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# **How To Plan a Helicopter Assault**

**A Guide for Leaders in the Infantry  
Battalion and Regiment**

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**5th Marines Combat SOP  
Camp Pendleton, California 92055**

**10 May 2001**

**Special Thanks to**

**MAG-16**

HMM-161	“Greyhawk”
HMM-163	“Evil Eyes”
HMM-166	“Antler”
HMM-165	“Lady Ace”
HMH-361	“Tigers”
HMH-462	“Thunder”
HMH-465	“Warhorse”
HMH-466	“Wolfpack”

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# How to Use this Manual

This manual is a guide to planning large-scale helicopter operations.

The target audience is the operations officers and unit commanders in the Marine infantry battalion and regiment. Some examples of integrated planning products that are produced by close coordination between ground planners and aviation planners are shown, *but no aviation-specific products or planning details are included.*

All the techniques and procedures, and all of the examples, are based on the METL task, “Conduct a Regimental-sized Helicopter Assault” with the following mission profile:

- Planned, deliberate, large-scale helicopter assault of 40 kilometers – Night or Day
- Regiment inserts multiple infantry battalions, artillery, engineers and other attachments
- Multiple squadrons in support – Multiple waves of mixed aircraft – Possibly multiple AFLs and EFLs
- Multiple Pickup Zones, Multiple Insert Zones
- External loads, both vehicles and cargo, are inserted
- Two days of supply are inserted with the assault force, no ground LOC exists

Company-sized helicopter raids and MEU(SOC)-specific operations are NOT covered.

**Section I** is a step-by-step guide to planning a large-scale helicopter assault. Paragraph 1000 explains the general planning sequence. The remaining paragraphs explain each step and each planning product in detail.

**Section II** contains notes and background information on large-scale helicopter assaults.

Plan the helicopter assault using reverse planning: Start at the objective and plan *backwards*. There are **five basic plans**. Each plan covers a separate phase and contains many planning documents.

### 1. Create the **Ground Tactical Plan**

a. Before the helicopter assault is planned, the ground scheme must be firm.

b. Products:	Planners	Paragraph
Create an <b>OpOrder</b>	MC, HUC, S-3	1002
Create a Collections Plan	S-2, R&S	
Create a Fire Support Plan	FSC	
Create a Logistics Plan	S-4	
Create a Comm Plan	S-6	

### 2. Create the **Landing Plan**

a. The Landing Plan contains the details of how the helicopterborne task force will be inserted, what fires will support the insert, and the command and control procedures for the assault.

b. Products:	Planners	Paragraph
Create <b>HEALT</b>	MC, AMC	1003
Create <b>Insert LZ Diagrams</b>	AFL, HUC	1004
Create <b>Objective Area Diagram</b>	AMC, AFL, EFL, FSC	1006
Create <b>Connectivity Diagrams</b>	AFL, S-6, MC, AMC	1008
Create <b>Extract LZ Diagram</b>	AFL, HUC	1010
Plan Contingencies	AFL, HUC	1012
Create an <b>Execution Checklist</b>	AMC, MC	1013
Create the <b>Comm Card</b>	AMC, S-6	1013
Create the <b>Mission Timeline</b>	AMC, MC	1013

### 3. Create the **Air Movement Plan**

The Air Movement Plan is completed by the AFL and his planning team. The Fire Support Plan may require adjustment to deconflict helicopter routing or add SEAD targets. Alternate routing needs to be planned and deconflicted.

### 4. Create the **Load Plan**

a. The Load Plan assigns sticks, both pax and cargo, to each helicopter in each wave. Once the HEALT is complete, the HUC can complete the HWSAT.

b. Products:	Planners	Paragraph
Create a <b>HWSAT</b>	HUC	1014

### 5. Create the **Staging Plan**

a. The Staging Plan assembles units in the PZ in preparation for loading.

b. Products:	Planners	Paragraph
Create a <b>PZ Diagram</b>	HUC, HST, AFL	1015
Create a <b>Bump Plan</b>	HUC, HST, AFL	

### 6. Refine the Ground Tactical Plan

a. Refine the OpOrder with Master Control Measures List	MC, HUC, S-3	
b. Refine the Collections Plan	S-2, I/EOs	1017
c. Refine the Fire Support Plan	FSC, EFL	
d. Refine the Logistics Plan		
How to Plan Logistics	HUC, S-4, MC	1018
Logistics: Water	HUC, S-4, AMC, AFL, HST	1019
Logistics: Ammunition	HUC, S-4, AMC, AFL, HST	1020
Logistics: Aerial Resupply	HUC, S-4, AMC, AFL, HST	1021
e. Refine the Comm Plan	S-6	

# 1001

# Notes on Planning Helicopter Assaults

1. **Planning Orientation Brief.** When the Helicopter Task Force is formed, a thirty-minute planning orientation brief serves to focus the planners and define the planning process. All key ground and air leaders and planners participate.

- Post the Planning Timeline. Brief the timeline.
- Brief the Task Organization. Post a list of Key Leaders. Introduce Key Leaders.
- Brief the Enemy Threat.
- Brief the HHQ Scheme of Maneuver, to include adjacent unit locations and actions. Brief the HTF Ground Scheme of Maneuver. Have the HUC brief his Scheme of Maneuver.
- Have the AMC brief the aviation assets available.
  
- Post a Planning Products Matrix. *See paragraph 1000.* Step through each line. Assign a responsible officer to each product. Assign a due date to each product. *See Appendix D.*
- Post a Master Map. Post the master control measure sheet. Brief the standards for the mission: control measures, datum, phases.
  
- Review the schedule. Announce the Planning Update Time.
- Take Questions.

## 2. Sample Planning Timeline

Planning Orientation Brief	0:30
Integrated Planning	4:00
Planning Update	0:30
Additional Integrated Planning	4:00
Rehearsal Brief	1:00
Modifications	1:00
Brief	1:00

## 3. Smart Pack and OpOrder: Integrated Planning = Integrated Brief = Integrated Mission.

a. Integrated Planning Produces Integrated Products. The following products must be *identical* in both the ground OpOrder and the aviation Smart Pack. Page numbers are for example only.

Product	OpOrder	Smart Pack
• Objective Area Diagram	App 19: Fire Support Plan	Page 5
• Connectivity Diagrams	Annex K: Communications Plan	Page 6-7
• HEALT and HWSAT	Annex W: Assault Support Appendix	Page 9-10
• PZ, LZ Diagrams	Annex W: Assault Support Appendix	Page 11-14

b. The following products are produced by the AMC for the Smart Pack. To insure complete integration, the MC or HUC needs to *participate* in construction.

• Cover Sheet	Shows units	Page 1
• Comm Card	Complies with CEOI Shows LZ Controls, Hasty Encryption Shows NIDs, Unit callsigns	Page 2
• Mission Timeline	Deconflicts all units and activities	Page 14



- c. MC, HUC, and key ground leaders should learn to read aviation-specific documents. Net colors should be understood. Hasty encryption, ATO, and mission callsigns should be understood.
4. **Planning co-location.** Ground and air leaders and planners must be co-located for integrated face-to-face planning, briefing, and receipt of ATO. DASC must be part of planning and execution. The MC and key planners must attend the aviation mission brief.
5. **Notes**
    - a. The horizontal datum must be decided upon prior to any planning. All grids briefed and published must comply. All GPS receivers are loaded with the mission datum.
    - b. The planning cycles for the ACE differs greatly from the planning cycles for the GCE. When detailed planning and the Integrated Mission Brief is complete TWO schedules follow it:
      - (1) ACE: Four hours after completion of the Mission Brief, the ACE completes Air EFL / AFL briefs, the Air Div / Sect Briefs, then cockpit briefs. This well-rehearsed cycle needs to be fast in order to meet crew-day requirements.
      - (2) GCE: Twenty-four hours after completion of Mission Brief, GCE completes Bn OpOrder, Co OpOrder, and Platoon OpOrder, as well as back briefs and walk-throughs.
    - c. A mission brief format is included in *Appendix E*.

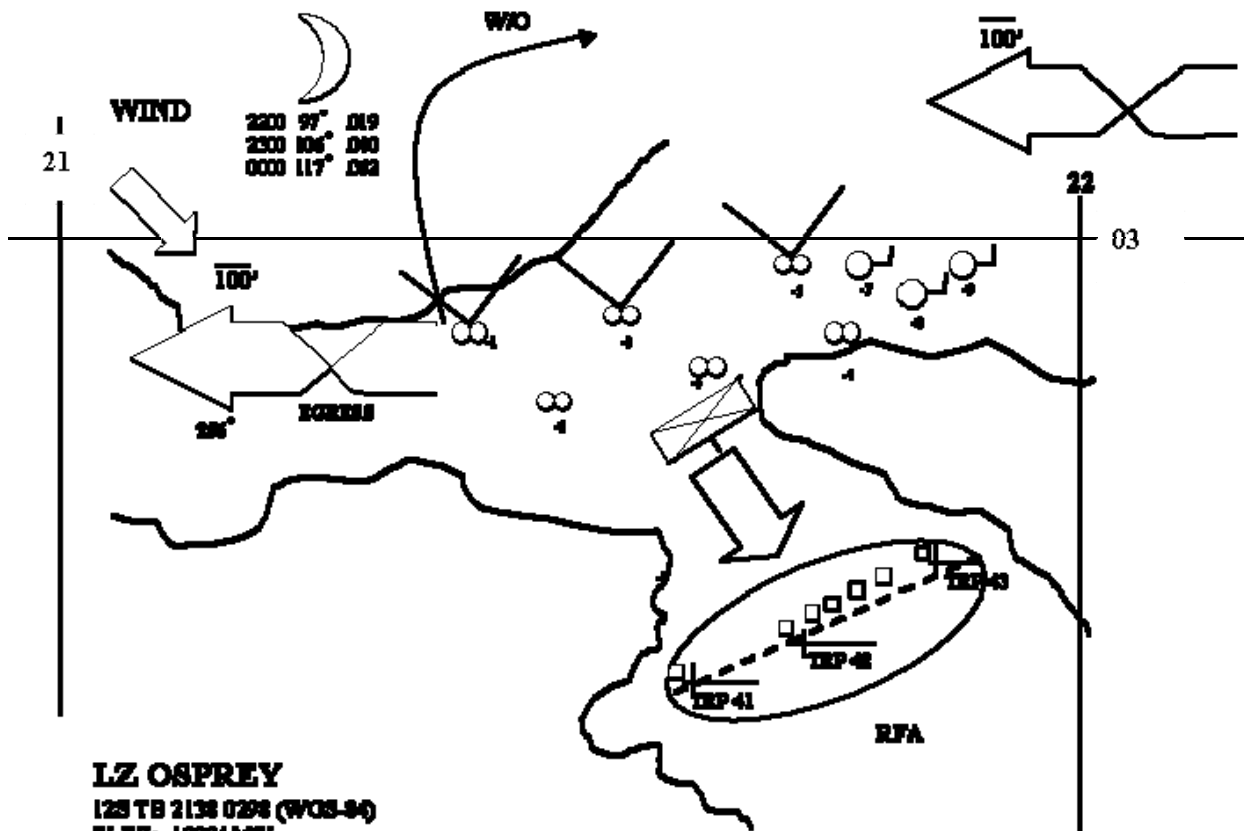
1. **No helicopter planning can begin until the MC and the HUC produce a ground concept of operations.** The ground tactical plan is briefed from a standard operations overlay. At the start of planning with the AMC, AFL and EFL, the outline OpOrder and operations overlay should be complete. At a minimum:
  - Annex A Task Organization
  - Mission
  - Execution: Concept of Operations, Ops Overlay, and initial Fire Support Plan
  
2. **The operations overlay should include:**
  - The objective and known threats
  - Initial Control measures
  - Each unit and its scheme of maneuver. LZs are NOT specified.
  - Fire support assets, positions, and fire support control measures
  - Planned reconnaissance positions and RTX positions
  
