ripcord rings and cable
4.27. Reserve ripcord pins
4.28. BOC hand deploy pilot chute
  4.28.1. Secure in pocket - handle exposed
  4.28.2. Bridle - properly routed
4.29. Main ripcord pin/s

4.30. Special mission gear
4.30.1. Camera's
4.30.2. Radios
4.30.3. Audible altimeter
4.31. Next briefing/checklist
4.31.1. Jumpmaster Aircraft Inspection Checklist
(*page 134*)

Jumpmaster Personnel Inspection
(Static Line Square)

(*brief applicable items only)*

5.1. Helmet - on/secured
5.2. Goggles/visor
5.3. Square assembly
  5.3.1. Three ring risers - connected
  5.3.2. RSL - attached
  5.3.3. Cutaway handle - secured and velcro mated
  5.3.4. Reserve ripcord
    5.3.4.1. Handle in pocket
    5.3.4.2. RSL routing
    5.3.4.3. Cable routing and travel - checked
    5.3.4.4. Pins - checked, cable on left side of pins
  5.3.5. Chest strap - secured not twisted
  5.3.6. Main lift web - adjusted and stowed
  5.3.7. Diagonal straps - adjusted and stowed
  5.3.8. Leg straps - adjusted, gates seated, and slack stowed
5.4. Altimeter - set
5.5. Fanny pack - secured, zippers closed
5.6. Equipment load/harness
  5.6.1. Quick release(s) - exposed
  5.6.2. Lowering line - attached, secured, and stowed
5.7. SPUDS
  5.7.1. Secured

5.7.2. Air flow - checked
5.8. Weapon(s)
5.8.1. Secured
5.8.2. Weapon - on "Safe"
5.9. Static line
5.9.1. Routing
5.9.2. Container pins - safetied
5.9.3. Remove from keeper, close gate, and hand to jumper over shoulder
5.10. Static line (completed prior to final)
5.10.1. Attached to anchor cable
5.10.2. Safety pin - installed
5.10.3. Static line - routing checked, slack stowed

Jumpmaster Personnel Inspection
(Tandem)

(*brief applicable items only)*

6.1. Pilot and passenger equipment
- 6.1.1. Head protection - on and secure
- 6.1.2. Eye protection - available
- 6.1.3. Passenger jumpsuit - tight fitting
- 6.1.4. Altimeter - calibrated and secure (pilot only)
  - 6.1.4.1. Visual
  - 6.1.4.2. Audible
- 6.1.5. Gloves
- 6.1.6. Flotation equipment - actuator(s) exposed

6.2. Tandem pilot assembly
- 6.2.1. Three ring risers - connected
- 6.2.2. Cutaway handle - exposed, cables not twisted
- 6.2.3. Drogue
  - 6.2.3.1. Handle - exposed
  - 6.2.3.2. Pin - checked
- 6.2.4. Drogue releases - exposed and secured
- 6.2.5. Reserve ripcord
  - 6.2.5.1. Pin - checked
  - 6.2.5.2. Reserve ripcord and RSL cable - cable routing not crossed
  - 6.2.5.3. RSL routing/connected
  - 6.2.5.4. Handle - exposed
- 6.2.6. CYPRES AAD - activated

6.2.7. Chest strap - secure not twisted
6.2.8. Leg straps - secure not twisted
6.3. Tandem passenger assembly
6.3.1. Harness - adjusted
6.3.2. Quick ejector waist straps - adjusted to full length of travel and clipped to back of passenger harness
6.3.3. Shoulder snap - below level of shoulder on passenger's back, locking pin not installed
6.3.4. Chest strap - secure not twisted
6.3.5. Leg straps - secure not twisted
6.4. Passenger hook-up (completed at discretion of pilot but will be completed prior to assuming final altitude)
6.4.1. Shoulder snaps - connected and pinned
6.4.2. Lower harness attachment straps - connected and excess stowed
6.4.3. Locate handles
6.4.3.1. Cutaway
6.4.3.2. Reserve
6.4.3.3. Primary drogue release
6.4.3.4. Secondary drogue release
6.4.3.5. Drogue
6.5. Final check (completed prior to assuming final)
6.5.1. Shoulder snaps - connected and pinned
6.5.2. Waist straps - connected and excess stowed

6.5.3. Cutaway handle - checked
6.5.4. Reserve handle - checked
6.5.5. Primary drogue release - checked
6.5.6. Secondary drogue release - checked
6.5.7. Drogue handle - checked

Jumpmaster Aircraft Inspection Checklist

(*brief applicable items only)*

7.1. Maintenance status - check maintenance records or with flight engineer/loadmaster
7.2. Aircraft exterior
  7.2.1. Jump exits - secure, remove, or tape loose/dangling wires, projections, and sharp edges and objects, which could interfere with jumpers exit
  7.2.2. Chaff/flare dispensers
7.3. C-130 aircraft interior (refer to T.O. 1C-130A-9)
  7.3.1. Seats/equipment - removed or configured
  7.3.2. Safety belts - positioned
  7.3.3. Rail sections - stowed
  7.3.4. Aircraft floor - clear and clean
  7.3.5. Paratroop doors
    7.3.5.1. Doors - open and close easily

NOTE: Leave fully open and pinned during door/jump platform inspection.

    7.3.5.2. Door tracks - no excessive grease
    7.3.5.3. Door frames - no sharp edges or protrusions
    7.3.5.4. Auxiliary hydraulic ramp pump handle - secured (before takeoff)
  7.3.6. Jump platform

7.3.6.1. No cracks or bends
7.3.6.2. Hinge plate slots - engaged by tie-down studs and screw (with washer) so hinge fittings do not slide off the tie-down studs

NOTE: When screw and washer are missing - hinge plate safety wired with four turns of stainless steal wire to the tie-down bracket.

7.3.6.3. Spring-down lock catches (2 each) - engages edge of door
7.3.6.4. Hinge pins - centered in hinges
7.3.7. Ramp and door
7.3.7.1. Operational
7.3.7.2. Floor is clean and safe to walk on
7.3.8. Air deflectors
7.3.8.1. Electrical deflectors - operational
7.3.8.2. No items or trash stored in wells
7.3.9. Jump caution lights - check all seven operational
7.3.9.1. Set 1 - crew entrance door
7.3.9.2. Sets 2 and 3 - top leading edges of right and left doors
7.3.9.3. Sets 4 and 5 - trailing edges of right and left door, waist high
7.3.9.4. Sets 6 and 7 - right and left anchor cable aft supports
7.3.10. Alarm system - operational

7.3.11. Anchor cable system (S/L only)

NOTE: Actual locations and numbers of supports/anchor cables required vary with type of C-130 model used. Refer to TO 1C-130A-9 or check with loadmasters if in doubt about anchor line placement or configuration.

7.3.11.1. Forward support beam
7.3.11.1.1. U-bolts w/self-locking nuts (or cotter pins) - properly secured to attaching points
7.3.11.1.2. Anchor cables - attached to u-bolts
7.3.11.1.3. Forward latch assemblies and/or spring-loaded clip - in locked condition
7.3.11.1.4. Turnbuckle - no more than 3 threads are exposed on either end and locking assemblies are secure with locking pins or safety wired
7.3.11.2. Anchor cable
7.3.11.2.1. Broken wires - no more than
7.3.11.2.1.1. Wrapped type - 3 per inch, per strand or 6 total per two inches
7.3.11.2.1.2. Woven type - 3 per inch with no more allowed in the next consecutive inch
7.3.11.2.2. No kinks allowed
7.3.11.2.3. Cables are not crossed
7.3.11.2.4. Cables clean and free of rust
7.3.11.2.5. Cable taught when properly configured through cable supports

7.3.11.3. Center anchor cable supports
7.3.11.3.1. Lowered and secured to airframe
7.3.11.3.2. Quick release pins - present and operational
7.3.11.4. Aft anchor cable support
7.3.11.4.1. Aft latch assembly - closed.

NOTE: For tailgating parachutists/ramp bundle drops - spring loaded clips on aft latch must face outboard.

7.3.11.4.2. U-bolts, nuts, and safety pins - present
7.3.11.4.3. Support anchor bolts, nuts, and safety pins - present
7.3.11.4.4. Full down and up operation - checked
7.3.11.5. Anchor cable stops
7.3.11.5.1. Tailgating personnel - position and tape stops at FS 893
7.3.11.5.2. Combination ramp loads and static line personnel - position and tape both stops at FS 893
7.3.11.5.3. RAMZ with freefall parachutists - position and tape stop at FS 749

WARNING: Do not tailgate static line parachutists with anchor cable stops at FS 749 or FS 773..

7.3.11.6. Static line retrievers
7.3.11.6.1. CDS retriever arming switches - safety wired to off (if use not anticipated)
7.3.11.6.2. Retriever cables/equipment - ready for use

WARNING: On aircraft with overhead storage racks - place strip of cloth backed tape over the l-shaped brackets on the aft corner of the right side rack to prevent possible retriever cable entanglement.

7.3.12. Cargo compartment lighting
7.3.12.1. Loadmaster - briefed
7.3.12.2. Lights - checked and set
7.3.13. Mission equipment - inventoried, positioned, and secured
7.3.14. Intercom - available and operational
7.3.15. JM kit - inventoried, positioned, and secured
7.4. HH-60 aircraft interior
7.4.1. Seats/equipment - removed/configured
7.4.2. Safety belts/gunners belts - positioned
7.4.3. Aircraft floor - clear and clean

7.4.4. Troop seat and tie-down fitting wells - tape wells in front of doors and any that may snag equipment, jumpers, or static lines
7.4.5. Doorjambs, cargo door edges, and sharp edges - tape as necessary

NOTE: Tape must not interfere with opening or closing doors in flight.

7.4.6. Weather stripping on cargo door edges (if installed) - tape as necessary

NOTE: Tape must not interfere with opening or closing doors in flight.

7.4.7. Modified anchor line system - complete, serviceable, and properly installed (modified quick fit adapter towards front of aircraft for aircraft with aux tanks installed)
7.4.8. Cargo compartment lighting
7.4.9. Mission equipment - inventoried, positioned, and secured
7.4.10. Intercom - available and operational
7.4.11. JM kit - inventoried, positioned, and secured
7.5. Next briefing/checklist
7.5.1. Jumpmaster Personnel Inspection (Round) (*page 107*)

RAMZ Inspections/Procedures

(*brief applicable items only)*

8.1. RAMZ inspection
- 8.1.1. Parachutes:
  - 8.1.1.1. (2 ea.) T-10 cargo parachutes
  - 8.1.1.2. Serviceable-current inspection/repack dates
  - 8.1.1.3. LPUs inflated (training)
- 8.1.2. Delivery container:
  - 8.1.2.1. Load harness - serviceable
  - 8.1.2.2. Load container - serviceable
  - 8.1.2.3. Skid plates - serviceable
- 8.1.3. RAMZ package night lighting requirements
  - 8.1.3.1. 3 green chemlights per side - 2 high, 1 low
  - 8.1.3.2. 1 green chemlight - Type IV link
  - 8.1.3.3. 1 red chemlight per/release
  - 8.1.3.4. Strobe light - support web near the inflation lanyard
- 8.1.4. RAMZ equipment:
  - 8.1.4.1. RAMZ/CRRC
  - 8.1.4.2. Fuel drop kit
  - 8.1.4.3. Medical drop kit
  - 8.1.4.4. Resupply drop kit
  - 8.1.4.5. Rollers
  - 8.1.4.6. RAMZ JM kit
  - 8.1.4.7. J-1 spotter parachutes
  - 8.1.4.8. Mk-6 flares w/bands

8.1.4.9. Static line clevis (stop)
8.1.4.10. Type 8 material (for gate)
8.1.4.11. DD form 1387-2 (completed)
8.1.5. Special mission equipment:
8.1.5.1. Combat equipment (IAW OPORD)
8.1.5.2. Compass
8.1.5.3. NVGs
8.1.5.4. Communications
8.1.5.5. GPS
8.1.5.6. Dry bags
8.2. RAMZ pre-load inspection checklist:
8.2.1. Skid plate secured to engine box on each corner
8.2.2. Corner ties run across back and front of skid plate, not the sides
8.2.3. Skid plate tied to the A-22 net, on 4 sides w/ double "W"
8.2.4. Air system secured and rigged
8.2.5. Chemlight attached to inflation handle
8.2.6. A-22 net secured w/ quick release at the 9 and 12 o'clock
8.2.7. Quick releases have pull tabs with chemlights
8.2.8. Lower and middle lateral straps secured
8.2.9. A-22 "D" rings tied together (80 lb test)
8.2.10. A-22 suspension risers connected w/snaps inward and taped with duct tape
8.2.11. FXC connected to type iv (cotter pins installed)

8.2.12. Type IV base plate and link cover secured w/550 cord to the 6 o'clock "D" ring
8.2.13. A-22 "D" rings connected to Type IV in order (clockwise or counterclockwise)
8.2.14. Cover plate installed
8.2.15. Chemlight secured to Type IV
8.2.16. Adapter webs not twisted and taped with duct tape
8.2.17. Jeep clevis attached to FXC
8.2.18. 120" riser extensions attached with no twists "S" folded and taped with masking tape

NOTE: All operational/real-world RAMZ bundles should be rigged for night.

8.3. RAMZ post deployment procedures
8.3.1. De-rigging procedures
8.3.1.1. RAMZ - orient to inflation position
8.3.1.2. Type IV release - release (ensure D-rings are free and clear)
8.3.1.3. Starboard quick release - release
8.3.1.4. Stern quick release - release
8.3.1.5. A-22 container (diaper and sling from package) - remove

CAUTION: Failure to remove straps may result in severe damage to the boat.

8.3.1.6. Compressed air tank valve handle - turn counter clockwise
8.3.1.7. Enter boat immediately
8.3.1.8. Equipment attached to engine box - disconnect
8.3.1.9. Compressed air tank quick-disconnect - release
8.3.1.10. Engine retainer strap - release
8.3.1.11. Tilt engine and remove honeycomb (box/container should fall away)

8.3.2. Engine de-watering procedures
8.3.2.1. Throttle grip - turn to shift (□•) position or slower
8.3.2.2. Shift lever - neutral
8.3.2.3. Drain valve - drain
8.3.2.4. Tilt/run lever - tilt
8.3.2.5. Engine - tilt to full tilt position
8.3.2.6. Starter handle - pull slowly until engine turns over 2 or 3 revolutions
8.3.2.7. Tilt/run lever - run
8.3.2.8. Engine - lower
8.3.2.9. Starter handle - pull about 10 times
8.3.2.10. Fuel line - connect
8.3.2.11. Primer bulb - pump until firm, then squeeze 2 or 3 more times
8.3.2.12. Throttle grip - turn to start (□) position

8.3.2.13. Primer knob - pull through full stroke twice, leave in warm-up position (color line showing)
8.3.2.14. Starter handle - pull until engine starts

CAUTION: Allow starter cord to rewind before releasing starter handle.

WARNING: Ensure propeller is clear prior to starting engine.

8.3.3. After engine starts
8.3.3.1. Water pump indicator - check for steady stream of water

CAUTION: If water pump indicator is not discharging stream - stop the engine and refer check for overheating.

8.3.3.2. Operate engine for a minimum of 15 minutes in gear (40 minutes minimum preferred)
8.3.3.2.1. After engine has run for 30 seconds - push drain valve to run position

CAUTION: Do not run engine at full throttle with drain valve in drain position.