3. **During planning for the helicopter assault, the initial plan is adjusted.** Final versions of the OpOrder are completed during helicopter assault planning.
  - a. The Annex B Collections Plan, is updated to reflect R&S inserts.
  - b. The Appendix 19 (Fire Support Plan) of Annex C is updated by the FSC through EFL, AirO, FW, and RW input. The Objective Area Diagram is created.
  - c. The Annex D (Logistics) is updated to reflect aerial resupply operations.
  - d. The Annex K (Communications) is updated with the creation of the Connectivity Diagrams.
  - e. The Appendix 3 (Assault Support) to Annex W is created by collecting all the helicopter planning products.
    - TAB J                    HWSAT
    - TAB K                    HEALT
    - TAB L                    Helicopter Landing Diagram / Route Diagram
    - TAB N                    PZ Diagrams
    - TAB P                    Insert LZ Diagrams
    - TAB Q                    Extract LZ Diagrams

1. **A HEALT is only constructed if the mission consists of multiple flights going to multiple zones.** If no HEALT is needed, a HWSAT is sufficient for a single unit in a single wave.
2. **The MC and AMC select primary and alternate LZs to support the ground scheme of maneuver.** Every Insert LZ requires a Primary and an Alternate.
3. **The MC and the AMC divide the ground force and create waves of aircraft, sized to carry tactical units to specific LZs.**
4. **The HEALT assigns UNITS to WAVES of aircraft to LZs on a time schedule.** The HEALT is a landing timetable.
  - a. **One line per wave.** Each wave is described by one line of the HEALT. Exceptions include waves separating in flight and inserting into two or more insert zones, waves with different alternate zones, or mixed waves where each line describes a different aircraft type of the same wave.
  - b. All A/C flying to one LZ may *not* have the same alternate LZ. LZs do not have alternates, *units* have alternates. Splitting flights due to small LZs or alternate ground scheme of maneuver may be done, but is not recommended.
  - c. On-call waves, typically logistics support, are shown as: **Wave “O/C.” Units & Serials** includes type, amount and notes on specific loads. All other entries are “TBD.”
5. *See Example HEALT.*





1. **Obtain maps of the Objective Area and Insert LZ from the S-2.**
2. **Draw the LZ.** Insure sufficient detail to orient both A/C and ground units.
  - a. A hand-drawn sketch is best. Bold grid lines, add northing and easting numbers. A blow-up of a topo map is adequate but cluttered. Imagery is difficult to draw on. Focus on small details. The size of the diagram should be less than a grid square. If larger, ground details drop out, helicopters cannot be drawn to scale, and peripheral information clutters the diagram.
  - b. Add a magnetic north-seeking arrow. Make the top of the page grid **North**.
  - c. A separate product, The Objective Area Diagram, shows the big picture.
3. **Plan the following details on the diagram:**
  - a. LZ Name  
Grid (Horizontal Datum)  
Surface  
Elevation (feet MSL)  
Winds (If winds are unpredictable, show probable winds)  
Obstructions / Buildings / Masking Terrain
  - b. A/C Landing Points (Draw ITG on the map, draw helicopters to scale)  
Landing formation (Dash numbers)  
Ingress Direction / Departure Direction  
Waveoff Direction and azimuth  
Door gunner fields of fire (Weapons Conditions)  
ITG (Day / Night / Near / Far)  
Sun and Moon (Time, Direction, Illum)
  - c. Limited Ground Control Measures / Scheme of maneuver  
Enemy  
Friendly / R&S / Night details on IR, and markings  
Friendly positions of previous waves
  - d. Comm Details  
LZ Control Nets. (Primary and Alternate). *See Communications SOP.*  
R&S  
EFL TAD
4. *See Example Insert LZ Diagram.*



**LZ OSPREY**  
 125 TB 2138 0298 (WCS-84)  
 ELEV: 1000' MSL  
 2° DOWNSLOPE: GRAVEL & SCRUB

NIGHT ITO - SCOUT SNIPERS (P) IR STROBE  
 CALLSIGN: (H) CHEM/LIGHT BUZZSAW  
 LZ CTRL: 27493 (P) MAGENTA  
 ORG (A) SMOGANS

DAY ITO - (P) SMOKE  
 (M) PANEL





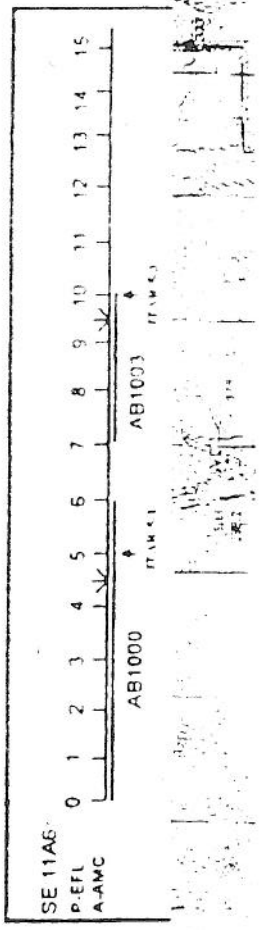
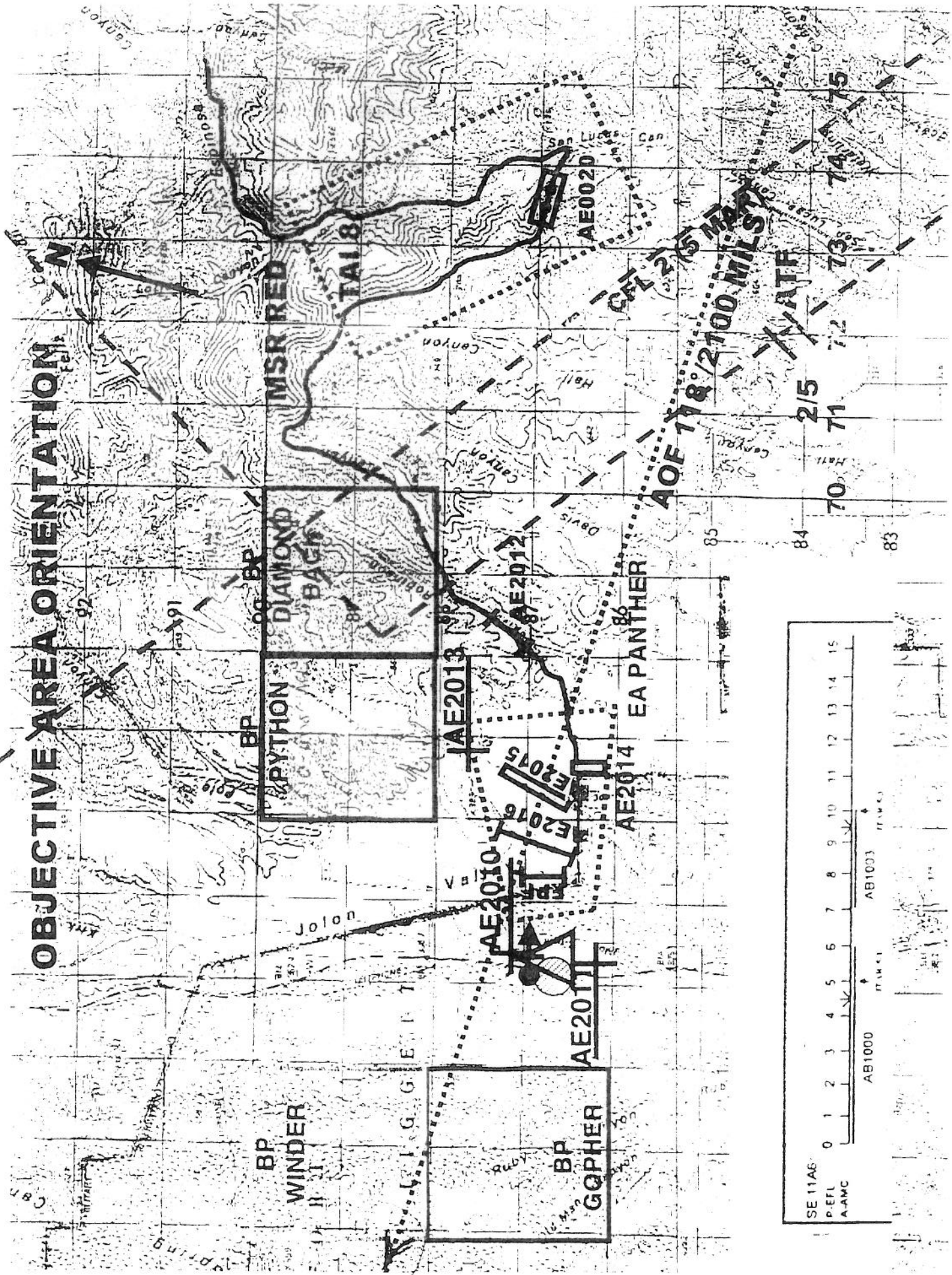


1. **Ideally, maximum combat power is inserted simultaneously in the first wave.** Simultaneous landing of as many A/C as possible is desired to maximize combat power on the deck and reduce aircraft exposure time: Minimum number of lifts, maximum number of A/C.
  - a. This contrasts with PZ and Extract LZ procedures where less A/C in multiple waves are easier for ground commanders to coordinate.
  - b. Maintain unit integrity as far as possible. This reduces confusion and reorganization time in the insert LZ.
  - c. Ground units need solid plan for moving out of LZ in tactical order. This is especially important if external cargo lifts are inserted and follow-on waves are expected. Insert LZs need to be rapidly cleared of all Marines during multiple wave inserts.
  - d. Linkup plans for multiple wave inserts must work both day and night for both air and ground units.
2. **Marines inserted into the wrong zone immediately report to the on-site commander.** Inbound A/C can pick up stick and return to PZ or insert to correct zone, if possible.
3. **If possible, all Insert LZs have ITG.** *See ITG SOP.*

## How to Create an Objective Area Diagram

1. **Xerox a sector of a 1:50,000 map with the objective in the center.** A 10 x 10 grid square sector is usually sufficient. Computer maps and PSP products are **NOT** as readable as a map Xerox.
2. **Plan the following details on the diagram:**
  - a. **Objective**
    - Objective and Objective area details / TAOR
    - LZs
    - Enemy
    - Friendly / R&S / RTX / Mortar positions / Routes (organic and adjacent units)
    - TRPs
    - TAOR and Adjacent Unit boundaries (for aviation deconfliction)
  - b. **Aircraft**
    - Aircraft control measures
    - RWCAS BPs
    - FWCAS IPs and Final Attack Cones
    - HAs and MCAs (Elevation AGL)
    - Routes and Assault A/C IPs
  - c. **Fires**
    - Fire Support Control Measures
    - RFA / NFA (Deconflict team locations from RTX plan and Intel / Collection Plan)
    - Targets
    - AOF of artillery / mortars / gun positions (Both degrees and mils)
    - EAs
  - d. Series Timeline with CAS TOTs
3. **The single Objective Area Diagram is an integrated document.** Both ground commanders and pilots access identical mission information. Both FSC and EFL create and brief from the same diagram.
4. *See Example Objective Area Diagram.*

# OBJECTIVE AREA ORIENTATION



1. **A complete Fire Support Plan is created for a Helicopter Assault:** Appendix 19 (Fire Support Plan) to Annex C (Operations). The EFL and FSC, with guidance from the MC and AMC, must plan together to integrate air and ground fires.
  - a. Fires in support of the objective and ground scheme of maneuver.
  - b. Fires in support of the helicopter insert.
  - c. Fires, particularly SEAD, in support of helicopter routing.
  - d. Fires in support of extract while in contact with the enemy.
2. **For distant objectives, outside artillery range, artillery can be externally lifted by CH-53 to support the ground scheme of maneuver.** Early insert is best to support follow-on inserts, and immediate enemy response. Details need to be planned:
  - a. External lift procedures. Sending and receiving HST capabilities. Air panels, oriented on the GTL, need to be pre-positioned by the artillery survey team. LZs must be surveyed for stable soil. Too much dust will result in lost tubes.
  - b. External lift of ammunition. Sending and receiving HST capabilities.
  - c. Gun procedures without forklift MHE, HMMWVs, or trucks
  - d. Insertion of survey teams day prior. *See I/EO Responsibilities.*
  - e. Organization of ground link-up echelon. Linkup procedures. Inability to linkup due to terrain may require helicopter extract.
3. **All aviators are capable of calling for fire.** Cobras need Artillery COF (SINCGARS) capability. Air units use COF nets to make calls for fire during movements, insertions and extractions. Pre-planned targets can be shot by R&S, EFL, AFL, AMC, Co or HHQ. All assets need to know this. Priority targets and triggers need to be established along the insert route.
4. **The Connectivity Diagrams show the critical fire support paths.** Paths from ground units, especially R&S, to RWCAS and FWCAS, must be shown. The comm plan must support the Fire Support Plan. Fires handover from R&S to EFL to Company to Battalion to Regiment needs to be shown on the Connectivity Diagram.
5. **For operations outside the range of artillery, aviation fires are the sole assets available.** RW/CAS is the primary support fires that a HUC will receive during insert.
  - a. RW/FAC(A) Cobras have SINCGARS.
  - b. RW/FAC(A) Cobras fire artillery on COF (SINCGARS), Regt FSC or Air Spot Net.
  - c. Cobra MSN REP, BDA is good feedback that should get to the S-2.
  - d. EFL precedes the wave into the zone and gives the 'winter' call. EFL takes handover from R&S assets and exchanges information on targets

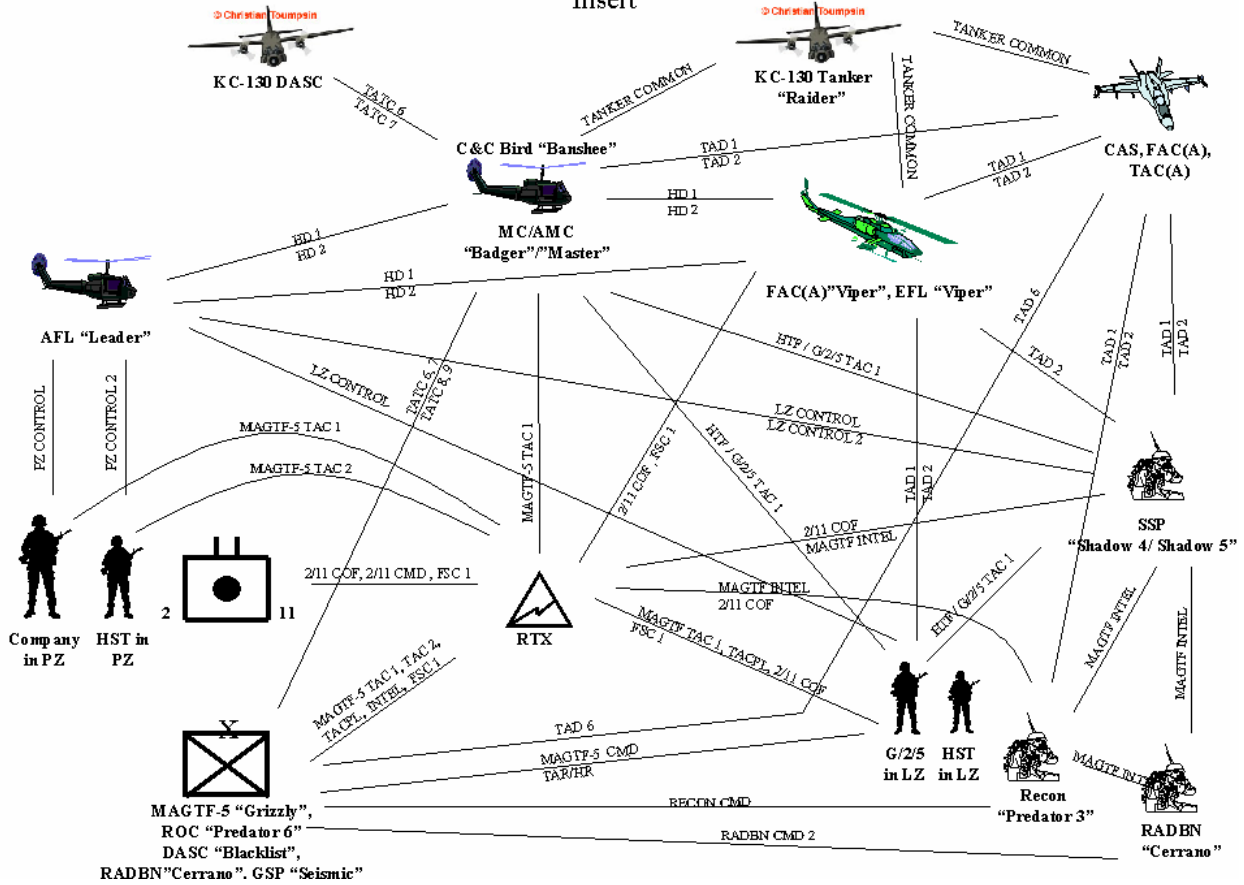
- e. The Connectivity Diagram, Objective Area Diagram, and Comm Cards need to include details of comm between R&S and EFL, Co and EFL, ground units and AFL, and all units to AMC / MC.
6. **Air and ground leaders need to be familiar with the retrans plan and relay possibilities:** DASC, TACC, Forward COC, RTX (ACE, Bn, Regt). COC can pass intel and operations information to EFL through ASE, or to MC on TAC-1.
8. **Fires deconfliction is a dynamic process.** FSCM do NOT work by themselves. Gun Target Lines are not a panacea. A GTL only exists while the gun is firing.
9. **The FSC must approve all aviation control measures.** Alternate HAs and MCAs are planned so that artillery can shoot through non-active MCAs. C2 A/C can alternate MCAs based on phases of air movement, comm or visibility requirements. Multiple BPs are planned for RW/CAS: If friendlies block LOS or impact of weapons, if enemy threatens BP, or if PGMs are obscured by dust and smoke.
10. **Regiment should establish an HF FSC-2 net** for long haul comm from Bn FSC to Regt FSC and artillery battalion.
11. **The following combined arms cycle represents the minimum number of MAGTF assets needed to effectively prosecute the combined arms battle:**
- (2) sets of eyes to locate and identify the target
  - (2) paths of comm connectivity to report the target
  - (2) shooters to prosecute the target.
  - (2) sets of eyes to report BDA
12. **Notes on Battle Handover**
- a. **R&S to FAC(A)**
- Enemy SALUTE
  - Terrain Masked Area
  - Friendly Situation / Locations
  - Fires Initiated and registered. Target Numbers, Fire Plan Updates
- b. **FAC(A) to HUC's FiST**
- Enemy SALUTE
  - Targets Recorded / Refined / Fired
  - Friendly Situation: Assets Available, R/W, F/W, Indirect, R&S Locations / Nets
  - HUC's minimum communications requirements established
- c. **FiST to FAC(A) for withdrawal**
- Enemy SALUTE
  - Friendly Situation / Locations
  - Obstacle Plans
  - Fire Plan / FAC(A) Responsibilities
  - Scheme of Maneuver / Disengagement Plan
  - Initiation of Fires / Hand-Off Point

1. **Draw all key units and agencies.** Insure recon units and RTX sites are included.
2. **Draw the comm links between each agency.** All comm paths need TWO channels, a primary (P) and an alternate (A). Two bands are recommended. Example: Primary TAD is UHF 273.00, Alternate TAD is VHF 350 (or 35.75 SCPT). The preferred alternate path is another band (VHF vs UHF vs HF vs SATCOM).
  - a. Each comm link shows the primary guarded net on top of the line with the secondary and tertiary link below the line. Non-standard nets have notes in parenthesis. For HQ elements, which guard multiple nets, multiple nets are shown above the line.
  - b. Include TAD nets from all units to CAS agencies.
  - c. Include LZ Control Nets for both PZ and Insert LZs. *See Communications SOP.*
3. **A single Connectivity Diagram in an integrated document.** Both ground commanders and pilots access identical information.
  - a. For large helicopter assaults, a series of complete connectivity diagrams are created, one for each phase: Pre-L-Hour Operations, PZ and In-flight operations, Insert LZ and Ground Operations. Recommended phases follow location of MC, from PZ to MCA to insert or off-station.
  - b. The DASC officer should brief these documents to insure ground – air connectivity.
  - c. The Comm Card for the pilots should reflect all players and actual callsigns. The comm. card must be reconciled against the ACEOI and connectivity diagram.
4. *See example Connectivity Diagrams.*

*See Communications SOP.*



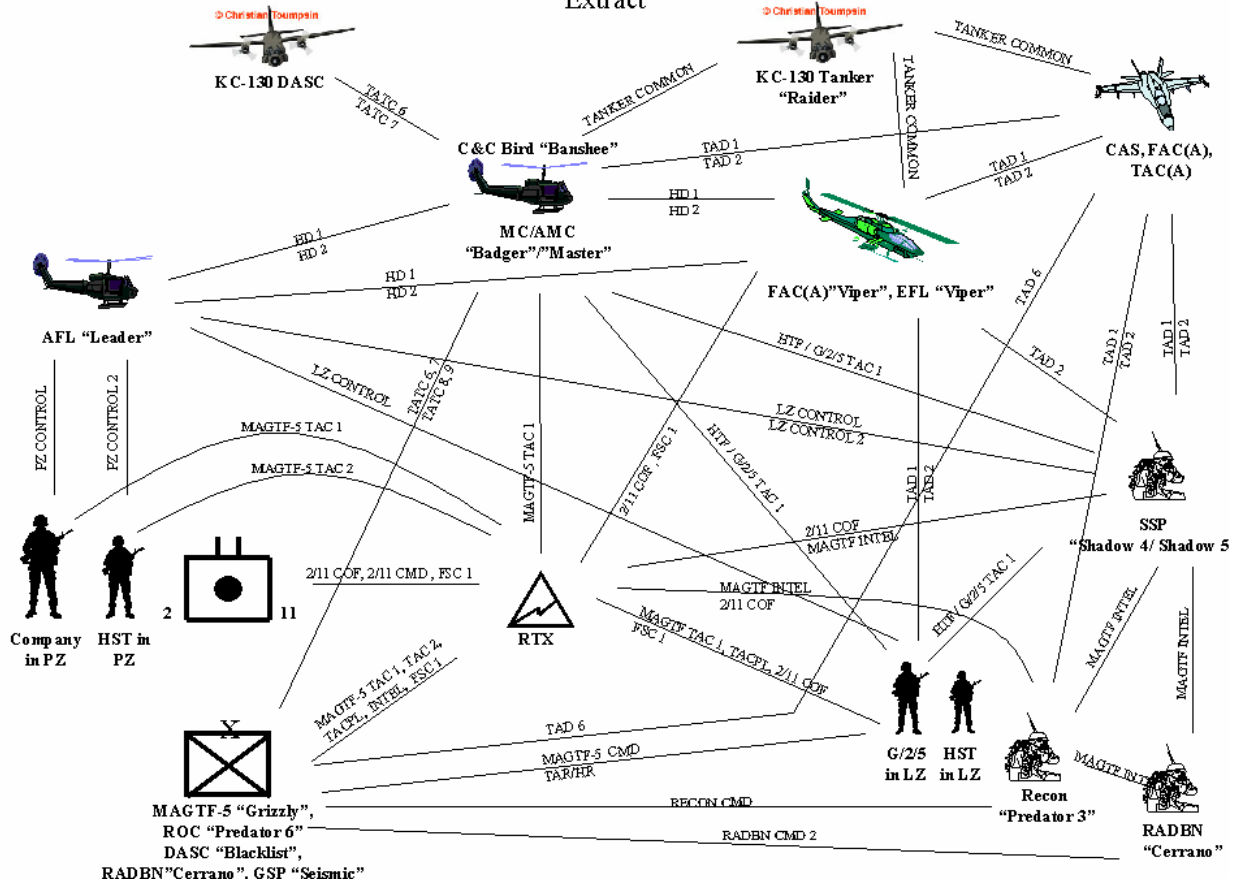
### Connectivity Diagram to HTF OpOrder 5-2 Insert