8.3.3.2.2. After engine has warmed up - push primer knob to run (no color line) position

Tandem Pilot Equipment Checklist

(*brief applicable items only)*

9.1. Tandem parachute assembly
- 9.1.1. Serviceable
- 9.1.2. Inspection/repack dates - current
- 9.1.3. Deployment handles
  - 9.1.3.1. Cutaway handle - secure
  - 9.1.3.2. RSL - attached, secure, properly routed
  - 9.1.3.3. Reserve handle - secure
  - 9.1.3.4. Primary drogue release - completed seated and secure
  - 9.1.3.5. Drogue - slides out/in pocket easily
  - 9.1.3.6. Drogue handle - exposed
  - 9.1.3.7. Secondary drogue release - completely seated, cable housing not looped, handle secure
- 9.1.4. Three ring riser assembly
  - 9.1.4.1. Connections
  - 9.1.4.2. Routing
  - 9.1.4.3. Rings - rotate
  - 9.1.4.4. Nylon coated cable - inspect for damage from end of cable to fabric locking loop
  - 9.1.4.5. Fabric locking loops - inspect for damage and twists
  - 9.1.4.6. Reserve static line - attached
- 9.1.5. AAD - functioning and calibrated
- 9.1.6. Drogue three ring release assembly

9.1.6.1. Each release cable is through only one side of the free floating three-ring release fabric loop
9.1.6.2. Cables are completed seated
9.1.6.3. Assembly is properly stowed in pouch
9.1.7. Passenger harness - serviceable
9.1.7.1. Shoulder snaps and safety pins - serviceable
9.1.7.2. Waist connector quick ejectors - serviceable
9.2. Passenger equipment
9.2.1. Protective head gear
9.2.2. Goggles
9.2.3. Jumpsuit
9.2.4. Gloves
9.3. Pilot equipment
9.3.1. Protective head gear
9.3.2. Protective eye wear
9.3.3. Jumpsuit (large suit recommended)
9.3.4. Visual altimeter
9.3.5. Audible altimeter

Tandem Passenger Briefing Guide

(*brief applicable items only)*

10.1. Orientation
- 10.1.1. Tandem pilot background
- 10.1.2. Passenger jump background
- 10.1.3. Tandem concept
  - 10.1.3.1. One parachute system, one pilot, one passenger
  - 10.1.3.2. Pilot in command
  - 10.1.3.3. Pilot responsible for all operations, normal and emergency
  - 10.1.3.4. Passenger assistance during
    - 10.1.3.4.1. Hook up
    - 10.1.3.4.2. Safety check
    - 10.1.3.4.3. Exit
    - 10.1.3.4.4. Freefall position, when signaled
    - 10.1.3.4.5. Canopy control
    - 10.1.3.4.6. Landing position/flare
    - 10.1.3.4.7. Following commands of pilot
- 10.1.4. Brief tandem history
- 10.1.5. Show videotape (if available)

10.2. Equipment familiarization
- 10.2.1. Fit passenger with jumpsuit, helmet, goggles
- 10.2.2. Show and explain and fit passenger harness
- 10.2.3. Show and explain parachute system
- 10.2.4. Hook up

10.2.5. Doff all harnesses
10.3. Pre-jump walk through
10.3.1. Aircraft hazards
10.3.1.1. Stay with pilot
10.3.1.2. Propellers/rotor blades (main and tail)
10.3.1.3. Noise
10.3.2. Aircraft emergencies
10.3.2.1. Follow pilot's commands
10.3.2.2. Emergency exits
10.3.3. Jump walk through
10.3.3.1. Explain timing of hook up on jump run
10.3.3.2. Jump run, spotting, door
10.3.3.3. Explain and walk through exit
10.3.3.4. Explain and demonstrate exit arch
10.3.3.5. Explain drogue and drogue ok signal
10.3.3.6. Emphasize arch and looking out
10.3.3.7. Mention breathing
10.3.3.8. Explain speed, time, and altitudes
10.3.3.9. Explain turns, arms out and arms in
10.3.3.10. Explain opening signal and procedure
10.4. Under canopy procedures
10.4.1. Explain release or loosening of side straps
10.4.2. Explain toggle configuration and assisted steering
10.5. Geared up practice (accomplished just prior to boarding aircraft)

10.5.1. Don equipment, hook up and practice jump until passenger is familiar with jump procedures
10.5.2. Unhook after initials practices are completed
10.5.3. Relax and load aircraft as required

Team Alternate Insertion/Extraction Briefing

(*brief applicable items only)*

1.1. Roll call
1.2. Currency and qualifications
  1.2.1. Training and currency requirements - checked
  1.2.2. Equipment/aircraft restrictions
  1.2.3. Crew rest and duty limitations
1.3. AIE description
  1.3.1. Hoist/rescue devices
    1.3.1.1. Climbing harness
    1.3.1.2. Forest penetrator
    1.3.1.3. Rescue net
    1.3.1.4. Rescue strop/horse collar
    1.3.1.5. Stokes litter
    1.3.1.6. Barrelman procedures
    1.3.1.7. Tag-line
  1.3.2. Fast rope
  1.3.3. Rappel
  1.3.4. Rope ladder
  1.3.5. Helo-cast
  1.3.6. T-duck
  1.3.7. REDS
  1.3.8. SPIE
  1.3.9. STABO

NOTE: Only operational equipment will be used for live deployments.

1.4. Type of exit (left, right, ramp)
1.5. Number of iterations
1.5.1. Single iteration
1.5.2. Multiple iterations
1.6. Team information
1.6.1. Number involved/manifest/orders
1.6.2. Call signs
1.6.3. Duties and responsibilities
1.6.3.1. Team leader/assistant team leader
1.6.3.2. AIE Master/assistant AIE Master
1.6.3.3. Safetyman
1.6.3.4. Medic (primary/alternate)
1.6.3.5. Aircraft and equipment rigging
1.6.3.6. Intercom requirements
1.6.3.7. Equipment delivery
1.6.3.8. HLZC/boatmaster/safety swimmer
1.7. Aircraft
1.7.1. Number of aircraft involved/call signs /type/characteristics
1.7.2. Tail number(s)
1.7.3. Load location
1.7.4. AIE device/CRCC pre-inspection/jai
1.7.5. Load time
1.7.6. Station time
1.7.7. Take-off time

1.8. Flight
1.8.1. Duration
1.8.2. Route/checkpoints
1.8.3. TOT
1.9. HLZ information (show on map if available)
1.9.1. Name/coordinates/elevation/slope
1.9.2. Rotor clearance required
1.9.3. Markings and features
1.9.4. Recognition symbol
1.9.5. Known hazards
1.9.6. Range procedures/requirements
1.9.7. Desired heading
1.9.8. Alternates
1.10. Weather
1.10.1. Forecast
1.10.2. Illumination
1.10.3. Temperatures (surface/water)
1.10.4. Winds
1.10.5. Sea state
1.10.6. Cloud cover
1.10.7. Precipitation
1.10.8. Visibility
1.11. Communications
1.11.1. HLZ controller call sign
1.11.2. HLZ controller frequencies
1.11.3. Radio(s): type, quantity, and frequencies
1.11.4. Secure/non-secure
1.11.5. Team call sign(s)/number(s)

1.11.6. Radio check
1.11.7. Radio discipline
1.11.8. Waterproofing
1.11.9. Communications failure
1.11.10. No comm procedures
1.11.11. Team-helicopter signals
1.11.11.1. Ok/affirmative - thumbs up
1.11.11.2. Lower cable without device - climbing rope motion
1.11.11.3. Lower cable with device - arm extended overhead, fist clenched
1.11.11.4. Raise cable (day) - thumbs up, pumping motion
1.11.11.5. Raise cable (night) - chemlight, pumping motion
1.11.11.6. Ready for pickup (day) - arms waving
1.11.11.7. Ready for pickup (night) - strobe
1.11.11.8. Deploy stokes litter - hands cupped, then arms outstretched
1.11.11.9. Deploy rope ladder - fists shoulder width apart, climbing motion
1.11.11.10. Move in/out - wave in/out
1.11.11.11. Cease operations - slashing motion across throat
1.11.11.12. Team recall (day) - crewmember circling arm overhead, finger pointing skyward
1.11.11.13. Team recall (night) - deployment of retrieval device

1.11.11.14. Deploy medical kit - crossed wrists
1.11.11.15. Parachute nearby - closed fits, pumping arm, point with other arm
1.11.11.16. Deploy backup swimmer - breast stroke motion
1.11.11.17. Deploy raft - paddling motion
1.11.11.18. Sharks - hand clapping motion
1.11.11.19. Emergency - ignite MK-13 flare or similar device

1.12. Deployment procedures
1.12.1. Altitude/airspeed/pattern
1.12.2. Approach/departure
1.12.3. Survivor line-up/approach
1.12.4. Order of deployment
1.12.4.1. Lift
1.12.4.2. Pass
1.12.4.3. Sticks
1.12.5. AIE signals/actions in aircraft

NOTE: Signals and time warnings may be abbreviated to meet mission profile.

1.12.5.1. General
1.12.5.1.1. Don equipment when instructed
1.12.5.1.2. Don helmets - prior to takeoff

NOTE: A helmet is required for all land AIEs where multiple iterations are planned. If the intent of the mission is to perform an AIE and move to an objective, then a helmet is not required. When the AIE is accomplished in the water and you are not wearing a helmet, lighting may be attached to your personal floatation device in a manner that will not interfere with inflation

1.12.5.1.3. Fasten - unfasten seatbelts
1.12.5.2. 20 minute warning
1.12.5.2.1. Don equipment
1.12.5.2.2. AIE equipment is pre-positioned
1.12.5.2.3. Team members receive equipment check
1.12.5.2.4. Cabin lighting configured
1.12.5.2.5. AIE Master informs team of present location
1.12.5.3. 10 minute warning
1.12.5.3.1. AIE Master informs team of present location
1.12.5.3.2. Team performs radio checks
1.12.5.4. 5 minute warning
1.12.5.4.1. AIE Master informs team of present location
1.12.5.4.2. AIE Master inspects exits, attaches/inspects AIE devices
1.12.5.4.3. Team members don night vision devices

1.12.5.5. 2 minute warning
1.12.5.5.1. Team members complete final equipment check
1.12.5.6. 1 minute warning
1.12.5.6.1. Team members prepare to remove restraining devices
1.12.5.7. 30 seconds (final approach
1.12.5.7.1. AIE Master gives “lock and load”
1.12.5.7.2. Team members charge weapons
1.12.5.7.3. AIE Master gives “stand by”
1.12.5.7.4. Team members relay signal and remove restraining devices
1.12.5.8. Go
1.12.5.8.1. AIE Master give “go”
1.12.5.8.2. Team members deploy at appropriate interval
1.12.5.9. No drop
1.12.5.9.1. AIE Master gives “no drop”
1.12.5.9.2. Team members move to assigned seats and re-connect to restraining devices

WARNING: When unsafe conditions are encountered, stop any additional team members deploying from the aircraft using appropriate hand signals. Make no attempt to physically stop a person in the act of deploying as this may cause the person to lose grip of the rope and increase the probability of injury to the team member.

WARNING: The AIE Master will ensure the ropes reach the ground prior to final positioning of team for deployment.

WARNING: Ensure individuals manning aircraft weapons systems are thoroughly briefed to prevent inadvertent firing on the team.

1.13. Specific AIE and emergency procedures brief
1.13.1. Hoist
1.13.1.1. Weight restrictions/maximum load
1.13.1.2. Cable length
1.13.1.3. Tag line length/type/weak link
1.13.1.4. Paddles/strap (forest penetrator)
1.13.1.5. Survivor/team loading/unloading
1.13.1.6. Team marking
1.13.1.7. Grounding
1.13.1.8. Trees
1.13.1.9. Excess slack

NOTE: Ensure cable slack is held to the minimum necessary to perform the recovery. Excessive slack can be especially dangerous during water recovery when the hoist operator cannot see the cable.

1.13.1.10. Shock loading

WARNING: During training missions, terminate live hoisting immediately at the first indication of cable shock loading.

1.13.1.11. Emergency procedures
1.13.1.11.1. Go-around
1.13.1.11.2. Abort
1.13.1.11.3. Shear procedures
1.13.1.11.4. Team actions - loss of aircraft control/power
1.13.1.11.4.1. Stop stick
1.13.1.11.4.2. If team cannot dismount from device, prepare for flight, rapid descent or to be cut free
1.13.1.11.4.3. If in descent, once on ground immediately disconnect and move away from device
1.13.1.11.5. Team actions - oscillation/drift/premature lift-off
1.13.1.11.5.1. Stop stick
1.13.1.11.5.2. Lock-in
1.13.1.11.5.3. Wait for aircraft to move back over site or prepare for forward flight
1.13.1.11.5.4. Continue descent/ascent
1.13.1.11.6. Team actions - hung cable
1.13.1.11.6.1. Stop stick
1.13.1.11.6.2. Lock in and prepare for aircraft descent or help free cable

1.13.1.11.7. Team actions - aircraft under fire
1.13.1.11.7.1. Stop stick
1.13.1.11.7.2. Attempt to stop descent, lock in and prepare for flight, airspeed should not exceed 40 KIAS
1.13.1.11.8. Team actions - hung tag line
1.13.1.11.8.1. Immediately signal stop
1.13.1.11.8.2. Attempt to free
1.13.1.11.8.3. If cannot be freed, signal for lower device
1.13.2. Fast rope
1.13.2.1. Weight restrictions
1.13.2.2. Rope length
1.13.2.3. Roper center of gravity
1.13.2.4. Forward ground speed (maximum 5 KIAS)
1.13.2.5. Procedures
1.13.2.5.1. 5 minute call
1.13.2.5.1.1. H-bar extended and locked
1.13.2.6. Emergency procedures
1.13.2.6.1. Go-around
1.13.2.6.2. Abort
1.13.2.6.3. Team actions - loss of aircraft control/power
1.13.2.6.3.1. Stop stick
1.13.2.6.3.2. Descend as rapidly as possible
1.13.2.6.3.3. Move from beneath aircraft

NOTE: If team cannot dismount from device, stop descent, lock-in and prepare for flight or rope release.

1.13.2.6.4. Team actions - oscillation/drift/premature lift-off
1.13.2.6.4.1. Stop stick
1.13.2.6.4.2. Lock-in
1.13.2.6.4.3. Wait for aircraft to move back over site
1.13.2.6.4.4. Continue descent
1.13.2.6.5. Team actions - hung rope
1.13.2.6.5.1. Stop stick
1.13.2.6.5.2. Attempt to stop descent, lock in and prepare for aircraft descent
1.13.2.6.5.3. Once on ground, dismount, move away from area (ropes released)
1.13.2.6.6. Team actions - aircraft under fire
1.13.2.6.6.1. Stop stick
1.13.2.6.6.2. Attempt to stop descent, lock in and prepare for flight, if an immediate HLZ is not available prepare for rapid descent and execute EPA.
1.13.3. Rappel
1.13.3.1. Weight restrictions
1.13.3.2. Rope length/type
1.13.3.3. Type descender
1.13.3.4. Rope deployment (free, bagged, bagged on roper)

1.13.3.5. Roper center of gravity
1.13.3.6. Emergency procedures
1.13.3.6.1. Go-around
1.13.3.6.2. Abort
1.13.3.6.3. Team actions - loss of aircraft control/power
1.13.3.6.3.1. Stop stick
1.13.3.6.3.2. Descend as rapidly as possible
1.13.3.6.3.3. Move from beneath aircraft

NOTE: If team cannot dismount from device, stop descent, lock-in and prepare for flight or rope release.

1.13.3.6.4. Team actions - oscillation/drift/premature lift-off
1.13.3.6.4.1. Stop stick
1.13.3.6.4.2. Lock-in
1.13.3.6.4.3. Wait for aircraft to move back over site
1.13.3.6.4.4. Continue descent
1.13.3.6.5. Team actions - hung rope
1.13.3.6.5.1. Stop stick
1.13.3.6.5.2. Attempt to stop descent, lock in and prepare for aircraft descent
1.13.3.6.5.3. Once on ground, dismount, move away from area (ropes released)
1.13.3.6.6. Team actions - aircraft under fire
1.13.3.6.6.1. Stop stick

1.13.3.6.6.2. Attempt to stop descent, lock in and prepare for flight, if an immediate HLZ is not available prepare for rapid descent and execute EPA.

1.13.4. Rope ladder

1.13.4.1. Weight restrictions (H-60 - 3 per, H-53 - 5 per)

1.13.4.2. Ladder length/type

1.13.4.3. Emergency procedures

1.13.4.3.1. Go-around

1.13.4.3.2. Abort

1.13.4.3.3. Team actions - loss of aircraft control/power

1.13.4.3.3.1. Stop stick

1.13.4.3.3.2. Descend as rapidly as possible

1.13.4.3.3.3. Move from beneath aircraft

NOTE: If team cannot dismount from device, stop descent, lock-in and prepare for flight or rope release.

1.13.4.3.4. Team actions - oscillation/drift/premature lift-off

1.13.4.3.4.1. Stop stick

1.13.4.3.4.2. Lock-in

1.13.4.3.4.3. Wait for aircraft to move back over site

1.13.4.3.4.4. Continue descent

1.13.4.3.5. Team actions - hung ladder

1.13.4.3.5.1. Stop stick
1.13.4.3.5.2. Attempt to stop descent, lock in and prepare for aircraft descent
1.13.4.3.5.3. Once on ground, dismount, move away from area (ropes released)
1.13.4.3.6. Team actions - aircraft under fire
1.13.4.3.6.1. Stop stick
1.13.4.3.6.2. Attempt to stop descent, lock in and prepare for flight (60 KIAS).
1.13.4. Helo-cast
1.13.4.1. Weight/cg restrictions
1.13.4.2. Maximum speed/height (10' AWL/10 KIAS)
1.13.4.3. High seas
1.13.4.4. SCUBA/SPUDS
1.13.4.5. Stokes
1.13.4.6. Landing gear
1.13.4.7. CRCC
1.13.4.8. Emergency procedures
1.13.4.8.1. Go-around
1.13.4.8.2. Abort
1.13.4.8.3. Team actions - loss of aircraft control/power
1.13.4.8.3.1. Stop stick or immediately exit if in parameters
1.13.4.8.3.2. If unable to exit, immediately strap in and prepare for crash landing/ditching
1.13.4.8.4. Team actions - aircraft under fire

1.13.4.8.4.1. Stop stick
1.13.4.8.4.2. Prepare for immediate team pick-up.
1.13.5. T-duck
1.13.5.1. Weight/cg restrictions
1.13.5.2. Maximum speed/height (15' AWL/10 KIAS)
1.13.5.3. High seas
1.13.5.4. Procedures
1.13.5.4.1. 5 minute call
1.13.5.4.1.1. Belay man on intercom
1.13.5.4.1.2. Inflate cones
1.13.5.4.2. Go
1.13.5.4.2.1. Team assists deploying boat
1.13.5.4.2.2. Team deploys opposite side (fastrope/helo-cast)
1.13.5.4.3. Post-deployment
1.13.5.4.3.1. Team gives thumbs up, moves to package
1.13.5.4.3.2. Belay man strikes system, throws system into water, deploys
1.13.5.4.3.3. Team inflates boat and departs

NOTE: If the team has equipment to belay into the water, the team will release the belay rope after gaining control of the package. The belay man will recover the rope and belay equipment to the team then strike system and deploy.

1.13.5.5. Emergency procedures
1.13.5.5.1. Go-around
1.13.5.5.2. Abort
1.13.5.5.3. Shear procedures
1.13.5.5.4. Team actions - loss of aircraft control/power
1.13.5.5.4.1. Stop stick
1.13.5.5.4.2. Descend as rapidly as possible
1.13.5.5.4.3. Move from beneath aircraft
1.13.5.5.4.4. Dismount device

NOTE: If team cannot dismount from device, stop descent, lock-in and prepare for flight or to be cut free.

1.13.5.5.5. Team actions - oscillation/drift/premature lift-off
1.13.5.5.5.1. Stop stick
1.13.5.5.5.2. Lock-in
1.13.5.5.5.3. Wait for aircraft to move back over site
1.13.5.5.5.4. Continue descent/ascent
1.13.5.5.6. Team actions - hung rope
1.13.5.5.6.1. Stop stick
1.13.5.5.6.2. Attempt to stop descent, lock in and prepare for aircraft descent
1.13.5.5.6.3. Once in water, dismount, move away from area (ropes released)
1.13.5.5.7. Team actions - aircraft under fire

1.13.5.5.7.1. Stop stick
1.13.5.5.7.2. Attempt to stop descent, lock in and prepare for flight, airspeed should not exceed 40 KIAS

1.13.6. REDS
1.13.6.1. Weight/cg restrictions
1.13.6.2. Maximum speed/height
1.13.6.3. Trees/adverse terrain
1.13.6.4. Procedures
1.13.6.4.1. 5 minute call
1.13.6.4.1.1. Belay man on intercom
1.13.6.4.2. 1 minute call
1.13.6.4.2.1. Position REDS halfway out door - maintain control
1.13.6.4.3. Go
1.13.6.4.3.1. Team assists deploying REDS
1.13.6.4.3.2. Team deploys opposite side

NOTE: On command "Ropes, Ropes, Ropes", REDS and ropes may be deployed simultaneously.

1.13.6.4.4. Post-deployment
1.13.6.4.4.1. Team gives thumbs up, moves to package
1.13.6.4.4.2. Belay man strikes system, throws system out door away from team

NOTE: If the team has additional equipment to belay, the team will release the belay rope after gaining control of the package. The belay man will recover the rope and belay equipment to the team then strike system and deploy.

1.13.6.5. Emergency procedures
1.13.6.5.1. Go-around
1.13.6.5.2. Abort
1.13.6.5.3. Team actions - loss of aircraft control/power
1.13.6.5.3.1. Stop stick
1.13.6.5.3.2. Descend as rapidly as possible
1.13.6.5.3.3. Move from beneath aircraft
1.13.6.5.3.4. Dismount device

NOTE: If team cannot dismount from device, stop descent, lock-in and prepare for flight or to be cut free.

1.13.6.5.4. Team actions - oscillation/drift/premature lift-off
1.13.6.5.4.1. Stop stick
1.13.6.5.4.2. Lock-in
1.13.6.5.4.3. Wait for aircraft to move back over site
1.13.6.5.4.4. Continue descent/ascent
1.13.6.5.5. Team actions - hung rope
1.13.6.5.5.1. Stop stick

1.13.6.5.5.2. Attempt to stop descent, lock in and prepare for aircraft descent
1.13.6.5.5.3. Once on ground, dismount, move away from area (ropes released)
1.13.6.5.6. Team actions - aircraft under fire
1.13.6.5.6.1. Stop stick
1.13.6.5.6.2. Attempt to stop descent, lock in and prepare for flight, airspeed should not exceed 40 KIAS

1.13.7. SPIE/STABO
1.13.7.1. Airspeeds (will not exceed 70 KIAS or 50 KIAS in cold weather)
1.13.7.2. Weight restrictions
1.13.7.3. Rope length/type
1.13.7.4. Roper center of gravity
1.13.7.5. Considerations
1.13.7.5.1. Keep arch position to stay stable in flight
1.13.7.5.2. Keep feet and knees together
1.13.7.5.3. Unhook and move to briefed position (3 or 9 o'clock) keeping rope taut
1.13.7.6. Hand and arm signals
1.13.7.6.1. Thumbs up - secure and ready for pickup
1.13.7.6.2. Both hands on head - emergency during extraction/flight
1.13.7.6.3. Hold - clinched fist

1.13.7.7. Emergency procedures
1.13.7.7.1. Go-around
1.13.7.7.2. Abort
1.13.7.7.3. Team actions - loss of aircraft control/power
1.13.7.7.3.1. Prepare for PLF
1.13.7.7.3.2. Move from beneath aircraft
1.13.7.7.3.3. Crew will drop/cut rope when all personnel are off

NOTE: If team cannot dismount from device, stop descent, lock-in and prepare for flight or rope release.

1.13.7.7.4. Team actions - oscillation/drift/premature lift-off
1.13.7.7.4.1. Stop stick
1.13.7.7.4.2. Lock-in
1.13.7.7.4.3. Wait for aircraft to move back over site
1.13.7.7.4.4. Continue operation
1.13.7.7.5. Team actions - entangled ropes
1.13.7.7.5.1. Prepare for aircraft descent
1.13.7.7.5.2. Prepare for PLF
1.13.7.7.5.3. Move from beneath aircraft
1.13.7.7.5.4. Crew will drop/cut rope when all personnel are off
1.13.7.7.6. Team actions - aircraft under fire

1.13.7.7.6.1. Immediately lock in and prepare for flight, if part of team is left, prepare for return and immediate pickup

1.14. Post insertion information

1.15. Sequence of events (narrative)

1.15.1. Planned number of loads

1.15.2. Planned inserts/extracts

1.15.2.1. Type

1.15.2.2. Number of personnel

1.15.2.3. Actions

1.16. Next briefing/checklist

1.16.1. AIE Team Member Equipment Checklists (*page 171*)

AIE Team Member Equipment Checklists

(*brief applicable items only)*

2.1. General
- 2.1.1. Uniform
- 2.1.2. Helmet (TL requires intercom)
- 2.1.3. Eye protection
- 2.1.4. Flight gloves
- 2.1.5. Leather gloves
- 2.1.6. Gunners belt/seat belt/approved alternate loading belt
- 2.1.7. Radios
- 2.1.8. LBE (configured IAW unit policy)
- 2.1.9. Combat load (weapons, body armor, etc)
- 2.1.10. Field gear for climate
- 2.1.11. Combat swimmer load
- 2.1.12. NVGs
- 2.1.13. Personal identification markings
- 2.1.14. Signaling devices (MK-13/strobe, etc.)
- 2.1.15. Medical kit/narcotics
- 2.1.16. Sit/chest/body harness
- 2.1.17. Locking carabineers

2.2. Next briefing/checklist
- 2.2.1. AIE Equipment Inspection Checklist (*page 172*)

AIE Equipment Inspection Checklist

(*brief applicable items only)*

NOTE: Use applicable T.O. for MDS aircraft specific inspections.

3.1. Hoist/rescue devices
- 3.1.1. Hoist
  - 3.1.1.1. Aircraft forms checked
  - 3.1.1.2. Check proper operation of hook safety latch and pip pin
  - 3.1.1.3. Check swivel for freedom of movement
- 3.1.2. Forest penetrator (description and maintenance instructions are found in TO 14S6-3-1 and TO 00-25-245, section 4)
  - 3.1.2.1. Aircraft forms checked
  - 3.1.2.2. Check for cracks and wear
  - 3.1.2.3. Straps operational and buckles move freely
  - 3.1.2.4. Collar serviceable in good condition
  - 3.1.2.5. Night lighting (recommended)
    - 3.1.2.5.1. 1 chemlight on bottom of each paddle
    - 3.1.2.5.2. 1 chemlight on hook
    - 3.1.2.5.3. 1 flexi-band chemlight on cable
- 3.1.3. Rescue net
  - 3.1.3.1. Aircraft forms checked
  - 3.1.3.2. Check for cracks and wear
  - 3.1.3.3. Straps operational and buckles move freely

3.1.4. Rescue strop/horse collar (information on the rescue strop is found in NAVAIR 13-1-1-6.5.)
3.1.4.1. Aircraft forms checked
3.1.4.2. Check hardware for cracks and wear
3.1.4.3. Straps operational and buckles move freely
3.1.5. Stokes litter
3.1.5.1. Aircraft forms checked
3.1.5.2. Check condition of welds, and hardware for cracks/dents
3.1.5.3. Straps operational and buckles move freely (minimum of 3)
3.1.5.4. Miller board secured
3.1.5.5. Check carabineers for freedom of movement (ensure barrels closed)
3.1.5.6. Check flotation devices and security
3.1.5.7. Check litter cables for current inspection/condition
3.1.5.8. Night lighting (recommended)
3.1.5.8.1. 2 chemlight on head of litter
3.1.5.8.2. 1 chemlight on foot of litter
3.1.6. Tag-line (construction, modification, inspection, and maintenance instructions are contained in TO 00-75-5)
3.1.6.1. Aircraft forms checked
3.1.6.2. Check condition of rope/container
3.1.6.3. Straps operational and buckles move freely
3.1.6.4. Weight attached

3.1.6.5. Weak link (single loop gutted 550 cord or two wraps 80 lb test)
3.1.6.6. Check carabineers for freedom of movement (ensure barrels closed)
3.1.6.7. Leather gloves available
3.1.6.8. Night lighting (recommended)
3.1.6.8.1. 1 chemlight on container

3.2. Fast rope
3.2.1. Aircraft forms checked
3.2.2. Check condition of welds, and mounting hardware for cracks/dents
3.2.3. Check pins and operation - full/mid extension, stowed
3.2.4. Check release mechanism
3.2.5. Fast rope secure/accessible
3.2.6. Rope coiled head to toe
3.2.7. Night lighting (recommended)
3.2.7.1. 2 sticks at the bottom of the rope
3.2.7.2. 1 stick 10 feet from the bottom
3.2.7.3. 1 or stick at the top of the rope

3.3. Rappel
3.3.1. Aircraft forms checked
3.3.2. Check condition of anchor welds, and mounting hardware for cracks/dents
3.3.3. Check carabineers for freedom of movement (ensure barrels closed)
3.3.4. Inspect condition of rope/drop sack (weight attached)

3.3.5. Ensure rope will deploy freely (back coiled/bird nested)
3.3.6. Night lighting (recommended)
3.3.6.1. 1 stick on the top of the drop sack
3.4. Rope ladder
3.4.1. Aircraft forms checked
3.4.2. Check condition of anchor welds, and mounting hardware for cracks/dents
3.4.3. Check carabineers for freedom of movement (ensure barrels closed)
3.4.4. Inspect condition of ladder (tears,, cracks, sharp edges)
3.4.5. Ensure ladder will deploy freely
3.4.6. Night lighting (recommended)
3.4.6.1. 1 stick on each side of the ladder at the bottom and 5' up from the bottom of the ladder.

NOTE: Chemlights should be placed perpendicular on the lateral sides of the ladder.

3.5. Helo-cast
3.5.1. Aircraft forms checked
3.5.2. Check doors for proper operations
3.5.3. Pad or tape edges/equipment that may impede deployment
3.6. T-duck
3.6.1. Aircraft forms checked

3.6.2. Check condition of anchor welds, and mounting hardware for cracks/dents
3.6.3. Check carabineers for freedom of movement (ensure barrels closed)
3.6.4. Check belay device for cracks/excessive wear
3.6.5. Check pelican hook for serviceability
3.6.6. Check belay rope for serviceability
3.6.7. Check sling extensions for serviceability
3.6.8. Pad or tape edges/equipment that may impede deployment
3.6.9. Check condition boat/harness/skid plates
3.6.10. Check single point quick release
3.6.11. Check air assembly for security/function
3.6.12. Night lighting (recommended)
3.6.12.1. 1 chemlight at inflation handle
3.6.12.2. 1 chemlight at quick release

3.7. REDS
3.7.1. Aircraft forms checked
3.7.2. Check condition of anchor welds, and mounting hardware for cracks/dents
3.7.3. Check carabineers for freedom of movement (ensure barrels closed)
3.7.4. Check belay device for cracks/excessive wear
3.7.5. Check pelican hook for serviceability
3.7.6. Check rope for serviceability
3.7.7. Check sling extensions for serviceability
3.7.8. Pad or tape edges/equipment that may impede deployment

3.7.9. Check condition package/harness
3.7.10. REDS secure (truckers hitch)
3.7.11. Check single point quick release
3.7.12. Night lighting (recommended)
3.7.12.1. 1 chemlight at quick release
3.8. S.P.I.E/STABO
3.8.1. Aircraft forms checked
3.8.2. Check condition of anchor welds, and mounting hardware for cracks/dents
3.8.3. Check carabineers for freedom of movement (ensure barrels closed)
3.8.4. Inspect condition of safety rope/line
3.8.5. Inspect suspension slings (SPIE only)
3.8.6. Inspect type iv links
3.8.7. Inspect condition of rope/drop sack (weight attached)

NOTE: SPIE - for water operations tie 3 LPU bladders to rope for buoyancy. Tie one flotation device at each end of the d-ring attachment point areas and one flotation device in the middle of the attachment point area, just above the middle two sets of d rings.

WARNING: The tensile strength of the SPIE rope is reduced when wet.

3.8.8. Ensure rope will deploy freely (back coiled)

3.8.9. Pad or tape edges/equipment to prevent rope damage

3.8.10. Night lighting (recommended)

3.8.10.1. 2 sticks at the bottom of the rope and 1 stick three feet from the first set of d-rings

3.9. Next briefing/checklist

3.9.1. AIE Master Aircraft Inspection Checklist (*page 179*)

AIE Master Aircraft Inspection Checklist

(*brief applicable items only)*

4.1. Maintenance status - check maintenance records or with flight engineer/loadmaster
4.2. Aircraft exterior
  4.2.1. Exits - secure, remove, or tape loose/dangling wires, projections, and sharp edges and objects, which could interfere with exit
  4.2.2. Chaff/flare dispensers
4.3. Aircraft interior
  4.3.1. Seats/equipment - removed/configured
  4.3.2. Attachment points - checked
  4.3.3. Anchor devices - condition and security
  4.3.4. V blade knife - available
  4.3.5. Support straps - checked
  4.3.6. Safety belts/gunners belts - positioned
  4.3.7. Aircraft floor - clear and clean
  4.3.8. Troop seat and tie-down fitting wells - tape wells in front of doors and any that may snag equipment, personnel, or AIE equipment
  4.3.9. Doorjambs, cargo door edges, and sharp edges - tape as necessary

NOTE: Tape must not interfere with opening or closing doors in flight.

4.3.10. Weather stripping on cargo door edges (if installed) - tape as necessary

NOTE: Tape must not interfere with opening or closing doors in flight.