### Connectivity Diagram to HTF OpOrder 5-2 Extract



1. **The Regiment publishes one integrated CEOI.** Only ONE agency updates and disseminates the CEOI. The CEOI includes all callsigns, nets, challenges/passwords, and AKAC. Changes are forwarded and cleared and redistributed to all units. Integrated communications planning insures that the ATO publishes the same net assignments, hasty encryption, and challenge and passwords.
  - a. All nets are public. MSEs do not publish “local” CEOIs.
  - b. MSEs need to do a bottom-up refinement of the CEOI so changes can be published.
  - c. All ground unit callsigns need to be published. During assaults, callsigns need to be clearly identified. Is “2/5 Forward” the CO in the A/C, or the four COC vehicles waiting at the PZ?
  - d. Ground and air units need the same AKAC cards or hasty encryption scheme for encryption on uncovered nets. The ATO and CEOI need to be reconciled.
2. **Infantry Battalions need more UHF radios.** UHF is the primary band for helicopter operations. Four locations require UHF radios: PZ Control, LZ Control, FiST FAC, and HUC. For battalion helicopter operations, eighteen (18) man-pack UHF radios (PRC-113) should be acquired.
3. **Aviation planners need to work VHF nets, especially SINCGARS.** A Single loadset (LST) guarantees all radios have the correct SINCGARS loadset. The S-6 insures SINCGARS connectivity across ground and air nets. The use of uncovered single channel frequencies should be avoided.
4. **Ground officers need to be trained on the CEOI, smart pack, aviation specific command and control, and alternate net options.**
  - a. Retrans nets, capabilities and procedures need to be well briefed and well understood by all units.
  - b. TAR / HR (HF) is the primary net for requesting A/C: CAS, Assault Support, and CASEVAC. TAR/HR-2 should be set to a VHF net. This net should be RTX. Any ground commander can then talk straight to the DASC and request aircraft. CAS and CASEVAC can be requested. This option should be well understood by ground leaders.
5. **SATCOM networks.** SATCOM terminal base address (TBA) and freqs need to be on the CEOI.
6. **All rehearsals should be comm rehearsals.** Primary, alternate and tertiary nets should be tested to validate crypto, load sets, and the RTX plan.
7. **The retrans plan needs to be robust and redundant.** The Operations Officer sets the RTX priorities. The RTX plan needs to support ground – air nets as well as tactical ground nets.
  - a. Foot mobile RTX teams can support only a limited number of nets: Two Marines per net per day.
  - b. Vehicle inserts, if possible, support more nets, with a tradeoff between stealth and supportability.
  - c. Subordinate units coordinate their RTX units and net requirements with the S-6.
  - d. RTX plan needs to be clearly shown on the Connectivity Diagram. Both ground commanders and pilots access identical information.

8. **Regiment does NOT own sufficient communications equipment to loan to subordinate units.**
9. **The DASC(A) provides positive communications with aircraft and ground forces.** DASC(A) can relay information to and from the AMC/MC, EFL, AFL, and ground commanders.
10. **DASC. ASE or ASLAT augment of Regimental COC is critical for long-range helicopter operations.** Critical communications paths from Regimental COC with MAG / TACC and A/C in flight is done best by the ASE. The ASE keeps Regimental FSC aware of Air Fires issues.
11. **HF is the primary long-haul comm path between widely separated ground units during long-range helicopter operations.** Regiment and all MSEs need HF expertise and equipment.
12. **Communications paths for situation updates and BDA need to be clearly established.** Routing, FSCM, active target GTLs, units in contact, updates of enemy SAMs are passed on multiple paths:
  - FAC(A) passes to EFL
  - Pilots receive updates at Flight Line Intel Center (FLIC), if it exists.
  - FST with infantry company passes information to EFL in mission area.
  - R&S elements pass information to EFL in mission area or to Co CO on HTF or Co Tac.
  - FSCC / DASC passes information to ACE enroute to mission area.
  - Pilots pass information between waves inbound and outbound.
  - TACC / COC passes information prior to launch.
  - ASE / DASC passes real time information to A/C checking in or out.
  - F/A-18D in the radio relay mode passes to ground and air agencies.
13. **The LZ Control Net is a critical link for successful PZ, Insert LZ, and Extract LZ operations.** The S-6 needs multiple LZ control nets available during planning and on-call during execution.
  - a. **All LZs need an LZ Control Net.** Multiple LZs may have the same net if distant or not in simultaneous use.
    - When Insert LZ becomes Extract LZ, incoming A/C need comm with Marines on deck.
    - LZ Control Nets are NOT assigned to Units, but to zones.
    - PZ Operations require an LZ Control Net.
    - LZ Control Nets minimize traffic on Squadron Common, Mission Common, or unit Tac nets. LZ Control *cannot* be TACP Local or a TAD net.
    - LZ Controller is not a FAC or TACP. FACs prosecute targets during LZ operations.
  - b. **The Primary LZ Control Net is UHF.** Mandatory secondary net is VHF SINCGARS or SC/PT if A/C do not support SINCGARS comm. Primary can be VHF if A/C and AFL will support.
 

LZ EAGLE	GOLD (247.00 )	ID 303	35.30
LZ HAWK	GREEN (301.00)	ID 308	35.65

    - SINCGARS requires coordination and a single fill source for both air and ground radios.
    - AFL must monitor both primary and secondary LZ nets in LZ vicinity. Some units have only VHF radios and can only come up on the secondary. Dash-last monitors LZ Control.
    - Non-Marine A/C may not be covered or may be covered with a different fill. Army MEDEVAC is probable.
  - c. **Connectivity Diagrams, PZ Diagrams, Insert LZ Diagrams, and Extract LZ Diagrams need to show LZ Control Nets.**

1. **Extract LZ Diagram.** A separate extract LZ Diagram is created for each planned extract LZ. This is done even if the LZ was originally used as an Insert LZ. The comm plan, connectivity diagram, and objective area diagrams should remain the same as far as possible. Extract LZ Diagrams are planned with the same level of detail as Insert LZ Diagrams. An Extract LZ Diagram contain everything that an Insert LZ Diagram has, plus:
  - a. ITG, stick assembly areas, and enemy situation
  - b. The extract scheme of maneuver includes fires in support of extract. Fires to disengage usually include M825 obscuration fires with HE/DPICM to suppress.
    - (1) Battle handover from FiST element to EFL.
    - (2) New FSCM.
    - (3) New targets, including obscuration, in support of the extract.
    - (4) Infantry mortars deconflicted with flight routes
2. **The AMC needs to plan two aircraft on the last flight for straggle accountability.**
3. **The FSC needs to save FS assets for the last wave.**
4. **The LZ Control Officer controls the extract.** The LZ Control Officer establishes comm. on the LZ Control Net, passes the grid of the extract LZ, marks the LZ, and continually passes updates on the enemy and friendly situation. He knows the number of birds expected and the HUC's extract scheme.
  - a. The FAC fights the extract fight. During the last wave, the FiST conducts a BHO with an orbiting RWFAC(A) or FWFAC(A).
  - b. If the withdrawal is done under enemy pressure, combat power is kept on the ground as long as possible. Sticks do not form up until A/C are in the zone. Fewer A/C per wave is easier for the HUC.
  - c. The HUC needs direct communications with the AFL, especially if the AMC and the Command and Control A/C is not flying during the extract.
  - d. The MACO keeps the critical count of Marines remaining to be extracted.
  - e. The LZ Control Officer, MACO, and FiST extract with the last wave.
5. **Aircraft Coordination.** For night extracts under pressure, squadrons mark A/C with chemlites in the windows to minimize confusion during loading.

1. **Every LZ needs ONE method of far ITG and ONE method of near ITG:** every insert zone, every extract zone, every wave. Although radio is always the primary signal, ITG is always emplaced. The no-comm plan is to use ITG only. ITG marking may be at a separate grid from the LZ center grid. The LZ Diagram should show ITG position and ITG description for Day / Night / Primary / Alternate. Secondary ITG is needed to differentiate additional landing points for external loads.
2. **Day ITG**
  - a. Far
    - (1) Pyro: Star clusters, star parachutes, Illum
    - (2) Signal Mirror
  - b. Near
    - (1) Air Panel
    - (2) Smoke. Do not announce the color. Have pilot confirm the color.
  - c. Notes on Day ITG
    - (1) Attach (6) cords to each air panel for tie-down purposes. Carry nails.
    - (2) On radio, vector aircraft toward you using the clock method: "I am at your 9 o'clock."

### 3. Night ITG

- a. Far
  - (1) Infrared: IR Strobe. Preferably a programmable Phoenix beacon which emits a code that the pilot can confirm. Strobes can be made directional by placing in 60mm mortar fiber or M-203 barrel.
  - (2) Infrared: IR Laser Pointer 'Rope.' An IR laser pointer, held vertically, drawing circles in the sky.
  - (3) Infrared: Chemlite 'Buzzsaw.' An IR chemlite tied on a string, looped continuously in a 6-foot arc.

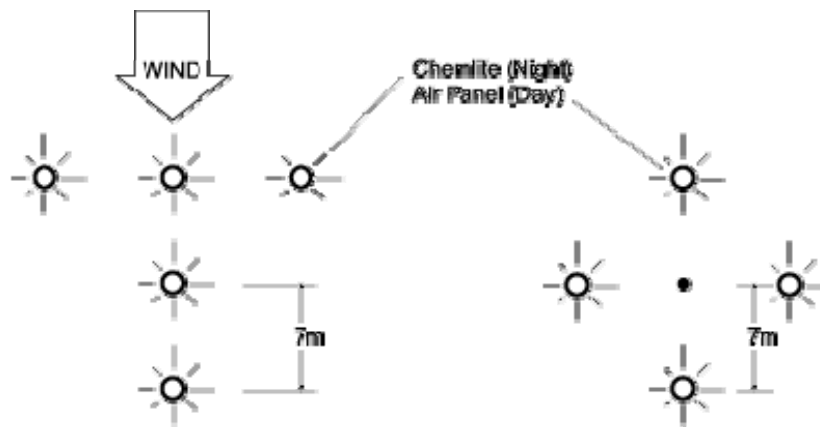


- (4) Visible Light: Chemlite 'Buzzsaw.'

- (5) Visible Light: Flashlight. Flashlight can be made directional by placing in 60mm mortar fiber of M-203 barrel. Visible red light should NOT be used as it interferes with pilot NVGs.
- (6) Visible Light: Pyro, Star clusters, Star parachutes, Illum.

b. Near

- (1) Infrared: Chemlite Wind 'T.' The 'T' is the landing point of the first helicopter. Helicopter lands nose into the wind, so that the 'T' is readable. Additional landing points can be marked with a cross. Seven meters between chemlites is standard.
- (2) Visible Light: Chemlite Wind 'T.'

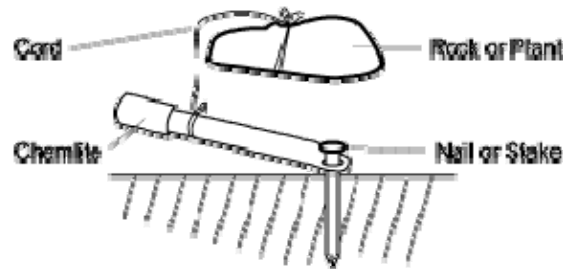


- (3) Visible: Smoke, which is visible to pilots on NVGs, CAN be used on clear nights.

c. Notes on Night ITG

- (1) Do not use unfiltered (white) strobe as it can be confused with muzzle flashes.
- (2) Passive IR is recommended for Marines on the ground. Glint tape on helmets, IR chemlites on stick leaders. Position of chemlites worn can be used to differentiate units on the ground. Pilots need to be briefed on unit IR SOP: Flashing strobes on FACs, steady strobes on unit leaders, multiple IR pointers for multiple tasks.
- (3) Visible light chemlites can be worn by stick leaders. Colors can differentiate units.
- (4) External lighting on aircraft can be used to differentiate specific helicopters or waves. PZCO must be aware of lighting plan.
- (5) Obstacles should be marked with chemlites. Pilots need to be briefed to differentiate obstacles from landing points.
- (6) From the air, IR chemlites are usually more visible than colored chemlites. IR chemlites are *not* as visible on high-light-level nights.
  - (a) The brighter the ambient lux, the brighter the chemlite color needs to be.