4.3.11. Cargo compartment lighting
4.3.12. Mission equipment - inventoried, positioned, and secured
4.3.13. Intercom - available and operational
4.3.14. AIE kit - inventoried, positioned, and secured

4.4. Next briefing/checklist
4.4.1. AIE Safety Man Checklist (*page 180*)

AIE Safety Man Checklist

(*brief applicable items only)*

NOTE: AIE Master must ensure safety check complete prior to "one minute" call. (insertions only)

5.1. Hoist/rescue devices
- 5.1.1. Forest penetrator
  - 5.1.1.1. Attached and secure to hoist
  - 5.1.1.2. Straps over at least one shoulder
  - 5.1.1.3. Restraining devices clear and accessible
  - 5.1.1.4. Exit free and clear
  - 5.1.1.5. Personnel
    - 5.1.1.5.1. Helmet (required for multiple iterations-land)
    - 5.1.1.5.2. Eye protection
- 5.1.2. Rescue strop/horse collar
  - 5.1.2.1. Attached and secure to hoist
  - 5.1.2.2. Properly fitted
    - 5.1.2.2.1. Single person per strop
    - 5.1.2.2.2. Hoist hook to front of PJ
  - 5.1.2.3. Restraining devices clear and accessible
  - 5.1.2.4. Exit free and clear
  - 5.1.2.5. Personnel
    - 5.1.2.5.1. Helmet (required for multiple iterations-land)
    - 5.1.2.5.2. Eye protection

5.1.3. Stokes litter
5.1.3.1. Attached and secure to hoist
5.1.3.2. Straps properly positioned
5.1.3.3. Tag line attached
5.1.3.4. Exit free and clear
5.1.4. Barrelman
5.1.4.1. Attached and secure to hoist hook (separate attachments for stokes and personnel)

WARNING: The hoist hook is the only authorized attachment point. The hoist eye is not rated.

5.1.4.2. Restraining devices clear and accessible
5.1.4.3. Exit free and clear
5.1.4.4. Personnel
5.1.4.4.1. Helmet (required for multiple iterations-land)
5.1.4.4.2. Eye protection
5.1.4.4.3. Climbing harness properly fitted
5.1.4.4.3.1. Leg straps attached and secure
5.1.4.4.3.2. Waist strap properly routed/safetied
5.1.4.4.3.3. Carabineers properly attached and locked
5.2. Fast rope
5.2.1. Attached and secure
5.2.2. Coiled head-to-toe
5.2.3. Restraining devices clear and accessible
5.2.4. Exit free and clear

5.2.5. Personnel
5.2.5.1. Helmet (required for multiple iterations-land)
5.2.5.2. Eye protection
5.2.5.3. Heavy duty gloves
5.3. Rappel
5.3.1. Ropes attached and secure

NOTE: Safety rope attachment point will not be same part of structure as main attachment location.

5.3.2. Restraining devices clear and accessible
5.3.3. Exit free and clear
5.3.4. Personnel
5.3.4.1. Helmet (required for multiple iterations-land)
5.3.4.2. Eye protection
5.3.4.3. Heavy duty gloves
5.3.4.4. Climbing harness properly fitted
5.3.4.4.1. Leg straps attached and secure
5.3.4.4.2. Waist strap properly routed/safetied
5.3.4.4.3. Carabineers properly attached and locked
5.3.4.4.4. Descending device properly configured
5.3.4.5. Brake hand set
5.4. Rope ladder
5.4.1. Attached and secure

5.4.2. Properly rolled for deployment
5.4.3. Restraining devices clear and accessible
5.4.4. Exit/entrance free and clear
5.4.5. Personnel
5.4.5.1. Helmet (required for multiple iterations-land)
5.4.5.2. Eye protection
5.5. Helo-cast
5.5.1. Restraining devices clear and accessible
5.5.2. Exit free and clear
5.5.3. Personnel
5.5.3.1. Mask accessible
5.5.3.2. Snorkel accessible
5.5.3.3. Fins attached
5.5.3.4. Knife accessible
5.5.3.5. Mk-13 flare or equivalent
5.5.3.6. UDT vest/personal flotation
5.5.3.7. Appropriate environmental suit for conditions
5.6. T-duck
5.6.1. Attached and secure
5.6.2. Belay device/fastrope properly configured
5.6.3. Restraining devices clear and accessible
5.6.4. Exits free and clear
5.7. REDS
5.7.1. Attached and secure
5.7.2. Belay device/fastrope properly configured
5.7.3. Restraining devices clear and accessible

5.7.4. Exits free and clear
5.8. SPIE/STABO
5.8.1. Attached and secure
5.8.2. Restraining devices clear and accessible
5.8.3. Entrance free and clear
5.8.4. Personnel
5.8.4.1. Helmet (required for multiple iterations-land)
5.8.4.2. Eye protection

Dive Supervisors Briefing

(*brief applicable items only)*

NOTE: Minimum personnel required for SCUBA operations are; two (2) divers, one (1) dive supervisor, and one (1) standby diver and dive medic, i.e., PJ (can be the same individual).

1.1. Roll call
1.2. Currency and qualifications
  1.2.1. Training and currency requirements - checked
  1.2.2. Equipment restrictions
  1.2.3. Crew rest and duty limitations
1.3. DNIF/medication/clear ears
1.4. Fly-dive restrictions
1.5. Mission objective
  1.5.1. Type
    1.5.1.1. Search
    1.5.1.2. Recovery
    1.5.1.3. Deep
    1.5.1.4. Compass swim
    1.5.1.5. Altitude
  1.5.2. Required time on target
  1.5.3. Location
    1.5.3.1. Name/coordinates/elevation
    1.5.3.2. Markings and features
    1.5.3.3. Depth

1.5.3.4. Bottom type
1.5.3.5. Recognition symbol
1.5.3.6. Known hazards
1.5.3.7. Range procedures/requirements
1.5.3.8. Alternate locations
1.5.3.9. Weather
1.5.3.9.1. Forecast
1.5.3.9.2. Illumination
1.5.3.9.3. Temperatures (surface/water)
1.5.3.9.4. Winds
1.5.3.9.5. Cloud cover
1.5.3.9.6. Precipitation
1.5.3.9.7. Visibility
1.5.3.9.8. Sea state
1.5.3.9.8.1 Tides
1.5.3.9.8.2. Current
1.5.3.9.8.3. Waves
1.5.3.9.8.4. Surf
1.5.3.10. Anticipated conditions
1.5.3.11. Anticipated hazards
1.6. Date/times
1.7. Team information
1.7.1. Number involved
1.7.2. Duties and responsibilities
1.7.2.1. Team leader
1.7.2.2. Dive supervisor/assistant dive sup.

NOTE: When more than one diving platform is required because of the nature of the operation, e.g., launch and recovery from different locations or a large number of divers, one or more assistant diving supervisors will be assigned and will perform diving supervisor duties.

1.7.2.3. DMT/medic
1.7.2.4. Safety diver

NOTE: The standby or safety diver will be proficient and current for the type of SCUBA used during the dive. The safety diver's function is to provide emergency assistance to divers and perform no other work. The standby or safety diver will: attend the entire dive or operation briefing, be briefed and knowledgeable of the rescue procedures for the SCUBA equipment being used by the divers, and be positioned as near as possible to the dive station and dressed; with exception of SCUBA cylinders, fins, and facemask; for immediate entry into the water after being briefed by the diving supervisor.

1.7.2.5. Tenders
1.7.2.6. Boat drivers
1.7.2.6.1. Float plan

NOTE: A safety boat is mandatory for any dive conducted in open water (open water is considered beyond the

distance in which a safety swimmer can effectively be used from the shore).

1.7.2.7. Vehicle drivers
1.7.2.8. Tank jammers
1.7.2.9. Time keepers
1.7.2.10. Dive teams
1.8. Communications
1.8.1. Radio(s): type, quantity, and frequencies
1.8.2. Secure/non-secure
1.8.3. Radio check
1.8.4. Dive site frequencies
1.8.5. Boat frequencies
1.8.6. Hyperbaric chamber
1.8.7. Team call sign/frequencies
1.8.8. Communications failure
1.8.9. Radio discipline
1.8.10. Dive signals
1.8.10.1. Standard hand and arm
1.8.10.2. Line pulls
1.8.10.3. Emergency signals (day/night)
1.8.10.3.1. Diver recall
1.8.10.3.2. Boat traffic
1.8.10.4. Special signals
1.8.11. Medical evacuation
1.8.11.1. Recompression chamber
1.8.11.2. Hospital
1.8.11.3. Air/surface transportation

1.8.11.4. Maps/route of travel
1.8.11.5. Diving units
1.9. Individual dive profile
1.9.1. Number of dives
1.9.1.1. Single dive
1.9.1.2. Multiple iterations
1.9.2. Task assignments
1.9.3. Buddy assignments
1.9.4. Type search
1.9.4.1. Circle
1.9.4.2. Sweep
1.9.4.3. Snag
1.9.4.4. Straight
1.9.4.5. Grid
1.9.4.6. Boat
1.9.4.7. Combination
1.9.5. Max depth

NOTE: Any time a diver goes below 500 psi, the diver must immediately return to the surface.

1.9.6. Max time
1.9.7. Dive platform
1.9.8. Entry/exit procedures
1.9.9. Repetitive dive
1.9.9.1. Residual nitrogen designation
1.9.9.2. Surface interval
1.9.9.3. Repeat A-E

1.9.10. Emergency procedures
1.9.10.1. Lost diver
1.9.10.2. Entrapped diver
1.9.10.3. Unconscious diver
1.9.10.4. Loss of air
1.9.10.5. Aborted dive
1.9.10.6. Injured diver
1.9.10.7. Blow-up: BC/dry suit
1.9.10.8. Flooded rig
1.9.10.9. Surface emergencies
1.9.10.9.1. Capsized boat
1.9.10.9.2. Fire
1.9.10.9.3. Sinking boat
1.9.10.10. Dive injuries
1.9.10.10.1. Mask/ear/sinus squeeze
1.9.10.10.2. Carbon monoxide poisoning
1.9.10.10.3. Carbon dioxide poisoning
1.9.10.10.4. Hypoxia/asphyxia
1.9.10.10.5. Nitrogen narcosis
1.9.10.10.6. Decompression sickness
1.9.10.10.7. Age
1.9.10.10.8. Caustic cocktail
1.9.10.10.9. Oxygen toxicity
1.9.10.10.10. Hazardous marine life
1.9.10.11. Equipment malfunctions
1.9.10.11.1. Regulator/air supply/BC
1.9.10.11.2. Mask/fins
1.9.10.11.3. Lost buoy

1.10. Sequence of events/time line
  1.10.1. Pre-dive
  1.10.2. Dive
  1.10.3. Post dive
1.11. Next briefing/checklist
  1.11.1. Dive Equipment Checklist (*page 191*)

Dive Equipment Checklist

(*brief applicable items only)*

2.1. Air Cylinders

2.1.1. Inspect air cylinder exteriors and valves for rust, cracks, dents, and any evidence of weakness.

2.1.2. Inspect O-ring.

2.1.3. Verify that the reserve mechanism is closed (lever in up position) signifying a filled cylinder ready for use.

2.1.4. Gauge the cylinders according to the following procedure:

2.1.4.1. Attach pressure gauge to O-ring seal face of the on/off valve.

2.1.4.2. Close gauge bleed valve and open air reserve mechanism (lever in down position).

2.1.4.3. Slowly open the cylinder on/off valve, keeping a cloth over the face of the gauge.

2.1.4.4. Read pressure gauge - the cylinder must not be used if the pressure is not sufficient to complete the planned dive (75% of rated capacity).

2.1.4.5. Close the cylinder on/off valve and open the gauge bleed valve.

2.1.4.6. When the gauge reads zero, remove the gauge from the cylinder.

2.1.4.7. Close the air reserve mechanism (lever in up position).

2.1.4.8. If the pressure in cylinders is 50 psi or greater over rating, open the cylinder on/off valve to bleed off excess and regauge the cylinder.

2.2. Harness Straps and Backpack.

2.2.1. Check for signs of rot and excessive wear.

2.2.2. Adjust straps for individual use and test quick-release mechanisms.

2.2.3. Check backpack for cracks and other unsafe conditions.

2.3. Breathing Hoses.

2.3.1. Check the hoses for cracks and punctures.

2.3.2. Test the connections of each hose at the regulator and mouthpiece assembly by tugging on the hose.

2.3.3. Check the clamps for corrosion and damage

2.4. Regulator.

2.4.1. Attach regulator to the cylinder manifold, ensuring that the O-ring is properly seated.

2.4.2. Crack the cylinder valve open and wait until the hoses and gauges have equalized.

2.4.3. Next open the cylinder valve completely and then close (back off) one-quarter turn.

2.4.4. Check for any leaks in the regulator by listening for the sound of escaping air

NOTE: If a leak is suspected, determine the exact location by submerging the valve assembly and the regulator in a tank of water and watch for escaping bubbles.

NOTE: Frequently the problem can be traced to an improperly seated regulator and is corrected by closing the valve, bleeding the regulator, detaching and reseating. If the leak is at the O-ring and reseating does not solve the problem, replace the O-ring and check again for leaks.

2.5. Life Preserver/Buoyancy Compensator (BC)

2.5.1. Orally inflate preserver to check for leaks and then squeeze out all air.

NOTE: The remaining gas should be removed after entry into the water by rolling onto the back and depressing the oral inflation tube just above the surface.

WARNING: Never suck the air out, as it may contain excessive carbon dioxide.

2.5.2. Inspect the carbon dioxide cartridges to ensure they have not been used (seals intact) and are the proper size for the vest being used and for the depth of dive.

2.5.3. The cartridges shall be weighed in accordance with the Planned Maintenance System.

2.5.4. The firing pin should not show wear and should move freely.

2.5.5. The firing lanyards and life preserver straps must be free of any signs of deterioration.

NOTE: Life preservers should never be used as a buffer, cradle, or cushion for other gear.

2.6. Face Mask.

2.6.1. Check the seal of the mask and the condition of the head strap.

2.6.2. Check for cracks in the skirt and faceplate.

2.7. Swim Fins.

2.7.1. Check straps for signs of cracking.

2.7.2. Inspect blades for signs of cracking.

2.8. Dive Knife.

2.8.1. Test the edge of the knife for sharpness.

2.8.2. Ensure the knife is fastened securely in the scabbard.

2.9. Snorkel.

2.9.1. Inspect the snorkel for obstructions.

2.9.2. Check the condition of the mouthpiece.

2.10. Weight Belt.

2.10.1. Check the condition of the weight belt.

2.10.2. Make sure that the proper number of weights are secure and in place.

2.10.3. Verify that the quick-release buckle is functioning properly.

2.11. Submersible Wrist Watch.
2.11.1. Ensure wrist watch is wound and set to the correct time.
2.11.2. Inspect the pins and strap of the watch for wear.
2.12. Depth Gauge and Compass.
2.12.1. Inspect pins and straps.
2.12.2. If possible, check compass with another compass.
2.12.3. Make comparative checks on depth gauges to ensure depth gauges read zero fsw on the surface.
2.13. Miscellaneous Equipment.
2.13.1. Inspect any other equipment that will be used on the dive as well as any spare equipment that may be needed during the dive including spare regulators, cylinders, and gauges.
2.13.2. Check all protective clothing, lines, tools, flares, and other optional gear.
2.14. Next briefing/checklist
2.14.1. Pre-dive Inspection (*page 195*)

Pre-dive Inspection

(*brief applicable items only)*

3.1. Ensure that the divers are physically and mentally ready to enter the water
3.2. Verify that all divers have all minimum required equipment
- 3.2.1. SCUBA
- 3.2.2. Face mask
- 3.2.3. Life preserver or buoyancy compensator
- 3.2.4. Weight belt
- 3.2.5. Dive knife w/scabbard
- 3.2.6. Swim fins
- 3.2.7. Watch
- 3.2.8. Depth gauge
- 3.2.9. MK-13 flare or equivalent
- 3.2.10. Whistle

NOTE: When diving SCUBA and a buddy line are used, only one depth gauge and one watch per dive team are required.

NOTE: For diving operations conducted between sunset and sunrise, flashlights or diving lights are mandatory for the diving supervisor and medic, and chemlights or dive lights are mandatory for each diver.

3.3. Verify cylinders have been gauged and available volume of air is sufficient for the planned duration of dive

3.4. Ensure quick-release buckles and fastenings can be reached by either hand and are properly rigged for quick release

3.5. Verify weight belt is outside of all other belts, straps, and equipment and will not become pinched under the bottom edge of the cylinders

3.6. Verify life preserver or buoyancy compensator is not constrained and is free to expand, and air has been evacuated

3.7. Check position of knife to ensure it will remain with the diver no matter what equipment is left behind

3.8. Ensure cylinder valve is open fully and backed off one-quarter to one-half turn

3.9. Ensure hose supplying air passes over the diver's right shoulder and the exhaust hose on the double-hose unit passes over the left shoulder

NOTE: Double-hose regulators are attached so that the exhaust ports face up when the tank is standing upright.

3.10. With mouthpiece or full face mask in place, breathe in and out for several breaths, ensuring that the demand regulator and check valves are working correctly

3.11. With a single-hose regulator, depress and release the purge button at mouthpiece and listen for sound of

leaking air - breathe in and out several times ensuring valves are working correctly
3.12. Give breathing hoses and mouthpiece a final check; ensure none of the connections have been pulled open during the process of dressing
3.13. Ensure air reserve mechanism lever is up (closed position)
3.14. Conduct a brief final review of the dive plan
3.15. Verify dive signals are displayed and personnel and equipment are ready to signal other vessels in the event of an emergency

Attachment A - Operational/Training Restrictions

A.1. Parachuting - Training Minimums/Maximums

A.1.1. Surface wind criteria

A.1.1.1. Static Line

A.1.1.1.1. Land - 13 knots

A.1.1.1.2. Tree - 17 knots

A.1.1.1.3. Water - 25 knots

A.1.1.2. Freefall

A.1.1.2.1. Land - 17 knots

A.1.1.2.2. Tree - 22 knots

A.1.1.2.3. Water - 25 knots

A.1.1.3. Equipment

A.1.1.3.1. Standard - 17 knots

A.1.1.3.2. CDS w/G-12 - 13 knots

A.1.1.3.3. CDS w/G-13/14 - 20 knots

A.1.1.4. Tandem Catching - 10 knots and above for training

A.1.2. Minimum airdrop altitudes

NOTE: Specific data for aircraft minimum deployment altitudes and airspeeds are contained in AFI 11-231. Review individual aircraft requirement versus parachute limitations prior to airdrop.

A.1.2.1. Parabolic/round parachute
A.1.2.1.1. 1000’ AGL when weather is a factor
A.1.2.1.2. 800’ AGL w/Command Decision Risk Assessment
A.1.2.1.3. 1500’ AGL - drop speed 90 knots or less
A.1.2.1.4. 1250’ AGL - drop speed greater than 90 knots
A.1.2.2. Freefall square
A.1.2.2.1. (3000’)AGL - planned clear and pulls w/ Command Decision Risk Assessment
A.1.2.2.2. 5000’ AGL - with Automatic Activation Device
A.1.2.3. RAMZ
A.1.2.3.1. Static Line - 800’ AWL
A.1.2.3.2. Freefall - 3000’AWL
A.1.3. Minimum pack opening altitudes
A.1.3.1. Static line square - 2500’ AGL
A.1.3.2. Freefall square - 2500’ AGL
A.1.4. Automatic activation devices
A.1.4.1. Minimum activation - 2500’ AGL /2500’ AWL(FF-2)
A.1.4.2. Safe arming - 2500’ above activation altitude (3500’ recommended)

A.1.5. Maximum altitude static line operations - 25,000' MSL

A.1.6. Aircraft airspeed limitations

A.1.6.1. HC-130 - 125 KIAS is standard (MOS is absolute minimum)

A.1.6.2. C-130 - 130 KIAS minimum

A.1.6.3. H-60 - 65 KIAS minimum and 75 KIAS maximum (70 KIAS optimum)

A.1.6.4. H-1 - 50 KIAS minimum and 70 KIAS maximum (70 KIAS optimum)

A.1.6.5. CH-53 (USMC) - 80 KIAS minimum and 110 KIAS maximum (90 KIAS optimum)

A.1.6.6. C-141 - 130-135 KIAS w/75% flaps

A.1.6.7. MC1-1C parachutes - 135 KIAS maximum

WARNING: MC-1C parachutes must not be jumped from aircraft that cannot fly at or below this air speed. This air speed restriction must be emphasized to aircrews during mission planning and briefing.

A.1.7. High altitude airdrops (waiver required above 25,000' MSL)

A.1.7.1. Waiver - required 25,000' MSL or higher

A.1.7.2. Physiological technician requirements and briefings (required at or above 18,000' MSL IAW AFI 11-409)

A.1.8. Parachuting - operational minimums/maximums

A.1.8.1. Parabolic/round parachute

A.1.8.1.1. T-10C - 435’ AGL at 125 KIAS
A.1.8.1.2. MC1-1B/C - 475” AGL at 125 KIAS
A.1.8.1.3. 1500’ AGL - drop speed 90 knots or less
A.1.8.2. Minimum pack opening altitudes - freefall
A.1.8.2.1. Static line square - 1250’ AGL
A.1.8.2.2. Freefall square - 2500’ AGL
A.1.8.2.3. Tandem- 4500’ AGL
A.1.9. Aerial/cargo delivery
A.1.9.1. Cargo parachutes
A.1.9.1.1. G-8/M390 - maximum 100 lbs
A.1.9.1.2. T-7A - minimum 100 lbs, maximum 500 lbs
A.1.9.1.3. G-13 - minimum 200 lbs, maximum 500 lbs
A.1.9.1.4. G-14 - minimum 200 lbs, maximum 500 lbs
A.1.9.1.5. T-10C - minimum 90 lbs, maximum 350 lbs
A.1.9.1.6. G-12 - minimum 501 lbs, maximum 2200 lbs
A.1.9.2. Aerial delivery containers
A.1.9.2.1. A-7A - maximum 500 lbs
A.1.9.2.2. A-10 - maximum 300 lbs
A.1.9.2.3. A-13 - maximum 100 lbs
A.1.9.2.4. A-16 - maximum 200 lbs
A.1.9.2.5. A-21 - maximum 500 lbs
A.1.9.2.6. A-22 - minimum 625 lbs, maximum 2200 lbs

A.1.9.2.7. Akio scow - maximum 200 lbs

A.2. AIE - Training Minimums/Maximums

A.2.1. Hoist
- A.2.1.1. Aircraft/hoist dependent
- A.2.1.2. Airspeed will not exceed 40 KIAS

A.2.2. Fast rope
- A.2.2.1. Aircraft/rope dependent
- A.2.2.2. Maximum 5 KIAS

A.2.3. Rappel - aircraft/rope dependent

A.2.4. Rope ladder
- A.2.4.1. Aircraft/ladder dependent
- A.2.4.2. Limited to 3 personnel on ladder at same time

A.2.5. Helo-cast- maximum 10’ AWL and 10 KIAS

A.2.6. T-duck
- A.2.6.1. Aircraft/rope dependent
- A.2.6.2. Maximum 30’ AWL and 5 KIAS

CAUTION: When deploying t-duck by helo-cast method do not exceed 15’ AWL and 10 KIAS.

A.2.7. REDS - aircraft/equipment dependent

A.2.8. F.R.I.E.S
- A.2.8.1. Airspeed will not exceed 80 KIAS
- A.2.8.2. Extraction is limited to 100’ terrain/obstacle clearance

A.2.8.3. Approach is limited to 250’ terrain/obstacle clearance

A.2.8.4. Aircraft rate of descent should be less than 150' per minute

A.2.9. SPIE

A.2.9.1. Airspeed will not exceed 70 KIAS (50 KIAS - below 60 degrees F)

A.2.9.2. Extraction is limited to 100’ terrain/obstacle clearance

A.2.9.3. Approach is limited to 250’ terrain/obstacle clearance

A.2.9.4. Aircraft rate of descent should be less than 150' per minute

A.2.10. STABO

A.2.10.1. Airspeed will not exceed 70 KIAS (50 KIAS - below 60 degrees F)

A.2.10.2. Extraction is limited to 100’ terrain/obstacle clearance

A.2.10.3. Approach is limited to 250’ terrain/obstacle clearance

A.2.10.4. Aircraft rate of descent should be less than 150' per minute

WARNING: Altitude deviations while personnel are on the ropes will have an adverse effect on their ability to brake and can cause serious injury.

WARNING: It is the aircraft commander's responsibility to ensure all crewmembers are aware of the length of ropes. Failure to do so may result in serious injury to deploying personnel and/or damage to the aircraft.

A.3. DZ Operations

A.3.1. General

A.3.1.1. Unilateral operations - DZC/DZSO/malfunction officer can be one in the same

A.3.2. Medical and evacuation

A.3.2.1. Fixed-wing

A.3.2.1.1. Vehicle/boat suitable for evacuating injured jumpers w/driver adjacent to the drop zone during all fixed wing training jumps

EXCEPTION: When the drop zone being utilized is a suitable runway for the drop aircraft and communications will be maintained until conclusion of the jump portion.

A.3.2.2. Rotary-wing

A.3.2.2.1. Vehicle/boat suitable for evacuating injured jumpers w/driver adjacent to the drop zone for helicopter jumps if a suitable landing site is not available

A.3.2.2.2. Medical equipment may be pre-positioned aboard the helicopter for helicopter

deployments if there is a suitable landing site available at the DZ

A.4. Diving - training minimums/maximums

A.4.1. General

A.4.1.1. Repetitive dives within 12 hours - authorized, provided they fall within the no-decompression limits

A.4.1.2. Flying after diving - refer to IAW AFI 11-403 and AFI 11-202v3, chapter 9

A.4.1.3. Minimum of two swimmers or divers per team in the water

A.4.1.4. Altitude dives will not be accomplished above 10,000 feet MSL

A.4.2. Wetsuit requirements

A.4.2.1. 70 degrees F or above - team leader decision

A.4.2.2. 60-70 degrees F - wetsuit top

A.4.2.3. 40-60 degrees F- quarter inch wetsuit or greater

A.4.2.4. 40 degrees f or below - dry suit w/gloves recommended

NOTE: A full wetsuit/dry suit/AAOPS suit should be worn on all operational missions. Also consider use if hazards such as fuel spills or marine life must be negotiated.

NOTE: To provide greater control when jumping, use of non-bulky three or five finger gloves should be used.

Attachment B - Conversion Tables

Standard Measures:

Temperature

Celsius to Fahrenheit (C x 9/5) + 32 = F
Fahrenheit to Celsius- (F - 32) x 5/9 = C

Length/Distances

Yards x 3 = Feet	Feet x .333 = Yards
Millimeters (MM) x 0.03937 = inches	Inches x 25.40 = MM
MM x 0.00328 = feet	Feet x 304.80 = MM
MM x 0.00109 = yards	Yards x 914.40 = MM
Centimeters (CM) x 0.8937 = Inches	Inches x 2.54 = CM
CM x 0.0328 = Feet	Feet x 30.48 = CM
CM x 0.0109 = Yards	Yards x 91.44 = CM
Meters x 39.37 = Inches	Inches x 0.025 = Meters
Meters x 3.28 = Feet	Feet x .3048 = Meters
Meters x 1.094 = Yards	Yards x 0.914 = meters
Statute Miles (SM) x 5280 = Feet	Feet x .000189 = SM
SM x 1760 = Yards	Yards x .000567 = SM
Nautical Miles (NM) x 6080 = Feet	Feet x .000164 = NM
SM x .8684 = NM	NM x 1.151 = SM
Kilometers (KM) x 0.62 = Miles	Miles x 1.609 = KM

Area

Sq Mm X 0.00155 = Sq Inch	Sq Inch X 645.16 = Sq Mm
Sq Mm X 0.155 = Sq Inch	Sq Inch X 6.452 = Sq Centimeters
Sq Meters X 1550.0 = Sq Inch	Sq Inch X 0.00065 = Sq Meters
Sq Meters X 10.746 = Sq Feet	Sq Feet X 0.093 = Sq Meters
Sq Meters X 1.196 = Sq Yards	Sq Yards X 0.836 = Sq Meters
Sq Kilometers X 0.386 = Sq Miles	Sq Miles X 2.59 = Sq Kilometers

Attachment C - Helicopter Call for Fire

PJ: _____ This is _____, Fire Mission

HELO: Send it

PJ: My position marked by _____ bearing _____ degrees, at _____meters

Target Description_____

Target Location_____ marked by _____

HELO: Have you, I have the target

PJ: Cleared Hot

ADJUSTMENTS TO FIRE

All adjustments are made relative to "Observer (PJ) to Target" heading.

Left / Right _____ Meters

Add / Drop _____ Meters

GENERAL CALL FOR FIRE PHRASEOLOGY

Phraseology:

Tally: Have targets in sight.

Visual: Have friendlies in sight.

Contact: Have reference point in sight.

Rope: Using an IR pointer to ID your position by circling it around the Acft cockpit.

Sparkle: Term used to mean any IR pointer such as a PACK 4 or Ground Command Pointer. In close air support, a laser is a coded marking devise that is not in the IR light spectrum. A sparkle is visible with NVGs only.

Snake: Using the Sparkle to mark a reference point or a target, by moving it around on the ground. You can **snake** an area for a pilot when they are coming in to land or hoist (don't shine it in team member's eyes though).

Will co: I understand your x-mission, and will comply with your x-mission. (Never say Roger-will co).

Say flight conditions: Used to request a Pilot Report, or Pirep. If WX is sketchy, this is a good thing to know.

Say Weapons Status: The pilot should respond with the number of rounds remaining.

Say Fuel Status: The pilot should respond with fuel remaining in minutes, before he has to leave.

Reminders;

AIRCRAFT DELIVERED ORDNANCE

Item	Description	Min. Safe	Distance (M) 0.1% Pi
M-82 LD	500 LB. Bomb	250	425
MK-82 HD	500 LB. Bomb (Retarded)	100	375
MK-82 LGB	500 LB. Bomb (GBU-12)	*	*
MK-83 LD	1000 LB. Bomb	275	500
MK-83 HD	1000 LB. Bomb (Retarded)	275	500
MK-83 LGB	1000 LB. Bomb (GBU-16)	275	500
MK-84	2000 LB. Bomb	275	500
MK-84 LGB	2000 LB. Bomb (GBU-10/22)	*	
MK-20**	Rockeye (Anti-Armor CBU)	*	
MK-77	500 LB. Napalm	*	
CBU-55/77**	Fuel-Air Explosive (FAE)	0	150
CBU-XX**	Cluster Bomb Unit (All)	*	
2.75 FFAR	Rockets W/ Various Warheads	100	175
5 FEAR	Zuni W/ Various Warheads	*	*
SUU-11	7.62 MM Mini-Gun	*	*
M-4, M012, SUU023, M-61	20 MM Gatling Gun	*	*
GAU-12	25 MM Gun	*	*
GPU-5A, GAU-8	30 MM Gatling Gun	*	*
AGM-65A/B/C/D/E/F	Maverick (TV, IR, Laser Guided)	*	*
MK-21/29	Walleye I (1000 LB. Bomb) TV Guided	275	500
MK-21/29	Walleye Ii (2400 LB. Bomb) TV Guided	*	*
AGM-123A	Skipper (1000 LB. Bomb, Laser Guided, Rocket Boosted)	275	500

LD-Low Drag LGB- Laser Guided Bomb
HD-High Drag, also snakeye and air inflatable retarder (air)
*** Minimum safe distances are to be determined**
**** Not recommended for use near troops in contact**

NOTE: Minimum safe distances are based on fragmentation pattern, within the contact of this table, the 5-minute assault criterion has been applied to a prone soldier, wearing winter clothing and a helmet, i.e., the probability of incapacitation (pl) means a soldier is unable to perform the bodily functions required in an assault within a 5-minute period after attack.

COMMUNICATIONS

PRC-113:

A. Characteristics:

1. Band - VHF/UHF-AM
2. Frequency range
   a. VHF - 116-149.975 MHz
   b. UHF - 225-399.975 MHz
3. Power output
   a. Low - 2 watts
   b. High - 10 watts
4. Power supply - BA-5590 (x2) batteries
5. Weight - 12 lbs

B. Display: The LCD indicates frequencies and modes. A visual low voltage alarm is indicated by a blinking decimal.

C. Manual mode operations:

1. Turn volume control clockwise
2. Press "ENTER"
3. Enter desired frequency (display will blink)
4. Press "ENTER"
5. Radio is now ready for use

D. Loading presets:

1. Turn volume control clockwise
2. Press "ENTER"
3. Enter desired frequency (display will blink)
4. Press "0/PST" (display will show "LP")
5. Enter a number (1-8) that you want as a preset
6. Repeat as necessary for other channels and frequencies

E. Selecting preset channels:

1. Press "0/PST" key
2. Press appropriate channel number
3. Press "ENTER"

F. HAVE QUICK operations:

1. Before operating in the active mode, you will be given the word of day (WOD). The WOD is entered into the radio set in channels 15 through 20, starting with 20 and working backward. The WOD may vary in length between one and six channels. Enter the WOD as follows:
   a. Enter first element of WOD into radio set.
   b. Load WOD into preset channel 20.
   c. Repeat above steps for channels 19-15 as required.