- (b) Red or White is more visible on a high-light night than blue or green. IR or green is more visible on a low-light night.
- (b) If using colored chemlites, tape two chemlites together at each position. All chemlites need to be doubly secured to the deck to prevent scattering under rotor wash. Primary technique is a stake in the ground. Secondary is a cord tied to a rock or bush.





1. **Immediate Re-embark Plan.** If the insert is aborted while the A/C are still in the objective area, Marines re-embark in the same A/C. The PZ plan should mirror the insert plan that should mirror the immediate re-embark plan.
2. **Extract Plan.** An alternate LZ, some distance from the objective, is planned as an extract LZ. An LZ Diagram is created. This extract can be pre-planned on on-call. Once on the deck, the HUC can adjust his extract plan and pass adjustments back to HHQ on an A/C later in the day.
3. **E&R Plan.** The E&R route for a helicopter assault should be along the flight route. Plan a simple recognition signal such as “left hand on top of head.”
4. **GO / NO-GO Criteria.** Prior to mission launch, what pre-requisites, either equipment or conditions, need to be met? Local NO-GO criteria do not prevent large coordinated missions.
5. **Abort Criteria.** Once mission is inbound, what constitutes abort criteria, and who has abort authority? Usually, abort and delay L-Hour authority is the HTF commander. Authority to change routes is usually the AMC. Authority to change LZs is usually the HUC.
6. **No Comm Plan.**
7. **CASEVAC Plan.** The CASEVAC Plan is a HHQ responsibility. Any CASEVAC plan must conform to the theatre medical plan that is the start point for casualty planning.
  - a. During insert, empty A/C can be diverted to evacuate casualties. A robust Landing Plan will have A/C remain on station as contingency CASEVAC A/C.
  - b. CASEVAC procedures must be executable by all separate units.
    - (1) Comm. Requests for aerial CASEVAC are sent from Battalion AirO to DASC.
    - (2) Non-standard comm paths, without the Battalion AirO assistance, need to be clearly understood. A VHF comm path needs to be planned for multiple separate ground units that need to request CASEVAC.
    - (3) ITG detail and procedures. Control of CASEVAC A/C is NOT done by a FAC. A single LZ Control Net should be defined by the CASEVAC Plan. VHF is best for the CoGySgt.
    - (4) How long does it take to reconfigure a helicopter to a stretcher-bearing CASEVAC A/C, assuming the equipment is available?
  - c. CASEVAC destination and on-call treatment. RAS is NOT a Higher level of care and will not be the destination for helicopter CASEVAC. Accountability of casualties is executed on Tac-2 .
  - d. AMC decisions that affect CASEVAC response time, such as refueling, need to be understood by the MC.
  - e. Infantry Battalions are weak on foot mobile BAS. BAS may not be inserted.

1. The following documents are usually produced by aviation planners. Ground commanders and leaders need to be familiar with the formats and participate in the creation of these documents:
  - Execution Checklist
  - Comm Card and Cover Sheet
  - Mission Timeline
  
2. **Execution Checklist.** The MC fills in his minimum information requirements on a blank Execution Checklist and hands that to the AMC for completion.
  - Do not create a brevity code for series time on targets (TOT).
  - Brevity codes are only initiated by the agency listed on the execution checklist, and passed with a time hack: “BETTY at time four-zero, over.”
  - Prior to an event occurring, questions on the radio do NOT use the brevity code. The proper technique is “What is the status of line twelve?”
  
2. *See Example Execution Checklist.*

*See Example Comm Card.*

*See Example Mission Timeline.*

## EXECUTION CHECKLIST

LIN E	M/ X	EVENT	NET	FROM	TO	VIA	TIME	BREVITY
01	M	R/W at BP CORN	HD-1	EFL	AMC			ANN
02	M	F/W on Station	HD-1	DASC	AMC			BETTY
03	M	Strike on Obj 3 Complete	HD-1	EFL	DASC			CATHY
04	M	Assult Package in PZ	HD-1	Evil	AMC			DEBBIE
10	M	Wave 1 Airborne	HD-1	Evil	AMC			FRAN
11	M	Wave 1 Inserted	HD-1	Ghawk	AMC			DELIA
12	M	2/5 Fwd COC Up	MAGTF CMD-1	HUC	MC			GWYNN
13	M	Wave 2 Airborne	HD-1	Evil	AMC			HOLLY
20	M	Wave 2 Inserted	HD-1	Ghawk	AMC			JANE
21	M	Wave 2A Airborne	HD-1	Rocky	AMC			KELLY
22	M	Wave 2A Inserted	HD-1	Rocky	AMC			LINDA
23	M	Wave 3 Airborne	HD-1	Wolf	AMC			SALLY
30	M	Wave 3 Inserted	HD-1	Wolf	AMC			TINA
31	M	Wave 4 Airborne	HD-1	Wolf	AMC			URSULA
32	M	Wave 4 Inserted	HD-1	Wolf	AMC			VERONICA
40	X	Request Resupply	MAGTF TAC	HUC	MC			LIONS



**FINEX 5-01 COMM CARD**

<u>AGENCY</u>	<u>CALLSIGN</u>	<u>FREQ</u>	<u>COLOR</u>	<u>REMARKS</u>
MSN CMDR	BADGER	NID 303	AUBURN	
AIR MSN CMN	MASTER	301.050	COPPER	HD-1
AMC (ALT)	MASTER	303.550	YELLOW	HD-2
ESCORT CMN	VIPER	284.275	GREASE	
AFL CMN	LEADER	310.95	HAZEL	
GROUND	PALMS GROUND	363.3	BLONDE	
TWR	PALMS TOWER	340.2	WHITE	
TAD-1		396.875	VIOLET	
TAD-2		276.450	BROWN	
TAD-6	SHOE	283.250	AQUA	MAGTF AIRO
G/2/5 TAC	G6	NID 359	CHARTRUSE	
2/11 COF	SHOGUN	NID 565	TAN	
2/11 CMD		NID 559	ECRU	
FSCC	5 <sup>TH</sup> MARINES	NID 312	CREAM	
AA SPOT	SHOGUN	30.075	ROUGE	
MGTF TAC 1		NID 303	TURQUOISE	
MGTF INTEL		NID 309	BEIGE	
TATC-1	ICEPACK	268.375	BLUE	
TATC-2	ICEPACK	270.675	GRAY	
TATC-3	ICEPACK	270.750	LIME	
TATC-7	BLACKLIST	275.275	TOPAZ	
TATC-8	BLACKLIST	NID 770	BLACK	
TATC-9	BLACKLIST	30.725	MAHOGANY	
TANKER CMN	RAIDER	249.875	SEPIA	
TANKER ALT	RAIDER	250.750	INDIGO	
LZ CTL 1	SHADOW 4	266.725	FUCIA	ALBATROSS
LZ CTL 2	LZ CNTROL	305.075	LEMON	BLACKBIRD
PZ CTL 2	PZ CTL	307.550	NUTMEG	PAX
PZ CTL 2	SHAMROCK	305.075	LEMON	HST

# HAC TIMELINE

▲ DEPART EAF    ▼ LAND AT...  
 ▽ LAND EAF    ▲ LAUNCH

	L - 2:00	L - 1:30	L - 1:00	L - 0:30	L-HOUR	L + 0:30	L + 1:00	L + 1:30	L + 2:00	L + 2:30
C&C			EAF ▲ MCA ▼			EAF ▼			EAF ▼	
TAC (A)			-50 -40		10 20	40 50			2+10	
FW FAC(A) W/ ESCORT			-45		15		1+25			
FW CAS			-1+15		-15					
			-1+05		-20 -15		1+15			
AH-1W					BP BOA -20		1+15			
					BP DIA BP BOA -55					
					EFL					
CH-46										
CH-53										
C-130										
2/11										
PREDATOR 3										
HTF										

FIST CONTROLS FIRES

ON CALL -- 1600

FIRE CAP

REFINE  
GRID  
FOR  
SEIHTF

1. **The AMC establishes the number and type of aircraft in each wave.**
2. **The HUC divides his force and assigns sticks to specific helicopters.**
  - a. Sticks should be (12) Marines. One stick fits on a CH-46, two sticks fit on a CH-53. During the bump plan, all sticks can be reassigned to any type of aircraft. Stick size limitations are peace-time only.
  - b. Unit leaders and crew-served weapons are spread loaded. Attachment for movement dissolves upon insert.
  - c. External loads, including vehicles, should be assigned a single stick number. CH-53s can lift (24) Marines in addition to the an external HMMWV.
  - d. Blocks of four-digit stick numbers are assigned to each battalion by regimental SOP. Standard stick numbers associate sticks with specific units and minimize confusion.

0000 – 0999	HqCo
1000 – 1999	1st Battalion
2000 – 2999	2nd Battalion
3000 – 3999	3rd Battalion
4000 – 4999	4th Battalion
5000 – 9999	Attachments
  - e. Each stick is assigned a stick leader. The stick leader insures accountability, creates a manifest for the MACO, and leads his stick from the AA through the MACO gate, to the staging point, and onto the A/C.
3. **The HWSAT is a personnel assignment table.** It is used by unit leaders, the MACO, the PZCO, and by the AFL and his pilots. Pilots in the PZ use the HWSAT to reconcile the load plan.
  - a. Each line represents a separate helicopter.
  - b. Each column contains information about the specific stick assigned to that helicopter.
  - c. Weight information is important for helicopter fuel calculations. The pound symbol indicates weight: “25#” is twenty-five pounds. Assume a fully loaded Marine weighs 240 pounds. Significant equipment, radios, crew-served weapons and water jugs, should be included. A M9998 HMMWV weighs 5200 lbs.
4. **For large operations, a separate HWSAT page should be created for each wave.**
5. **The HUC is assigned to the AFL’s A/C.** This allows communications and decisionmaking within a single A/C.