NOTE: Once the WOD has been entered, it cannot be recalled, so make sure it is loaded right the first time.

2. When time of day (TOD) is lost/required, perform the following steps to enter TOD into the radio:
   a. Request TOD from another station ("**SEND MICKEY**")
   b. Press the 8/TOD key
   c. Display will show "2T" or "3T"
   d. When TOD is received, display will show 'TOD'
   e. Press the ENT key
3. Enter the net as follows:
   a. Select the active mode (ACT)
   b. Manually enter a frequency containing the net number into the radio set. The display shows: (example) "295.300"
   c. The second, third, and fourth numbers indicate the net number.
4. With the WOD, TOD, and net entered into the radio set, press the 5/ACT key. The display will show: (example) "A95.300"

NOTE: If the A on the display is blinking and a tone is heard in the handset, TOD is not entered into the radio. Reenter TOD.

5. Your radio is now ready to operate in the active mode.
6. To change your net during active operation:

a. Repeat step "3" above
b. The display will now show (example) "A95.300"
c. The "A" will remain in the first position and override the first number entered. The second, third, and fourth numbers show the new set number.

7. To send TOD during the active or passive mode:
a. Press "3" then "ENT" to start the internal clock if no TOD has been previously set
b. Press the 9/DF key a tone will be heard in the handset.
c. Press the 9/DF key again to stop TOD transmission.

G. Additional functions:

1. "HWT" is for hard wire transfer. Pressing the "HWT" switch will not display anything on the display.
2. The "remote" connector on the R/T unit is for cable to external equipment in the HAVE QUICK mode.
3. When the "GD" is illuminated in the LCD, this means that you will be monitoring UHF guard only to transmit, program 243.000 into the radio.

NOTE: When using the PRC-113 in the secure line of sight mode, ensure you use an RF cable.

2. HAVE QUICK OPERATIONS FOR PRC-113

A. Single-WOD operation

1. Enter 220.050 into preset 20 (erase)

2. Enter 220.000 into preset 20 (single WOD mode)
3. Enter segments 20-15 from frequencies below
4. Enter the net number to be used NOTE: (this is not a preset)
5. Sender starts his clock by pressing "3" then "ENTER"
6. Sender and receiver do a radio check followed by the words **"Standby for Mickey"** from the sender
7. Receiver pushes the "8-TOD" button
8. Sender pushes the"9-DF" button
9. Receiver announces either **"Mickey received"** or **"negative Mickey."**
10. If the Mickey is received, both users go active by pressing the "5-ACT" button.
11. If negative Mickey is received, reaccomplish the above steps as required.
12. FREQUENCY SEGMENTS (WOD)

CHANNEL	FREQUENCY
20	300.050
19	385.525
18	310.075
17	366. 825
16	310.075
15	263. 575

13. NET NUMBERS

NET	FREQUENCY
Net 1	300.100
Net 2	300.200
Net 3	300.300
Net 4	300.400

NOTE: The above frequencies and net numbers are for training only.

PRC-117D

A. Characteristics:

1. Band
   a. VHF LOW FM
   b. VHF HI AM OR FM
   c. UHF AM/ UHF SAT
2. Frequency range
   a. 30 - 89.975
   b. 116 - 173.995
   c. 225 - 419.995
3. Power output
   a. LOW LOS - 1 WATT
   b. HIGH LOS - 10 WATTS
   c. LOW SATCOM - 4 WATTS
   d. HIGH SATCOM - 20 WATTS
4. Power supply - 12VDC BA-5590
5. Weight - 15.25 LBS WITH BATTERY AND ANTENNA PACK

B. Power On/ Self Test:

1. Attach FM whip or blade and UHF/ VHF multi-tenna
2. Attach handset to AUDIO/DATA connector
3. Turn radio ON
4. Watch display for conditions
   a. _____...THEN,
   b. 13.0V battery voltage (range for good battery is 12.2 - 13.6 volts) indicate a good radio

5. Fault indications/errors
   a. _____ then nothing,
   b. Check display DIM setting A01 to A10 after battery voltage indicate card fault
   c. HUB LOW/ NO HUB indicates CRYPTO battery bad

NOTE: Do not use TEST/LOAD switch to check radio. Fault indication can be given even if radio is good.

C. VHF LOW FM FREQUENCY PROGRAMMING:

1. Channel select M - 7
2. XMIT power LOW OR HIGH
3. Mode select PRGRM
4. COMSEC mode A/R
5. Push and hold TEST/ load until radio op appears in display

NOTE: After any changes in the following steps, push the TEST/ LOAD button.

6. Toggle MHz to AM SQ>, toggle KHz to LOW
7. Toggle MHz to ZERO>, toggle KHz to NO
8. Toggle MHz to BAT>, toggle KHz to LITH
9. Push DISPLAY until CH setup shows in display
10. Toggle MHz to TYP>, toggle KHz to SINGLE
11. Toggle MHz to ,>, toggle KHz to OFF
12. Toggle MHz to SPC>, toggle KHz to 500

13. Toggle MHz to MODM>, toggle KHz to OFF
14. Allow display to go out
15. Push DISPLAY
16. Select frequency - toggle MHz/KHz to desired frequency
17. Push TEST/ LOAD while display is on to store frequency

****STOP HERE FOR SIMPLEX OPS, CONTINUE FOR HALF DUPLEX OPS****

18. Push DISPLAY
19. Key and hold handset PTT
20. Toggle XMIT frequency by MHz/ KHz switches
21. Press TEST LOAD to store
22. Release handset PTT, receive frequency will show in display
23. Key handset, transmit frequency will show in display
24. Release handset PTT
25. Put MODE SELECT into desired squelch mode

D. VHF HI AM (ATC) frequency programming:

1. Channel select M - 7
2. XMIT power LOW OR HIGH
3. Mode select PRGRM
4. COMSEC mode A/R
5. Push and hold TEST/ LOAD until RADIO OP appears in display

NOTE: After any changes in the following steps, push the TEST/ LOA/D button

6. Toggle MHz to AM SQ>, toggle KHz to LOW
7. Toggle MHz to ZERO>, toggle KHz to NO
8. Toggle MHz to BAT>, toggle KHz to LITH
9. Push DISPLAY until CH SETUP shows in display
10. Toggle MHz to TYP>, toggle KHz to SNGL
11. Toggle MHz to *>, toggle KHz to OFF
12. Toggle MHz to SPC>, toggle KHz to 500
13. Toggle MHz to MODM>, toggle KHz to OFF
14. Allow DISPLAY to go out
15. Push DISPLAY
16. Select frequency toggle MHz/ KHz to desired frequency
17. Push TEST/LOAD while display is ON to store frequency
18. Push DISPLAY UNTIL MODE>, toggle KHz to AM
19. Push TEST/ LOAD to retain AM
20. Push DISPLAY until frequency is shown
21. Allow display to go out
22. Put MODE SELECT in NOISE

E. VHF HI FM (SABER) frequency programming:

NOTE: When operating in this mode, you must be in PLAIN TEXT. 117 and SABER CRYPTOS are incompatible

1. Channel select M 7
2. XMIT power LOW OR HIGH
3. Mode select PRGRM
4. COMSEC mode PLAIN
5. Push and hold TEST/LOAD until RADIO OP appears in display

NOTE: After any changes in the following steps, push the TEST/LOAD button

6. Toggle MHz to AM SQ>, toggle KHz to LOW
7. Toggle MHz to ZERO>, toggle KHz to NO
8. Toggle MHz to BAT>, toggle KHz to LITH
9. Push DISPLAY, UNTIL CH SETUP shows in display
10. Toggle MHz to TYP>, toggle KHz to SNGL
11. Toggle MHz to *>, toggle KHz to OFF
12. Toggle MHz to SPC>, toggle KHz to 625
13. Toggle MHz to MODM>, toggle KHz to OFF
14. Allow display to go out.
15. Push DISPLAY
16. Select frequency - toggle MHz/KHz to desired frequency
17. Push TEST/LOAD while display is ON to store frequency

18. Push DISPLAY until mode>, toggle KHz to FM
19. Push TEST/LOAD to retain FM
20. Push DISPLAY until frequency is shown
21. Allow display to go out
22. Put MODE SELECT in NOISE

F. UHF AM (ATC) FREQUENCY PROGRAMMING:

NOTE: If Operating In UHF AM SECURE, there must be an RF filter cable in line with the handset.

1. Channel select M - 7
2. XMIT power LOW OR HIGH
3. Mode select PRGRM
4. COMSEC mode A/ R
5. Push and hold TEST/ LOAD until RADIO OP appears in display

NOTE: After any changes in the following steps, push the TEST/LOAD button.

6. Toggle MHz to AM SQ>, toggle KHz to LOW
7. Toggle MHz to ZERO>, toggle KHz to NO
8. Toggle MHz to BATT, toggle KHz to LITH
9. PUSH DISPLAY, UNTIL CH SETUP SHOWS IN DISPLAY
10. Toggle MHz to TYP> , toggle KHz to SNGL
11. Toggle MHz to * >, toggle KHz to OFF

12. Toggle MHz to SPC>, toggle KHz to 500
13. Toggle MHz to MODM>, toggle KHz to OFF
14. Allow DISPLAY to GO OUT
15. Push DISPLAY
16. Select frequency - toggle MHz/KHz to desired frequency
17. Push TEST/LOAD while display is ON to store frequency
18. Put MODE SELECT in NOISE

G. UHF FM (SATCOM) FREQUENCY PROGRAMMING:

1. Channel select M - 7
2. XMIT power LOW OR HIGH
3. Mode select PRGRM
4. COMSEC mode A/R
5. Push and hold TEST/LOAD until RADIO OP appears in display

NOTE: After any changes in the following steps, push the TEST/LOAD button.

6. Toggle MHz to AM SQ>, toggle KHz to LOW
7. Toggle MHz to ZERO>, toggle KHz to NO
8. Toggle MHz to BAT>, toggle KHz to LITH
9. PUSH DISPLAY, UNTIL CH SETUP SHOWS IN DISPLAY
10. Toggle MHz to TYP>, toggle KHz to SNGL

11. Toggle MHz to *>, toggle KHz to OFF
12. Toggle MHz to SPC>, toggle KHz to 500
13. Toggle MHz to MODM>, toggle KHz to OFF
14. Allow display to go out
15. Push DISPLAY
16. Select frequency - toggle MHz/ KHz to desired downlink
17. Push TEST/ LOAD while display is ON to store frequency
18. Key handset while display is still ON, toggle MHz/ KHz to desired uplink frequency.
19. Push TEST/LOAD while display is still ON
20. Release handset PTT
21. Allow display to go out
22. Push DISPLAY Until BW>, toggle KHz to WIDE
23. Push DISPLAY until MODE>, toggle KHz to FM
24. Allow display to go out
25. Put MODE SELECT in NOISE

H . SCAN:

1. Channel select M - 7
2. XMIT power LOW OR HIGH
3. Mode select SCAN
4. COMSEC mode A/R

NOTE: For best performance in SCAN, secure radios should be in TD, to allow CRYPTO SYNC and Scan Lock ON. A Plain Text Receive will cause a double beep in the handset when first received and every 10 seconds after. There is a 3 second call back feature.

I. CRYPTO LOAD AND STORAGE:

1. Channel select M - 7
2. XMIT power LOW OR HIGH
3. Mode select OFF, NOISE, OR TONE
4. COMSEC mode LD
5. Connect KYK-13 to fill connector
6. Push display
7. Use MHz to toggle to fill position wanted
8. Push TEST/LOAD
9. Key handset until steady tone is heard
10. Turn on KYK-13
11. Key handset and watch display, display should show wait, then LD OK
12. Turn off KYK-13
13. Repeat as necessary for needed fill positions
14. Put COMSEC mode to C or TD
15. Remove KYK - 13

NOTE: To load a specific fill to a specific channel perform these steps.

16. Perform steps A - O above

17. Select channel for specific fill
18. Switch MODE SELECT to PRGRM
19. Switch COMSEC mode to LD
20. Push DISPLAY
21. Toggle MHz until fill position is shown beside frequency
22. Push TEST/LOAD
23. Switch COMSEC mode to C or TD
24. Push DISPLAY, selected fill should show by the frequency
25. Switch MODE SELECT to OFF, NOISE, or TONE A/R

J. COMSEC ZEROIZE:

1. XMIT power - LOW OR HIGH
2. Switch COMSEC MODE to Z ALL
3. Display will come on and show COMSEC 0

NOTE: Remember to use the Z1-5 if you need to maintain your OTAR fill.

K. RADIO ZEROIZE:

1. Channel select M - 7
2. XMIT power LOW OR HIGH
3. Mode select PRGRM
4. COMSEC mode A/R
5. Push and hold TEST/LOAD until RADIO OP or CH SETUP appear on display

6. Push DISPLAY until RADIO OP appears
7. Toggle MHz until ZER>NO appears
8. Toggle KHz until YES appears
9. Push TEST/LOAD
10. Display will blank then show 00000000 for 2.5 seconds
11. Display will then BLANK and channels will be zeroed to default values OF 60000, 244000 OR 300000
12. Turn XMIT power to OFF

L. SGRS GLB-SETTING GLOBAL TIME CLOCK

1. XMT POWER LOW OR HIGH
2. CHANNEL M-7
3. RADIO MODE PRGM
4. COMSEC MODEP, TD, C, or RV
5. Push and hold TEST/LOAD for 2 seconds. The global TOD clock displays.
6. Push DISPLAY until SGRS GLB displays.
7. Toggle the MHz switch UP or DOWN until DAY, HOUR, MIN, or SEC displays.
8. Toggle the kHz switch UP or DOWN to change the parameter.
9. Push the TEST/LOAD to store each selected value.

NOTE: The TEST/LOAD pushbutton must be pressed before the display blanks. Setting the MIN (minutes) parameter changes the seconds to 00.

M. SGRS GLB-SELECT CUE CHANNEL

1. XMIT POWER LOW or HIGH
2. CHANNEL M-7
3. RADIO MODE PRGM
4. COMSEC MODEP, C, TD, or RV
5. Push and hold TEST/LOAD for two seconds. The global TOD clock displays.
6. Push DISPLAY until SGRS GLB appears.7. Toggle the MHz switch UP of DOWN until the appropriate selection, CUE>CH0 through CUE>CH7, or CUE>OFF displays.
8. Toggle the kHz switch UP or DOWN until the desired channel displays.
9. Push TEST/LOAD to store the channel.

N. SGRS CH-SELECT NET MASTER/MEMBER

1. XMIT POWER LOW or HIGH
2. CHANNEL M-7
3. RADIO MODE PRGM
4. COMSEC MODEP, C, TD, or RV
5. Push and hold TEST/LOAD for two seconds. The global TOD clock displays.
6. Push DISPLAY until SGRS CH displays.
7. Toggle the MHz switch UP of DOWN until NET>Mstr or NET>Memb displays.
8. Toggle the KHz switch UP or DOWN to set the proper status for the current net/channel.
9. Push the TEST/LOAD to store the status in the radio.

O. SGRS TRANSEC KEY/HOPSET LOCAL LOAD

1. Connect the fill device to the REXMT connector. Follow instructions given for the fill device in use.
2. XMT POWER LOW or HIGH
3. CHANNEL NET BEING USED
4. RADIO MODE PRGM
5. COMSEC MODEP, C, or TD
6. Push and hold the TEST/LOAD for two seconds. The global TOD clock displays.
7. Push DISPLAY until SGRS CH displays.
8. Toggle the MHz switch UP or DOWN until HS LOAD displays.
9. Key the handset and release. NOTE that the handset must be keyed before the display blanks.
10. TS REQD indicates a good load. An improper load is indicated by BAD LOAD.
11. If display has timed out, push and hold TEST/LOAD for two seconds and the TOD displays.
12. Push DISPLAY until SGRS CH displays.
13. Toggle the MHz switch UP or DOWN until TSEC LOD displays. Select the TSK on the fill device.
14. Key handset and release. NOTE that the handset must be keyed before the display blanks. First, the hopset cell displays, and then a good load indicated by LOAD OK.