## HELICOPTER WAVE AND SERIAL ASSIGNMENT TABLE

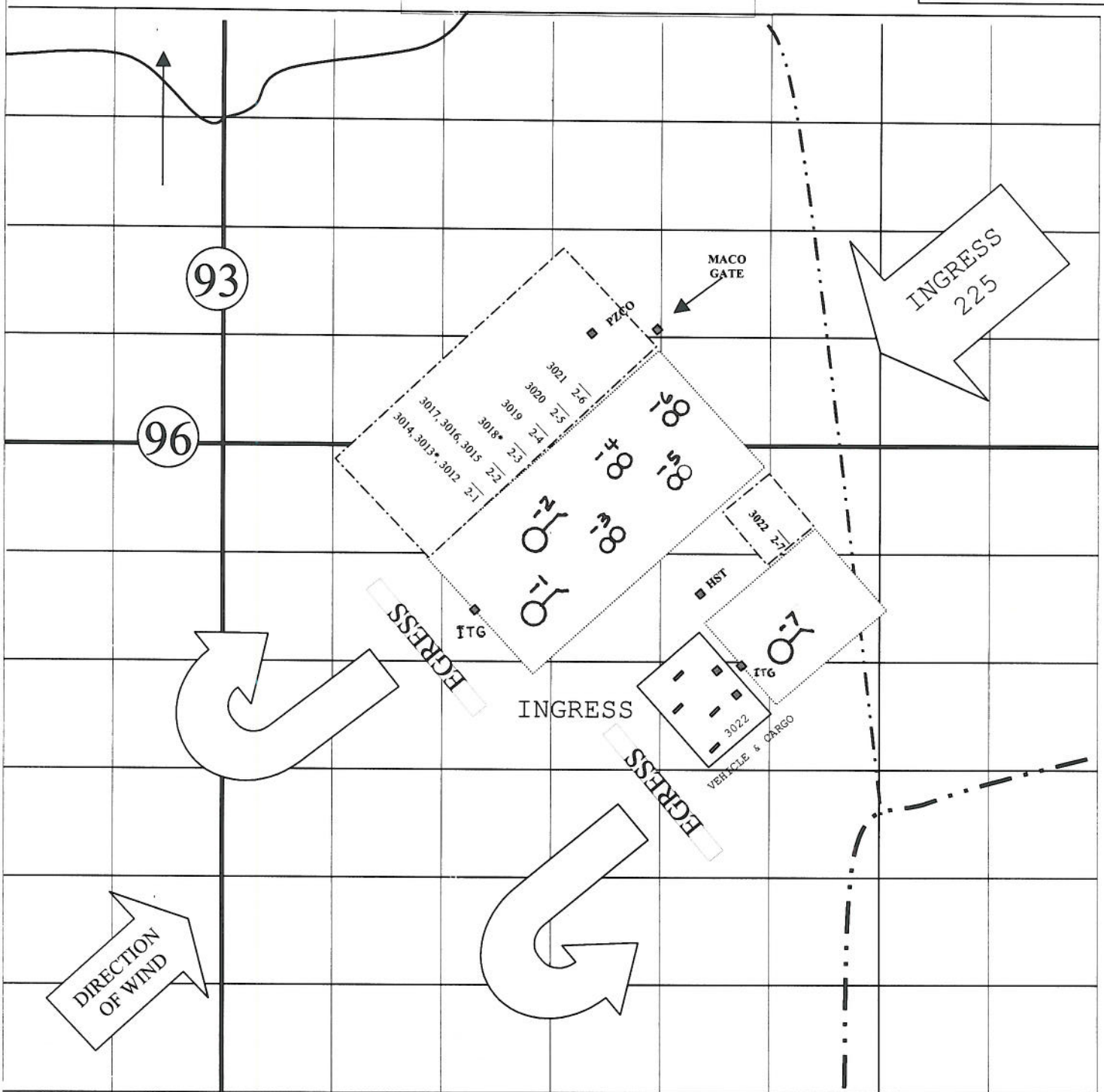
A/C	SERIAL	PERSONNEL		EQUIPMENT	WEIGHT		
		UNIT	NO		PERS	EQUIP	TOTAL
1-1	2100	Co E	12		2880	0	2880
1-2	2110	Echo 1st	12		2880	0	2880
1-3	2111	Echo 1st	11	(2) M240Gs (25#)	2880	50	2930
1-4	2112	Echo 1st	12		2880	0	2880
1-5	2120	Echo 2nd	12	(1) M240G (25#)	2880	25	2905
1-6	2121	Echo 2nd	12		2880	0	2880
1-7	2122, 2130	Echo 2/3	24	(2) M240G (25#)	5280	50	5330
1-8	2132, 2134	Echo 3rd	24		5760	0	2880
1-9	2142, 2144	Echo 4	22	(2) M224 (50#)	5280	100	5380
2-1	2310	Co G	12		2880	0	2880
2-2	2314	Co G	12		2880	0	2880
2-3	2316	Co G	12		2880	0	2880
2-4	2317	Co G	12	(2) Mk-153s (25#)	2880	50	2930
2-5	2319	Co G	12		2880	0	2880
2-6	2000	Bn COC	12	(4) PRC-119 (25#)	2880	100	2980
2-7	2001	Co Veh	0	HMMWV	0	5220	5220
2-8	2002	AirO	0	HMMWV	0	5500	5500
2-9	2004	FSC	0	HMMWV	0	5500	5500
		<b>TOTAL</b>	213	(3) HMMWV			





1. **Obtain maps and imagery of the PZ from the S-2.**
2. **Draw a large-scale diagram of the PZ.** Include enough detail so that both A/C and sticks can orient themselves on the ground. Add a north-seeking arrow. Make the top of the page **North**, if possible.
2. **Plan the following details on the diagram:**
  - a. PZ Name  
Grid (Horizontal Datum)  
Surface  
Elevation (feet MSL)  
Winds  
Obstructions / Buildings
  - b. A/C Landing Point  
Landing formation (Dash Numbers)  
    HLZSA (If support area is designated for mixed flights and external loading of CH-53s)  
Ingress Direction / Departure Direction  
Waveoff Direction  
ITG, if needed  
Sun and Moon (Time, Direction, Illum)
  - c. PZCO location  
MACO location  
Sticks (arranged in staging order)  
Bump Plan  
    Easiest Bump Plan is a listing of sticks in priority order. Lowest priority stick is bumped first.  
    HWSAT may show Bump Plan, but PZ Diagram is a more useful document if the Bump Plan is shown.  
Straggler Control Point  
    Bumped Sticks assemble here for the PZCO to assign to later flights.
  - d. Comm Details  
LZ Control Nets. (Primary and Alternate).
4. **If details of follow-on waves are considerably different from 1st, consider drawing a separate PZ Diagram for each wave.**
5. *See Example PZ Diagram.*

*See PZ SOP.*



**PZ VULTURE**

LZ CONTROL NET : 266.725 (P)  
 LZ CONTROL NET 2: 30.675 (A)  
 PZ CONTROL NET: 312.350 (P)  
 PZ CONTROL NET 2: 30.025 (A)  
 HST CALLSIGN: SHAMROCK 4  
 PZCO CALLSIGN: PZCO

DAY ITG: FAR: GREEN SMOKE  
 NEAR: AIR PANEL

NIGHT ITG: FAR: IR STROBE  
 NEAR: IR CHEMLIGHT

BUMP PLAN STICK PRIORITY:  
 3000, 3001, 3002, 3003, 3004, 3005, 3006,  
 3007, 3010, 3011, 3008, 3009, 3018, 3012,  
 3013, 3014, 3015, 3016, 3017, 3022, 3019  
 3020, 3021, 3022, 3023, 3024, 3025, 3026  
 3027, 3028, 3029, 3030, 3031  
 BUMP FROM BOTTOM UP

LOC: 11S NU 925 955  
 COMP: SAND/ROCK  
 SIMENSIONS: 300 X 300 M  
 ELEV: 2250 FT

1. **Regiment does NOT run a single regimental PZ for large-scale helicopter operations.** Each battalion establishes and runs its own PZ. Regimental units, including HqCo, may be attached for movement to an infantry battalion.
2. **A/C formation in PZ should parallel A/C formation in Insert LZ.** This simplifies planning and assists Marines' situational awareness once in the insert zone.
3. **In the PZ, each stick leader carries a placard containing his stick number and the name of his primary insert LZ.** This card is handed to the pilot once aboard the aircraft. In well-planned inserts, this card will match the information on the HEALT and HWSAT. In hasty operations, this may be the only communication the pilot receives.
  - a. In a large zone, sticks may be assigned specific landing areas. Placard should then include area assignments.
  - b. If the number of Marines on the stick changes, the placard should note this so the AFL can reconcile his HWSAT prior to takeoff.
  - c. In an airport PZ, crew chiefs can guide sticks from a single staging area to specific aircraft.
  - d. A radio with each stick team facilitates adjustments by the PZCO at the PZ.
4. **Each PZ needs a single Pickup Zone Control Officer (PZCO) to organize and control the PZ.** The PZCO insures that the staging plan and loading plan are executed correctly. PZCO for battalion lifts is the Bn XO, Co XO for company lifts, Platoon Sergeants for Platoon lifts. PZCO establishes comm with AFL on LZ Control Net and sticks on the ground. The PZCO:
  - a. Forms a control group:
    - (1) Can include the MACO, ATC, HST, ACE LnO, ROs, guides, security, CASEVAC reps, straggler NCO, and subordinate unit LnOs.
    - (2) The Marshalling Area Control Officer (MACO) is a separate leader who collects manifests and controls accountability at the MACO gate. The MACO works for the PZCO.
    - (3) HST Marines are attached to the PZCO for sending external loads.
  - b. Communicates on three nets:
    - (1) The PZCO establishes comm with the incoming AFL on LZ Control. Primary is UHF. Secondary is VHF (either SINCGARS or SCPT). PZCO should be able to communicate with MC / AMC airborne, AFL, and EFL, if needed. Incoming AFL briefs the PZCO on the status of the waves to insure that bumps are made prior to touchdown.
    - (2) PZCO has comm with units in order to execute bump plan and move sticks in a large PZ. HST teams communicate with PZCO. ISRs increase PZ communications.
    - (3) PZCO has comm with HHQ. For battalions, PZCO has comm with battalion, who in turn maintains comm with Regiment. Intelligence updates on the changing enemy situation are passed from HHQ to the PZCO who passes it along to waiting sticks.

- c. Plans fire support and plans security for the PZ.
  - d. Clears PZ and marks the PZ. In an established PZ, not much ITG is needed. For large waves, stick staging points need to be measured and marked on the deck.
  - e. Executes the bump plan and repositions sticks within the PZ.
  - f. Ideally, the PZCO is not flying. He either remains behind in charge of the rear COC or leads the follow-on ground echelon to link up with the assault echelon later.
  - g. If flight has a light SOP, usually used for EMCOM launch, PZCO needs to know signals. The PZCO needs to know aircraft marking procedures.
5. **Multiple PZs.** A single AMC needs to deconflict helicopter routes in and out of multiple PZs. Multiple PZs probably should employ a mobile ATC detachment from the ACE.
6. **A PZ rehearsal is recommended.** Especially if the bump, accountability, and communications plan are to work. In a large PZ, with over a dozen helicopters in the PZ simultaneously - external loads, pax, C&C, escorts - the PZ plan needs to be well understood.
7. **Water must be resupplied in the PZ so Marines do not fly dry.** Trash must be picked up the PZ.
8. **PZ Names.** SOP for PZ names is animals. Insert LZs are birds so no conflict is introduced between PZ names and LZ names. Multiple PZ should be marked with different colored signals or panels.
9. **Bump Plan**
- a. Plan. The easiest bump plan is a single stick priority list. Do not plan separate bump plans for each wave. Do NOT try to cover all possible combinations of helicopters going down - that is the PZCO job. Sticks listed last are bumped first. Do NOT number serials in priority order. Number serials as unit blocks.
  - b. A straggler control point is established at the PZ. Bumped Marines report to the straggler control point. The PZCO is responsible for manning the straggler control point. The MACO needs a plan to account for bumped Marines.
  - c. Execution. Helicopters should arrive according to the PZ Diagram and HEALT. Changes to formations and A/C require stick changes. Ideally, the AFL informs PZCO on LZ Control and the PZCO executes the bump plan *before* A/C are on the deck.
10. **External Loads**
- a. If a HLZSA is part of the PZ, cargo loads that include pax are staged together. This insures that Marines are not separated when aircraft assignments are changed or the bump plan is executed.
  - b. A second HST net, separate from the LZ Control Net, should be established if simultaneous pax and cargo operations are planned in the same PZ.
11. **FARP.** A FARP site will sometimes be located near the PZ. Staging of pax and routing of A/C needs to be deconflicted by the AMC.

1. **Units.** Many teams are inserted by helicopter prior to L-Hour. These units do NOT appear on the HEALT. They are all inserted early and planned separately.
  - a. The S-2 collections plan assigns R&S collection assets. The Comm Plan assigns RTX assets. Subordinate elements assign additional teams.
  - b. **Each of the following teams needs an Insert / Extract Officer.** The I/EO assists in planning and executing the single integrated insert and extract plan.
    - Recon Teams
    - Scout-Sniper Teams (SSP)
    - Comm Retrans (RTX) Teams
    - RadBn Sigint Support Teams (SST)
    - Artillery Survey Teams
    - Ground Sensor Platoon (GSP) Insert Teams
2. **I/EO Planning.** The I/EO produces the planning products listed in paragraphs 1000-1015 with the following notes:
  - No HEALT. No Objective Area Diagram. No Connectivity Diagram. No PZ Diagram.
  - A single HWSAT is compiled by all I/EOs to show ALL team inserts.
  - No Insert LZ Diagram is needed unless teams are being exchanged in the insert LZ or resupply is expected. If so, door gunner restrictions, ITG, comms, and linkup details need to be planned.
  - The extract LZ Diagram is produced.
  - An insert LZ deception needs to be planned. Dummy drops and distraction A/C need to be planned with the AMC representative.
  - Contingency Plans are produced: emergency extract, abort criteria, GO/NO-GO criteria, alternate LZs, bump plan, no comm, and E&R plan.
3. **I/EO Coordination.** The following products need to be checked by each I/EO to insure his team is represented and protected.
  - The Connectivity Diagram is checked to insure comm paths are supportable.
  - The Objective Area Diagram is checked to insure an RFA is placed around each team.
  - The Execution Checklist and Comm Card are checked.
4. **I/EO Responsibilities.** The I/EO:
  - a. Plans quickly. Insert is usually 24 hours before L-Hour. ASRs for insert are passed to the AirO for consolidation. Replenishment and extraction of the teams needs to be planned.
  - b. Prepares his teams: equipment inspections and team rehearsals, especially loading and unloading the helicopter.
  - c. Attends the aviation mission brief. Changes made after insertion are avoided. When forces are inserted early, changes, especially nets, encryption, FSCM and scheme of maneuver, need to be passed by radio. During extracts, details of plans need to be passed by radio to the extracting unit.
  - d. Is located in COC during operations.