P. SGRS GLB-LOCALLY LOAD A LOCK OUT SET

1. Connect the fill device to the REXMT connector. Follow instruction given for the fill device in use.
2. XMT POWER LOW of HIGH
3. CHANNEL M-7
4. RADIO MODE PRGRM
5. COMSEC MODEP, C, TD, or RV
6. Push and hold TEST/LOAD for two seconds. The global TOD clock displays.
7. Push DISPLAY until SGRS GLB displays.
8. Toggle the MHz switch UP or DOWN until LS LOAD displays.
7. Key the handset and release.
8. Display will indicate WAIT, then the identity of the cells being sent. If the load is successful, LOAD OK displays. If unsuccessful, bad load displays.

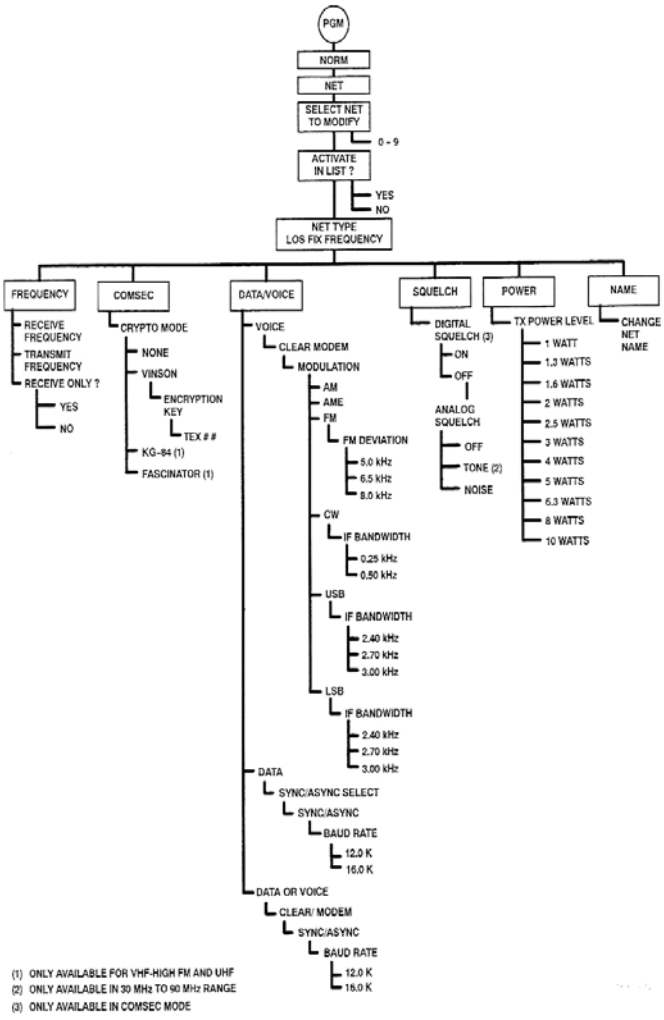
PRC-117F CAPABILITIES:

Frequency Range: 30 - 512 MHz AM and FM and various waveforms
Embedded Communication Security (COMSEC)
HAVE QUICK AND SINCGARS Electronic Counter Counter Measures (ECCM)
Wide and Narrow Band Satellite Communication (SATCOM)

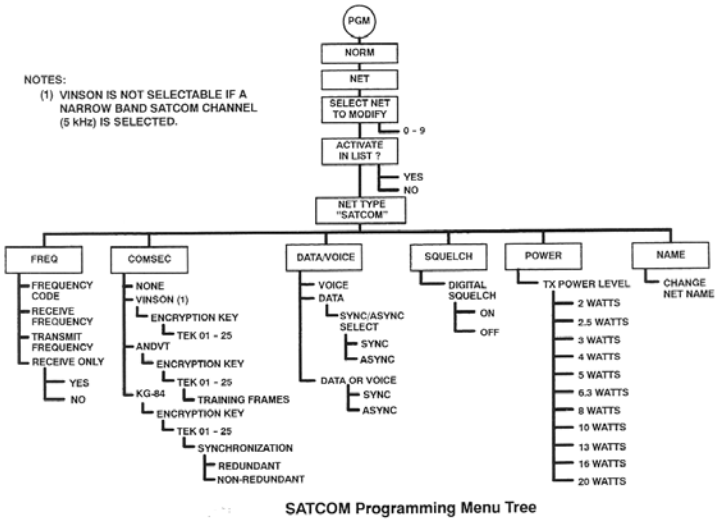
The radio operates from either two BB-590/U Nickel-Cadmium (Ni-Cd) Rechargeable Batteries, two BA-5590 Lithium Batteries, two BB-390AU Nickel Metal-Hydride Batteries, or two BB-490/U Lead-Acid Batteries.

The PRC-117F uses a menu-oriented interface for programming. The menu trees on the following pages will guide you through the most common programming menus.

NOTE: A **NET** is a named programmed set of frequencies, parameters, data presets, and crypto information. The PRC-117F can be programmed with up to 10 nets

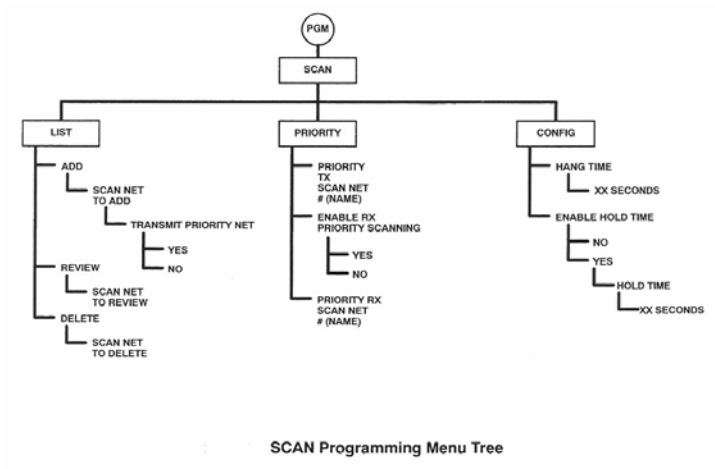


LOS Fixed Frequency Programming Menu Tree



SATCOM Programming Menu Tree

SATCOM Programming Tree



SCAN Programming Menu Tree

COMSEC OPERATION

Plain Text (PT) Operation

A. Rotate Function switch to **PT**.
B. After radio initializes, press **MODE**.
C. At **OPERATIONAL MODE** prompt, select **NORMAL** and press **ENT**.
D. Select desired LOS fixed frequency net by pressing the **NET +** or **-** switch.
E. Begin radio operations

Cipher text (CT) Operation

A. Rotate Function switch to **CT** or **TD**
B. After the radio initializes, press **MODE**.
C. At **OPERATIONAL MODE** prompt, select **NORMAL** and press **ENT**.
D. Select desired LOS fixed frequency net by pressing the **NET +** or **-** switch.
E. Begin radio operations

Scan Operation

A. Rotate Function switch to **PT** or **CT**.
B. Press **MODE.**
C. Press the up / down arrow buttons to select **SCAN**.
D. Press **ENT** to initiate automatic scan mode.

E. If the radio is keyed when a signal is received within the three-second hang time, the radio transmits on the receiving net. After the transmission, the radio remains in receive for three seconds.

Loading COMSEC Fill Data

A. Turn off fill device.
B. Rotate Function switch to **LD**.
C. Select appropriate fill device; press **ENT**.
D. Connect fill device to **J1 AUDIO/DATA/FILL** connector.
E. Select the desired **CRYPTO TYPE**; press **ENT**.
F. Select the appropriate **KEY TYPE**. If **TEK** is selected, choose **1-25.**
G. Turn fill device on and select key position on fill device.
H. **PRESS ENTER TO INITIATE** displays; press **ENT**.
I. **FILL IN PROGRESS** displays.
J. When **FILL DONE** displays, press any key.
K. At prompt **MORE FILL DATA**, select **YES** to enter more data. Repeat steps F-J.
L. When all fill data is entered, select **NO** at the **MORE FILL DATA** prompt.
M. Turn off and disconnect fill device.
N. Rotate Function switch to desired operating position.

SABER 2/3 :

A. Characteristics:

1. Band - VHF/UHF-FM
2. Frequency range
   a. VHF - 136 to 174 MHz
   b. UHF - 400 to 500 MHz
3. Power output
   Pre-Selected when programmed
4. Power supply - Saber specific battery
5. Weight - .5 lb

B. Display: The LCD indicates modes / channels

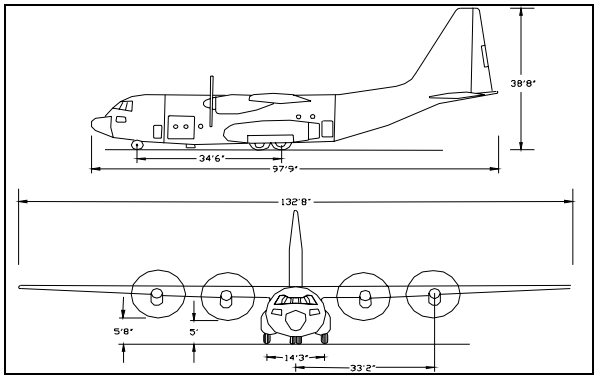
C. Manual mode operations:

1. Turn radio on
2. Press mode button to enter zones (A through J avail.)
3. Enter desired zone
4. Select channel within the selected zone with channel switch
5. Radio is now ready for use (Non-Secure)

D. Loading encryption fill:

1. Turn radio on
2. Connect (SIB) Security Interface Box to rear connection of Saber
3. Connect Fill Device (KYK-13, KYX-15, CYZ-10) to SIB
4. Turn on Fill device and select key to transfer.
5. Press button on SIB 2 times about 3-4 seconds apart (Display should annotate on SIB if fill is OK or Fail)
6. Remove SIB and select encryption mode by sliding rocker switch on top of radio to the secure position.

Attachment E - Aircraft Characteristics

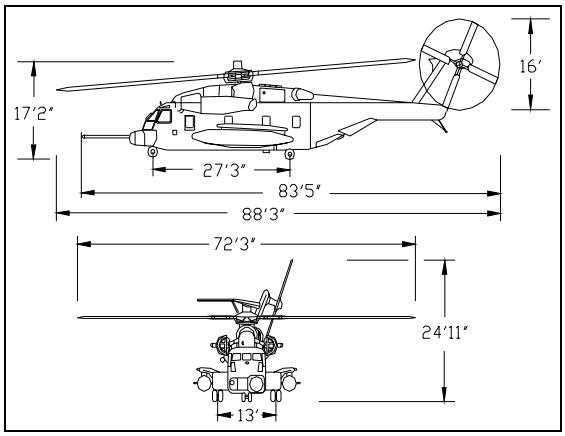


C-130

RUNWAY		**TURNAROUNDS**	
LENGTH	3000	WIDTH	74
WIDTH	60	SHOULDER	10
WIDTH (180° TURN)	74	**OVERRUNS**	
SHOULDER	10	LENGTHS	300
CLEAR AREA	35	WIDTH	60
LATERAL SAFETY ZONE	55	**TAXIWAY**	
OBSTRUCTION SLOPE	5:1	RWY CENTER TO TAXI EDGE	350
RWY CLEAR ZONE		WIDTH	60
LENGTH	500	TURN RADIUS	74
WIDTH INNER	276	CLEAR AREA	75
WIDTH OUTER	500	**PARKING APRONS**	

C-130 Configuration

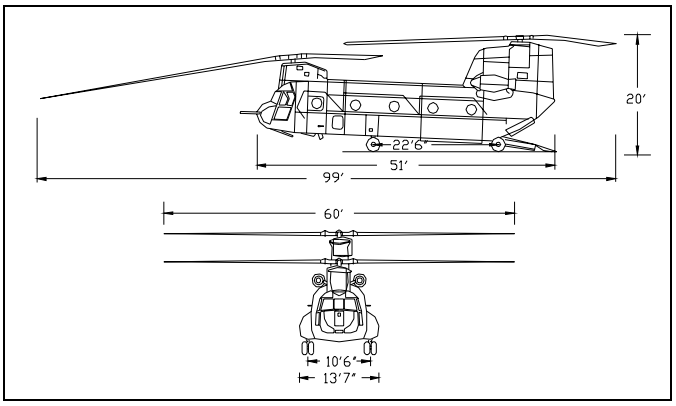
RWY APPROACH ZONE		FIXED OBJECT	100
LENGTH	32,000	**WIND LIMITS**	
WIDTH INNER	500	MAX WIND	50
WIDTH OUTER	2500	CROSSWIND	35
OBSTACLE CLEARANCE GLIDE SLOPE	35:1	TAILWIND	10
WEIGHTS		**SINGLE POINT REFUELING**	
OPERATING WEIGHT, EMPTY	72K	NOSE TO SPR	64
MAX LANDING WEIGHT	175K	SPR LOCATION	Right Side



MH-53

WEIGHTS	
OPERATING EMPTY	23,569
MISSION TAKEOFF	38,238
MAX OVERLOAD TAKEOFF	42,000
PERFORMANCE	
HOVER CEILING	4300
ADDITIONAL	
NORMAL CRUISE SPEED	150 KTS
FERRY RANGE	468 NM
FUEL CAPACITY	4,095 lbs
SPECIAL	
SYSTEMS/CAPABILITIES	
HOIST	600 lbs up/ 300 lbs down
CARGO SLING	20,000 lbs
RAPELLING	20-120’
ROPE LADDER	60’
STABO	3 each nylon rigs 100-200’ long
REFUEL	LEFT SIDE
AVAILABLE WEAPONS	7.62 MM MINI-GUN, .50 CAL, 40 MM

FUEL AT TAKEOFF	**PAYLOAD AT TAKEOFF**	**RANGE (NM)**
11,900	**0**	**590**
9,900	**2,000IBS (8 TROOPS)**	**480**
7,900	**4,000LBS (16 TROOPS)**	**370**
6,900	**5,000 LBS (20 TROOPS)**	**310**



MH-47

WEIGHTS

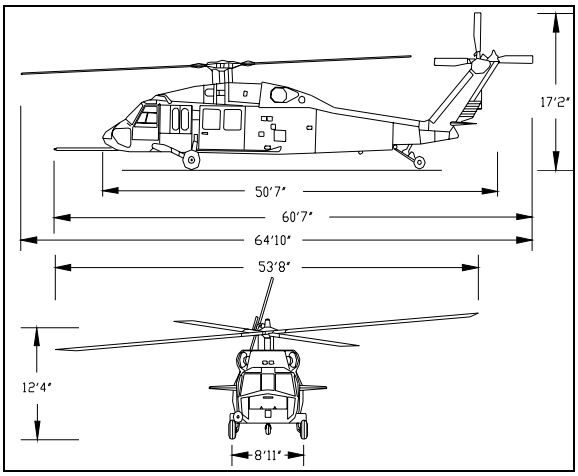
OPERATING WEIGHT - EMPTY	23,093 LBS
MAX OVERLOAD WEIGHT - TO	50,000 LBS

PERFORMANCE

HOVER CEILING	6,000 FT
RATE OF CLIMB	1,485 FPM

ADDITIONAL

NORMAL CRUISE SPEED	140 KTS
FERRY RANGE	1,090 NM
FUEL CAPACITY	6,695 LBS
REFUEL	RIGHT SIDE



MH-60

WEIGHT AND PERFORMANCE

MAXIMUM GROSS WEIGHT	22,000 lbs
MAXIMUM SPEED	178 kts
CRUISE SPEED	120-140 kts
RANGE	540 NM
ENDURANCE	4+30

ADDITIONAL

TROOPS	8-11
REFUEL	LEFT SIDE

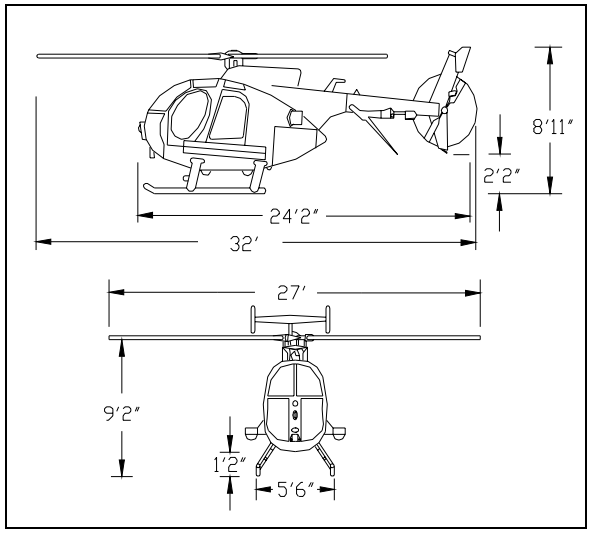
ARMAMENT CONFIGURATIONS*

STANDARD: 1 X 19 SHOT 2.75 FFAR ROCKET PODS
2 X 50 CA(12) M-2 MACHINE GUN W/150-200 RDS
2 X 7.62 M(13) MINI-GUNS W/6,000 RDS

OPTION #1: 2 X 19 SHOT 2.75 FFAR ROCKET PODS
2 X 7.62 M(13) MINI-GUNS W/6000 RDS.

OPTION #2: 4 X 50 CA(12) M-2 MACHINE GUN
2 X 7.62 M(13) MINI-GUNS W/6000 RDS.

*MULTIPLE RELOADS OR 8 - 11 PASSENGERS CAN BE CARRIED IN ANY ARMAMENT CONFIGURATION



AH-6

WEIGHT AND PERFORMANCE

MAXIMUM WEIGHT	3,950 lbs
MISSION WEIGHT	3,100 lbs

PERFORMANCE

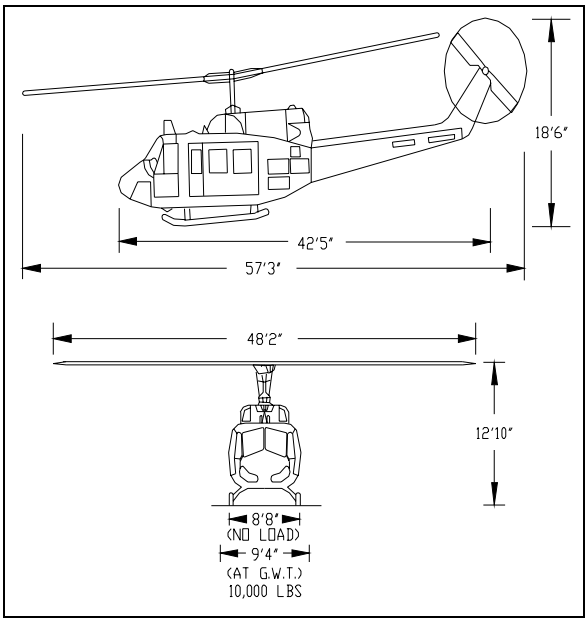
MAXIMUM SPEED	137 KTS (No External Passengers)
MAXIMUM SPEED	80 KTS (External Passengers)
ENDURANCE (VARIES)	1+40
FUEL CONSUMPTION	240lbs per hour
REFUEL	RIGHT SIDE

ARMAMENT CONFIGURATION*

STANDARD: 1 X 7 SHOT 2.75 FFAR ROCKET LAUNCHER
(HE, PROX., WP, ILL, FL.)

1 X 7.62 MINI-GUN W/2000 ROUNDS

*NOW CONFIGURED TO CARRY THE HELLFIRE MISSILE IN PLACE OF THE 2.75 ROCKET LAUNCHER



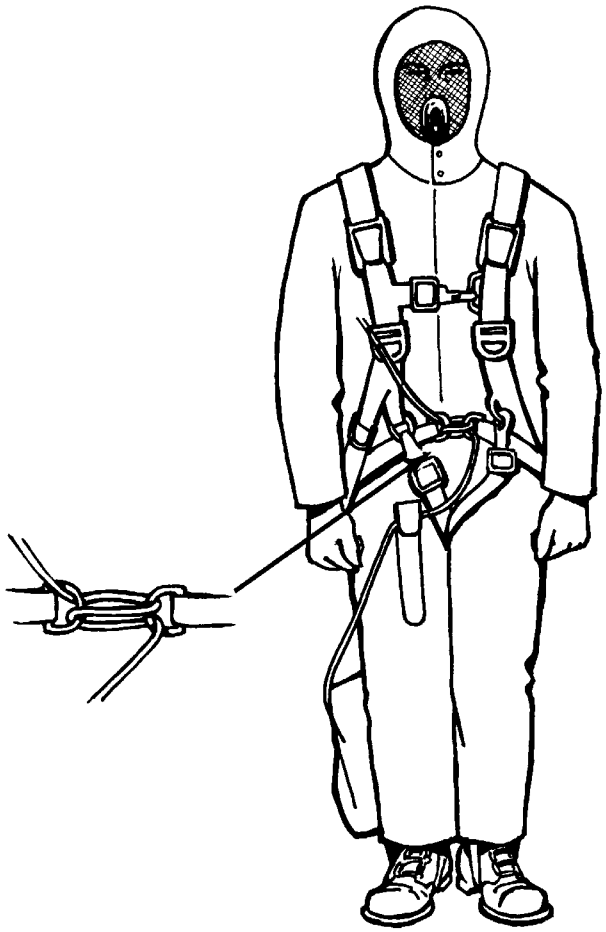
UH-1

UH-1 Configuration

WEIGHTS	
OPERATING EMPTY	5,997 lbs
MAXIMUM OVERLOAD TAKEOFF	11,200 lbs
PERFORMANCE	
MAXIMUM ALTITUDE FOR T/O AND LANDING	4,700
RATE OF CLIMB	1,320 FPM
ADDITIONAL	
NORMAL CRUISE SPEED	100 KTS
FERRY RANGE	227 NM
FUEL CAPACITY	1,397 LBS
REFUELING RECEPTACLE	RIGHT SIDE

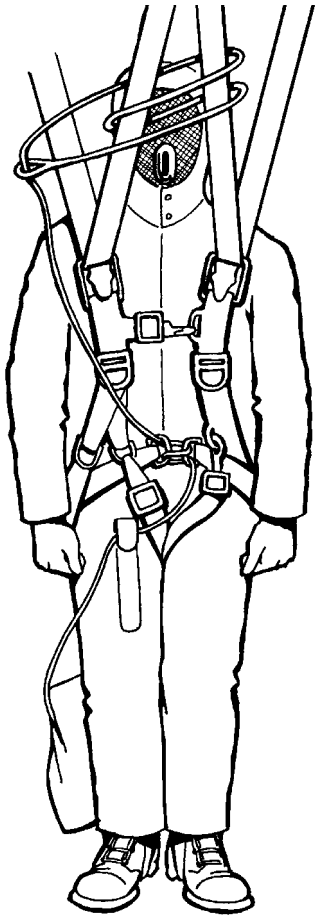
Attachment F - Tree Suit Configuration

D-RING THREADING



Tree Letdown D-Ring Threading

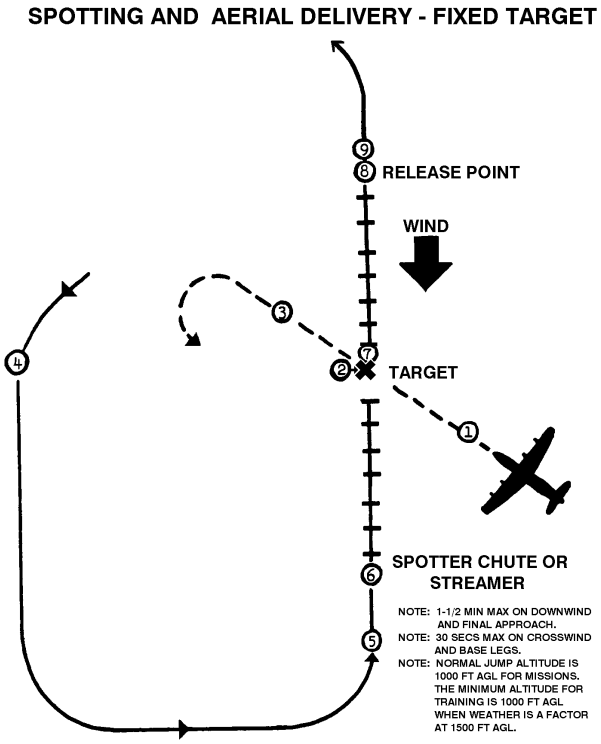
RISER TIE-OFF



Tree Letdown Riser Tie-Off

Attachment G -Spotting and Aerial Delivery Procedures

FIXED TARGET PROCEDURES



1. Head directly toward the target, regardless of the wind direction.
2. Release the spotter chute/streamer directly over the target.
3. Immediately upon release, make left/right turn to observe descent and position of spotter chute/streamer.
4. Establish rectangular drop pattern oriented so that the final approach will be aligned with the spotter chute/streamer and the target, respectively.
5. Turn on approach. Make minor changes in heading to pass over the spotter chute and the target on a direct line. Aircraft drift correction should be established prior to passing over the spotter chute.
6. Initiate uniform count over the spotter chute/streamer.
7. Reverse count over the target.
8. Deploy the second spotter chute/streamer or PJ at last digit of reverse count
9. After the jumper clears the aircraft, turn to observe the accuracy of the drop.

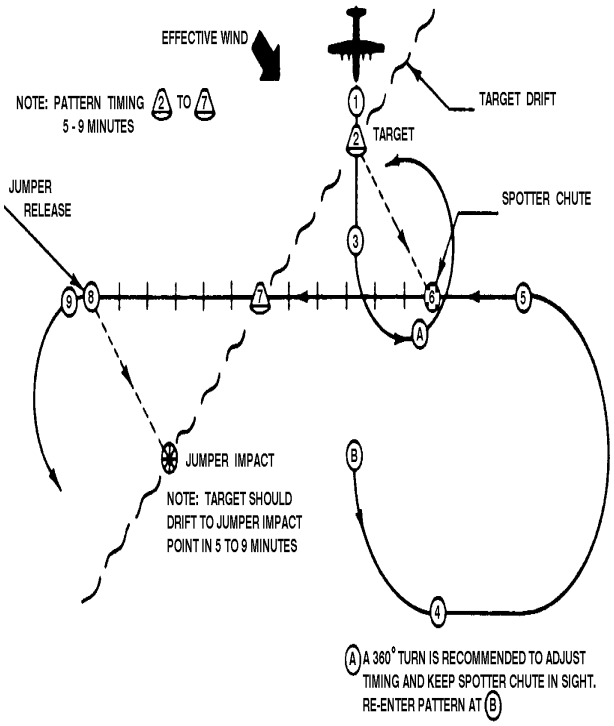
a. The normal flight pattern will be a rectangular or racetrack pattern with the final approach from WDI to target. Each leg of the pattern must be long enough to allow the JM and jumpers the preparation needed prior to deployment.

(1) For high performance aircraft, the turn to the crosswind leg will be made as soon as possible after the WDI is released. A pattern with crosswind and base legs of not over one half minute and with downwind

and final legs of 1 to 1 ½ minutes will allow time for heading corrections on final. This allows the JM time to observe the descent of WDI device or jumpers. If a delay is expected, another full pattern should be flown, as opposed to extending the downwind leg, this maintains the aircraft close to the area for continued evaluation. This pattern will place the aircraft a maximum of 5 minutes from the site at any one time.
(2) The aircraft will be flown over the target at a predetermined altitude and airspeed. When directly over the target a minimum of one WDI will be dropped. The JM and aircrew will make every effort to keep the WDI in sight from release to impact. Over land, the pilot may have to circle over the WDI to ensure the definite location of , or orientation to the impact point to the target. After the first WDI has reached the ground and its position NOTEd, the aircraft will return to the normal pattern. The final approach should pass directly over the WDI and the intended target, in that order. This pattern automatically aligns the final approach into the wind.
(3)A right or left hand pattern may be flown depending on terrain and aircraft configuration. The aircraft will be flown in this pattern with minor course corrections on final. As the aircraft passes directly over the first WDI, the JM will start a uniform count to measure the time from the WDI to the target. When the aircraft is over the target, the count will be stopped and

immediately a new count will begin, when that count equals the first, the second WDI or jumper will be deployed. The increasing count will measure the same distance past the target with the accuracy of the deployment dependent upon the JMs alignment and count.

MOVING TARGET PROCEDURES



1. MOVING TARGET PROCEDURES
   a. Head directly toward the target, regardless of the wind direction.
   b. Release the spotter chute directly over the target.
   c. Immediately upon release, make a left/right hand turn to observe the descent and position of the spotter chute.
   d. Establish rectangular drop pattern oriented so the final approach will be aligned with the spotter chute and the target, respectively. The pattern should be adjusted so that the aircraft will be over the target five to nine minutes after the spotter chute is deployed.
   e. Turn on approach. Make minor changes in heading to pass over the spotter chute and the target on a direct line. Aircraft drift correction should be established prior to passing over the spotter chute. Initiate a uniform count over the spotter chute.
   f. Reverse count over the target.
   g. Deploy PJs when the last digit in reverse count is reached.
   h. After the jumper clears the aircraft, turn to observe the accuracy of the drop.
   i. Deploy additional jumpers using the drop heading and count established in steps 5, 6, and 7.
   j. Disregard the spotter chute for subsequent passes.
   k. When the target drift rate is changed (drogue chute is installed on target, know wind shift occurs, etc.) the entire spotter chute procedure must be re-accomplished

and a new drop heading and count established starting with step 1.

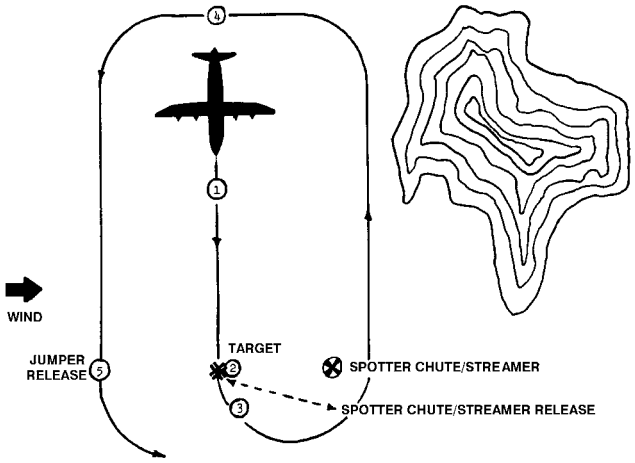
2 MOVING TARGET PATTERN. Deployment procedures to a moving target are similar to those employed for a stationary target. The moving target procedures takes into consideration target drift and will place the team on the downdrift line of the moving target and not necessarily on target. Special attention should be paid to the following items:

a. The pattern must be adjusted so that the initial pass over the target after WDI deployment is not less than 5 minutes and not more than 9 minutes, 7 minutes being ideal. If the initial pattern requires more than 9 minutes, the team will be too far downdrift/downwind and with a high target drift rate may not be able to locate the target visually.

b. On the initial pass after the WDI deployment, an accurate count can be obtained by the JM and the heading noted by both the JM and pilot. All subsequent passes will be made on this initial heading using the count obtained on the first pass. No attempt should be made to recheck the count or change the initial heading because the target will have drifted.

NOTE: On subsequent passes requiring a change of heading to place the aircraft over the target, ensure the pilot corrects back to original heading. Moving target procedures are normally conducted from fixed-wing aircraft.

CROSSWIND PROCEDURES



Crosswind Procedures.

1. Spotting and Aerial Delivery - Crosswind Procedures.
   a. Fly over target on heading in a direction to permit a left/right hand pattern.
   b. Release the spotter chute/streamer directly over target.
   c. Accomplish a 180 degree turn (terrain permitting) in direction of drift and observe distance of spotter chute/streamer from target.

d. Make another 180 degree turn to place the aircraft on the approach leg the same distance upwind from the target as the spotter chute is downwind.
e. Deploy PJs, equipment or additional spotters chutes/streamers (as required) just prior to when the aircraft is in direct line with the target and spotter chute/streamer.

2. Crosswind pattern. A crosswind pattern may be required by terrain conditions or possible sun reflection on the waters surface. The pilot and JM must accurately judge the upwind distance from the target in order for this technique to be effective. The easiest method for obtaining an accurate upwind distance is the utilization of a reference/release point. It is imperative that the jumpers be deployed prior to reaching the reference point due to the forward ballistics of the parachute as opening occurs. The objective is to place the reference point at the center of the stick after forward throw is considered.

3. Spotting techniques. Reference points may be used on all JMD land deployments. The utilization of reference points will increase the JMs accuracy in determining the proper release point. Also an established reference/release point will allow the aircraft to be flown in any direction as long as it will pass over the reference/release point. These points are a necessity when accomplishing a crosswind or

downwind deployment pattern. The correct method for establishing e reference/release point is:

a. Upon completion of the initial over the target WDI deployment, establish the impact location of the WDI.

b. Pick out a spot that is an equal distance on the opposite side of the target as the WDI. This spot can be any readily identifiable feature, i.e. discolored ground, bushes, trees, etc.

NOTE: The JM should pass the reference/release point to the pilot to assure that both are utilizing the same point of reference

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DCS, Air and Space Operations