## 5. **Reconnaissance Notes**

- a. Reconnaissance is nothing without communications. Recon teams must know the comm plan and understand their dependency on the RTX plan. Comm connectivity needs to be walked through during rehearsals. If necessary, a separate earlier rehearsal should be done to support early inserts.
- b. BHO from R&S to EFL and then to HUC needs to be well understood.
- c. ROC must be co-located with Regt COC throughout entire operation. Separate movement induces additional comm problems.
- d. Direct Reporting. Recon teams should know to roll to Co Tac for direct reporting during critical points in the battle. This does not change command relationships.
- e. Recon teams need UHF comm. with aircraft to update on-station A/C, and VHF Comm with HUC. Cycle of reporting to unit in PZ needs to be clear.
- f. When recon assets are limited, units should use organic teams for ITG responsibilities.
- g. LOS studies should be done to analyze all potential reconnaissance positions prior to insert.

## 6. **RTX Notes**

- a. Subordinate units coordinate retrans with regiment in order to consolidate and coordinate the priority nets needed to be retransmitted. Combined teams are attached to one leader.
- b. The number of nets to be retransmitted is limited. Air and Ground Nets need to be retransmitted. The S-3 sets net priorities.
- c. Planning factor is two men per net per two days. One kilometer of movement is the maximum realistic expectation. To retrans four Regt nets for three days, ten men need to be inserted. During helicopter operations, vehicle inserts are not an option.
- d. Redundant teams need to be planned and inserted. A comm backup plan must be done.
- e. As a secondary mission, the collections plan can task RTX teams with observing enemy sectors.

1. **If the helicopterborne task force is planning on extracting, unit trains and support CSS elements are not displaced forward.** If the assault force is to link up with other forces, CSS elements move forward with the ground echelon to link up.
2. **Logistics plans, especially at long distances, are comm dependent.** The comm plan must support the Logistics Plan.
3. **Initial LOGSTATREP is submitted prior to assault.** Thereafter, 'by exception' reports can be submitted from the units in the field.
4. **Assault units can only be expected to carry 2 DOS, excluding water.** The Regiment can increase its immediately available supply stockage by having Marines on secondary waves carry bulk supplies - cases of MREs, full ammunition cans - on the A/C and turn over supplies to S-4 upon insert. The S-4 should publish a list of standard supplies for all classes and all equipment. Units maximize supplies going in to minimize resupply requirements.
5. **FARP is an aviation issue.** Details of position must be coordinated with the MC and HUC.
6. **The scale of helicopter support required during Regimental helicopter operations is significant.**
  - (27) CH-53 sorties to carry (27) M-149 Water Bull per day. (Nine per battalion per day).
  - Ammunition resupply
  - CASEVAC on-call
  - Chow resupply / Maintenance & parts resupply
  - Daily movements of people / reconnaissance / additional assault operations



1. **Immediate Water Resupply must be scheduled in the assault waves.** Infantrymen will consume 3 to 4 gallons of water per day in an arid environment with rolling terrain.
2. **Canteens**
  - a. Marines must embark helicopters in the PZ with full canteens. Water needs to be provided in the PZ immediately prior to launch.
  - b. Marines need to carry double the amount of water normally carried to (4) quarts. Camel backs and two-quart canteens should be issued to Marines.
3. **Jugs.** Infantry units should insert with every water jug they own.
  - a. A designated team of Marines, a “mule-team,” should be assigned to unload and stage water. This same team can fly back and forth inside a helicopter for water jug resupply. The last A/C of the last wave in each LZ should carry jugs and the mule-team.
  - b. (1) 10k net load of water cans = (4) 48 x 48 pallets. Each pallet holds (60) 5-gallon cans. Total weight of (1) pallet = 2400 pounds. Total weight of load = 9600 lbs = 240 cans = 1200 gal = .33 DOS water for infantry battalion.
4. **Water Bulls**
  - a. In peacetime, full M-149 water trailers can only be lifted by a CH-53. Empty water trailers will only be lifted by a CH-46. CH-53s can lift empty trailers but prefer not to.
  - b. If water bulls can only be lifted into pre-planned LZs, units need to be prepared to use mule-teams to move water from LZ to the unit. Water must be landed as near ground units as possible.
  - c. A 900-man infantry battalion needs (9) M-149 water trailers per day. Attaching these assets to the battalion provides the needed sustainment, but restricts mobility because no organic battalion vehicle can move them. Full water bulls can only be pulled by a HMMWV in an emergency situation. Empty water bulls can be pulled by a HMMWV.
5. **Local Water.** The local supply of water should be exploited. Marines need water filters and purification tablets. Regiment needs access to a water purification unit. Medical sections need to be prepared to test water, engineers need to be prepared to treat water. The S-2 needs to brief the availability and potability of the local water source.

## 1020

## Logistics: Ammunition

1. **Ammunition resupply must be planned in on-call helicopter waves.**
2. **LOGPACs.** Units should prepare ammunition LOGPACs to insure standard packages resupply loads. Standard LOGPACs can be defined and built by unit S-4s and staged at the edge of the airfield. All LOGPACs need to be able to be lifted by hand. Medical supplies need to be planned in LOGPACs.
3. **Pallets.** Palletized ammunition *cannot* be delivered into the LZ. Infantry Regiments and Battalions have no Material Handling Equipment (MHE) or banding equipment for dealing with pallets. Pallets that are comprised of multiple man-pack loads can be lifted into an assault LZ.

## 1021

## Logistics: External and Aerial Resupply

1. **Units request resupply on Tac-2.** Long-haul comm from Objective / Insert LZ to PZ requires HF support for the S-4. This request cycle needs to terminate at the PZ Control Officer or HST Det OIC in the HLZSA.
2. **External vehicle and net loads**
  - a. Battalions should tailor their Forward COC , Log Train, and hard-back gun vehicles into serials of no more than (4) vehicles (no trailers) to insure rapid inserts.
  - b. External Loads are dependent on available slings, cargo nets, and cargo bags. The sending unit is responsible for PZ ops, acquiring and rigging all loads. The aviation unit is responsible for advising the sending unit on external loads and recovering the sending units cargo equipment in the insert LZ. The receiving unit is responsible for LZ control and the trained ground crews to receive equipment.
3. **Resupply.** Infantry units require dedicated Helicopter Support Team (HST) capability, either organic or attached.
  - a. Infantry battalions need an organic HST capability to receive resupply. Infantry companies and separate units need an organic HST team for receiving helicopter external loads. These teams need HST kits: gloves, grounding rods, and static wands. Cargo nets and slings must be temp-loaned from TSB.
  - b. Transportation Support Battalion (TSB) can attach HST to infantry units to insure sending and receiving capability. HST as a DS unit is not dynamic enough for planning, rehearsal, insert, movements, and security concerns.
  - c. HST teams need UHF comms with A/C and VHF comms with supported unit. HST teams need to talk to A/C on LZ Control Net. A separate LZ Control Net may be required for large lift with multiple external loads.
  - d. During PZ Ops, HST teams are attached to the PZCO. HST teams need comm. with PZCO and A/C.
  - e. Standardized, pre-planned resupply LOGPACs, netted, if possible, should be staged at the PZ for rapid resupply operations.

**2000**

## **METL: Conduct a Helicopter Assault**

1. **Mission: Conduct a regimental-sized helicopter assault to seize key terrain IOT permit the maneuver of follow-on forces.**
2. **Organization**
  - A single commander commands all the forces involved.
  - Well-understood command relationships are the first planning priority.
  - Regiment consists of three infantry battalions, an artillery battalion, a recon platoon, a regimental HqCo, and a combat engineer company. Multiple squadrons support with multiple AFLs / EFLs.
3. **Scheme of Maneuver**
  - Night or Day.
  - Objective is large, battalions are separated by five to eight kilometers.
  - Assault is planned and deliberate.
  - PZ is NOT the staging airfield.
  - 30 kilometers from PZs to insert LZs.
  - Multiple battalions from multiple PZs inserted into multiple LZs during single 24-hour period.
  - External loads, both vehicles and cargo, are inserted.
  - Regiment establishes a fire support base for DS artillery and organic mortars.
4. **Admin and Logistics**
  - Two days of supply are inserted with the assault force. Units carry 48 hours basic load of Classes I, III, V, and VIII. With limited vehicles, regiment cannot resupply battalions on the ground. Aerial resupply delivers straight to using units of Battalion and Company size.
  - No ground LOC exists for 48 Hours. Until then, resupply is by air. Resupply should be planned for a single night lift. Resupply pallets need to be standardized.
  - The ground echelon does NOT have the combat power to fight its way into the TAOR.
5. **Command and Signal**
  - Comm with HHQ requires HF. Regiment may have SATCOM with HHQ.
  - Comm from PZ to RSTA requires HF.
  - VHF comms require retrans within Objective.
6. **Limitations**
  - Limitations of Helicopter Assault: weather, air LOCs, antitank capabilities, aviation fuel.
  - Assault force has significant lack of ground mobility once inserted. Few vehicles are inserted.
  - Vulnerabilities: enemy attack in AA, PZ or LZ, EW, and disorganization in objective area.
  - No host nation support.
  - Helicopter assault is conducted to hold terrain, because of the ground's value to the enemy, defeating an enemy force, or establishing a facility for FOF. Helicopter forces lack ground mobility but have the firepower to seize and hold terrain.

# 2001

## Standards for Helicopter Operations

1. **LZ Standards.** For a well-planned insert LZ, each helicopter in the first wave lands within 50 meters of the planned landing point within 30 seconds of the planned landing time.
  - a. +/- 50m for each landing point
  - b. +/- 30 seconds from L-Hour
  - c. 2:00 minutes to load a helicopter. 2:00 minutes to unload a helicopter. Measured from first boot contact to last boot contact.
  
2. **Planning and Execution Standards:**
  - a. H-Hour is a minimum of 48 hours from mission receipt.
  - b. The assault echelons of two infantry battalions, one artillery battery, one regimental COC, and one engineer platoon are inserted 40k in one twenty-four hour period. L-Hour is during darkness.
  - c. The Regiment fights independently and sustains itself with no ground LOC for 48 hours.

### 1. Task Organization

- a. The Helicopter Task Force (HTF) is a temporary task organization under a single commander, tasked with accomplishing a single mission. The mission commander establishes criteria to dissolve the HTF.
  - (1) The assault echelon are those forces being inserted by helicopter. The HTF maintains unit integrity as far as possible.
  - (2) The ground echelon are those forces moving overland to link up with the assault echelon. Most vehicles are part of the ground echelon.
- b. Organic forces from the regiment include multiple infantry battalions, an artillery battalion, a recon platoon, the Regimental HqCo, and a CEB company.
- c. Supporting forces include multiple helicopter squadrons, possibly organized into multiple waves of mixed aircraft, with multiple AFLs and EFLs. DS aviation units allow the gaining commander to assign missions, but the aviation commander remains under his higher headquarters command and control. In addition, the aviation commander, not the supported commander, task-organizes his aviation elements. The mission for the aviation element is “DS to Regiment.”
- d. Supporting forces includes MCSSD in DS. MCSSD is part of the ground echelon that links up with the assault force within 48 hours of insert.
- e. Attaching artillery, aviation support units, and CSS is non-standard. However, in a far-reaching dynamic helicopter mission, it may be the only way to insure movement and support occur effectively.
- f. Non-standard command relationships. “Attached for movement” is only for embark, accountability and movement. Once on the deck in the insert zone, the previous tactical relationships apply.

2. **Infantry Forces.** The infantry battalion is the smallest ground organization capable of planning, coordinating and executing an air assault operation. “Battalions insert companies. Regiments insert battalions. Regiment inserts itself.”

### 3. Key Personnel for Regimental Helicopter Assaults

- a. The Mission Commander is the Regimental CO. He is normally airborne during the air assault.

<b>HTF</b>	<b>MC</b>	<b>AMC</b>	<b>HUC</b>	<b>Force in LZ</b>
Regt	Regt CO		Bn CO	Bn
Bn	Bn CO		Co CO	Co

- b. The HUC is the lead Battalion commander.
- c. PZ Control Officer is Bn XO. The Battalion Bravo Command Group moves with the ground echelon. When multiple units are being moved out of a single PZ, including the regimental COC, they are “attached to the Battalion for movement.”

- d. The AMC is assigned by the ACE. He directs the planning and execution of multiple squadrons with mixed A/C lifts and multiple AFLs and EFLs. To insure unity of command, the MC and AMC are co-located at all times. Integrated operations are planned and executed by a single command team. When the MC is inserted, he needs immediate comm with the airborne AMC. The AMC and MC need to work the comm equipment hours before the mission flies to insure familiarity. After insert, the MC needs immediate comm with the AMC. Multiple MCAs insure coverage and visibility.
4. **Long distance helicopter assault operations require well-planned command and control.**
    - a. Task Organization. Clearly defined missions. Unit integrity.
    - b. Degraded Comm. RTX Plans. HF expertise. Multiple comm paths. Airborne relays.
    - c. Precision Planning. Integrated planning. Contingency planning.
  5. **The Command and Control Plan needs to address the three phases of a ground commander's location:** prior to flight, in-flight, and on the ground. Graphic comm connectivity diagrams need to be built for both commanders in the air as well as separated once the MC is on the ground.
  6. **The DASC (or DASC representative ASLT / ASE) must be co-located with the Regimental COC.** Doctrine states that the DASC representative provides "routing and handoff directions to aircraft." Additionally, within a ground COC, he:
    - a. Provides enemy situation updates to the COC from returning aircraft.
    - b. Provides enemy situation updates to outbound aircraft from the COC.
    - c. Provides FSCM changes and immediate fire mission updates from the FSC to A/C.
    - d. Assists the EFL in the combined arms battle by providing liaison with the FSC.
    - e. Updates COC on status of helicopterborne units and status of assault, CAS, and CASEVAC A/C.
    - f. Collects BDA from returning aircraft and passes to both the FSC, aviation COC (TACC) and to transiting aircraft.
  7. **Command Control Helicopter.** During the assault phase of the operation, the AMC and MC fly in the C2 A/C. FSC stays in the COC. Deck-mounted man-pack radios should be brought aboard for backups and for debarking. Multiple MCAs add flexibility to improve comm., visibility or fires deconfliction.
  8. **Communications**
    - a. Battalion COCs need a foot-mobile helicopterborne configuration. All radios are man-packed. External antennas are carried. This configuration is very mobile, but weak in comm capability. External antennas, OE-254, become critical for foot-mobile COCs. No vehicles also means no mobile relay stations.
    - b. A battalion forward COC should consist of no more than (4) HMMWVs for airlifting purposes. The HUC needs long-range comms: antennas and vehicle-powered radios, HF, and a robust RTX plan.

- c. Arty Air Spot (SC/PT) is an alternate for COF (SINCGARS), but a poor way of doing business. Artillery still needs to maintain COF, another net and another operator monitor Air Spot and the clearance procedures are slowed.
9. **TAOR.** The HTF usually takes control of a planned TAOR upon insert. A TAOR increases responsiveness of artillery, mortars and CAS because the HUC clears all fires within his TAOR. Fires originating from outside the TAOR will require HHQ clearance in order to deconflict aviation routing.
- a. The TAOR must be large enough to allow the HUC full use of his organic weapons. An overly large TAOR, however, is difficult to route aircraft around and poses challenges to the HUC's ability to control the ground.
  - b. Air Deconfliction. All aircraft entering the TAOR must be cleared through the HUC's FiST unless an ACA is established in the TAOR airspace for aircraft routing.
  - c. A TAOR may be activated and deactivated during the course of an operation, even while occupied. A phase line can split a TAOR to allow activation of only half of the TAOR. This allows aircraft to transit the deactivated portion.
  - d. A TAOR should specify an associated altitude.

**1. Unit Training**

- a. Companies need training in LZ inserts and extracts.
- b. Units need battle drills for loading and unloading helicopters. Standard is two-minute load and two minute unload.
- c. Leaders need land navigation skill. Leaders need GPS skill.
- d. Units down to platoon level need to have ITG Kits and Marines trained to provide ITG. *See ITG SOP.*
- e. All units need radio training: HF for long haul comms, UHF for aviation comms, and aviation comm. procedures and products.
- f. Companies need HST capability for aerial resupply and external deliveries. Companies need to be able to execute helicopter MEDEVAC.

**2. Unit SOPs**

- a. Stick Leader Responsibility SOP
- b. Battalion ITG SOP
- c. Battalion PZ SOP
- d. Battalion Air MEDEVAC SOP
- e. Battalion Forward COC SOP (Both man-pack and vehicle configurations)

**3. Equipment**

- a. Small packs are better for helo ops. Large packs are needed for extended ops far from established support. Vector Packs and MOLLE packs are too large for helo ops as they do not fit between a man's legs, and do not stand upright when placed on the deck.
- b. Companies need to carry ALL water jugs. Companies need water purification capability.
- c. Independent units need GPS receivers.
- d. Independent units need LZ Marking Kits.
- e. Marines need to carry double the amount of water normally carried to (4) quarts. Camel backs and two-quart canteens should be issued to Marines.
- f. Leaders of units conducting helicopter operations must be ruthless on individual loads. Tendency on deep inserts is to carry too much equipment, which affects foot mobility. Team rucks are not recommended.



1. **Stick Leader Responsibilities.** Prior to flight, the stick leader:
  - a. Creates three (3) manifests: one for MACO, one for sister stick, and one to retain. Creates a stick card with destination LZ and serial number to communicate with crew chief and pilot.
  - b. Maintains accountability, especially of Marines “attached for movement.”
  - c. Briefs his people. Inspects Marines to see they are properly prepared for helicopter operations:
    - (1) Individuals fasten helmet chinstraps, insert ear protection. Sleeves down. Grenades secured. Bipods collapsed, loose equipment tied. Weapons unloaded - Condition 4. Bayonets unfixed. ID tags worn. ROs break down antennas.
    - (2) Marines must embark helicopters in the PZ with full canteens. All loads must be man-portable.
  - d. Understands the bump plan. Understands his unit’s task in the insert LZ.
2. **Stick Leader Actions.** During flight, the stick leader:
  - a. Wears an ICS headset. Maintain situational awareness by listening to cockpit dialog.
  - b. Wear a gunner’s belt for access to the cockpit. Regardless of rank, the stick leader’s situational awareness is poor if he has no visual references prior to insert.
  - c. Insures his Marines follow the directions of the flight crew. Weapons are placed between legs, muzzle down in CH-46s and CH-53s.
  - d. For flights over water, stick leader insures Marines unclasp personal equipment for ditching and wear HEEDs or flotation equipment correctly.
  - e. Maintains orientation during entire flight by comparing route to map.
  - f. Informs his stick of the situation, especially changes to the plan. A note on an index card is best.
  - g. Prepares his stick for debarkation. Prior to landing, he signals to load weapons, break chemlites, and put antennas on radios. He indicates north upon landing and gets a final POSREP from the aircraft before removing his ICS headset.
3. **Helicopter Crew-Chief and Pilot Responsibilities**
  - a. Keep stick leader informed. Pass changes to enemy situation and changes to plan.
  - b. ICS is essential to communicate with stick leaders.
  - c. Inform stick leader of number of minutes until insert.
  - d. On landing, give stick leader a GPS POSREP and point direction north.
  - e. Keep stick leader oriented during flight by passing POSREPs and identifying landmarks.

## Appendix A

## Glossary

AA	Assembly Area
A/C	Aircraft
ACE	Aviation Combat Element
AFL	Assault Flight Leader
AirO	Air Officer
AMC	Air Mission Commander
ASR	Assault Support Request
CE	Command Element
CSSE	Combat Service Support Element
EFL	Escort Flight Leader
EW(EA)	Electronic Warfare (Electronic Attack)
FSC	Fire Support Coordinator
GCE	Ground Combat Element
GTL	Gun Target Line
HEALT	Helicopter Employment and Assault Landing Table
HLZ	Helicopter Landing Zone
HLZSA	Helicopter Landing Zone Support Area
HTF	Helicopterborne Task Force
HUC	Helicopterborne Unit Commander
HWSAT	Helicopter Wave and Serial Assignment Table
I/EO	Insert Extract Officer
LOC	Line of Communications
LZ	Landing Zone
MACO	Marshalling Area Control Officer
MAGTF	Marine Air Ground Task Force
MC	Mission Commander
PZCO	Pickup Zone Control Officer
R&S	Reconnaissance & Surveillance
ROC	Reconnaissance Operations Center
RSTA	Reconnaissance, Surveillance, and Target Acquisition
RTX	Retrans
SC/PT	Single Channel / Plain Text. Non-freq-hopping on SINCGARs

## **Appendix B**

## **Assault Support Appendix to OpOrder**

Appendix 3 (Assault Support) to Annex W (Aviation Operations)

TAB C	Assault Support
TAB H	Helicopter Availability Table
TAB J	HWSAT
TAB K	HEALT
TAB L	Helicopter Landing Diagram / Route Diagram
TAB N	PZ Diagrams
TAB P	Insert LZ Diagrams
TAB Q	Extract LZ Diagrams

## Appendix C

## References

FM 71-100-3 *Air Assault Division Operations*

FM 90-4 *Air Assault Operations*

FMFM 6-21 *Tactical Fundamentals of Helicopterborne Operations*

FMFM 5-35 *Assault Support Helicopter Tactical Manual* (NWP 55-9-ASH)

MCO 3501 *Infantry Training and Readiness Manual*

MCWP 3-24 *Assault Support*

MCWP 3-16 *Fire Support Coordination*

“HAC Overview,” TTECG Handout

MAWTS-1 Rotary-Wing Tactical SOP

## Appendix D

## Example Planning Products Matrix

Product	Lead / Supporting Planners	Due	Complete
<b>Ground Tactical Plan</b>			
OpOrder	S-3	26 Apr	
Overlay	S-3	26 Apr	
Annex B Enemy / Collections	S-2 / Recon / UAV	26 Apr	
Fire Support Plan Appendix 19	FSC / EFL	26 Apr	
Annex D Logistics	S-4 / PZCO / HUC / AFL	29 Apr	
Annex K Communications	S-6 / RadBn / All others	29 Apr	
HUC Scheme of Maneuver	HUC		
HUC Overlay	HUC		
Recon / Advance Force Plan	I/EO / S-2 / S-6 / RadBn	26 Apr	
<b>Landing Plan</b>			
HEALT	HUC / AFL	25 Apr	
Insert LZ Diagrams	AFL / HUC / ITG	25 Apr	
Objective Area Diagram	FSC / EFL	25 Apr	
Connectivity Diagrams	S-6 / All others	26 Apr	
Extract LZ Diagrams	AFL / HUC	26 Apr	
Contingencies	HUC	26 Apr	
Advance Force Plan	I/EO	26 Apr	
Execution Checklist	AMC		
Comm Card	AMC		
Mission Timeline	AMC		
<b>Air Movement Plan</b>			
	AMC		
FARP Plan			
<b>Load Plan</b>			
HWSAT	HUC	29 Apr	
<b>Staging Plan</b>			
PZ Diagram	PZCO	29 Apr	
Bump Plan	HUC	29 Apr	

## Appendix E

## Example Brief Format

O	Time Hack Pen Changes Orientation / Task Orientation	S-3
S	Enemy Collection Plan	S-2 S-2A
M	Mission / Intent	MC
E	Execution HUC Scheme of Maneuver / Insert  Aviation Concept of Operations  Fire Support Plan Air Fires  Assault Plan  PZ Plan	S-3 HUC  AMC  FSC EFL FW FAC(A)  AFL  PZCO
A	Logistics / Resupply Waves CASEVAC	S-4
C	Comm Plan	S-6