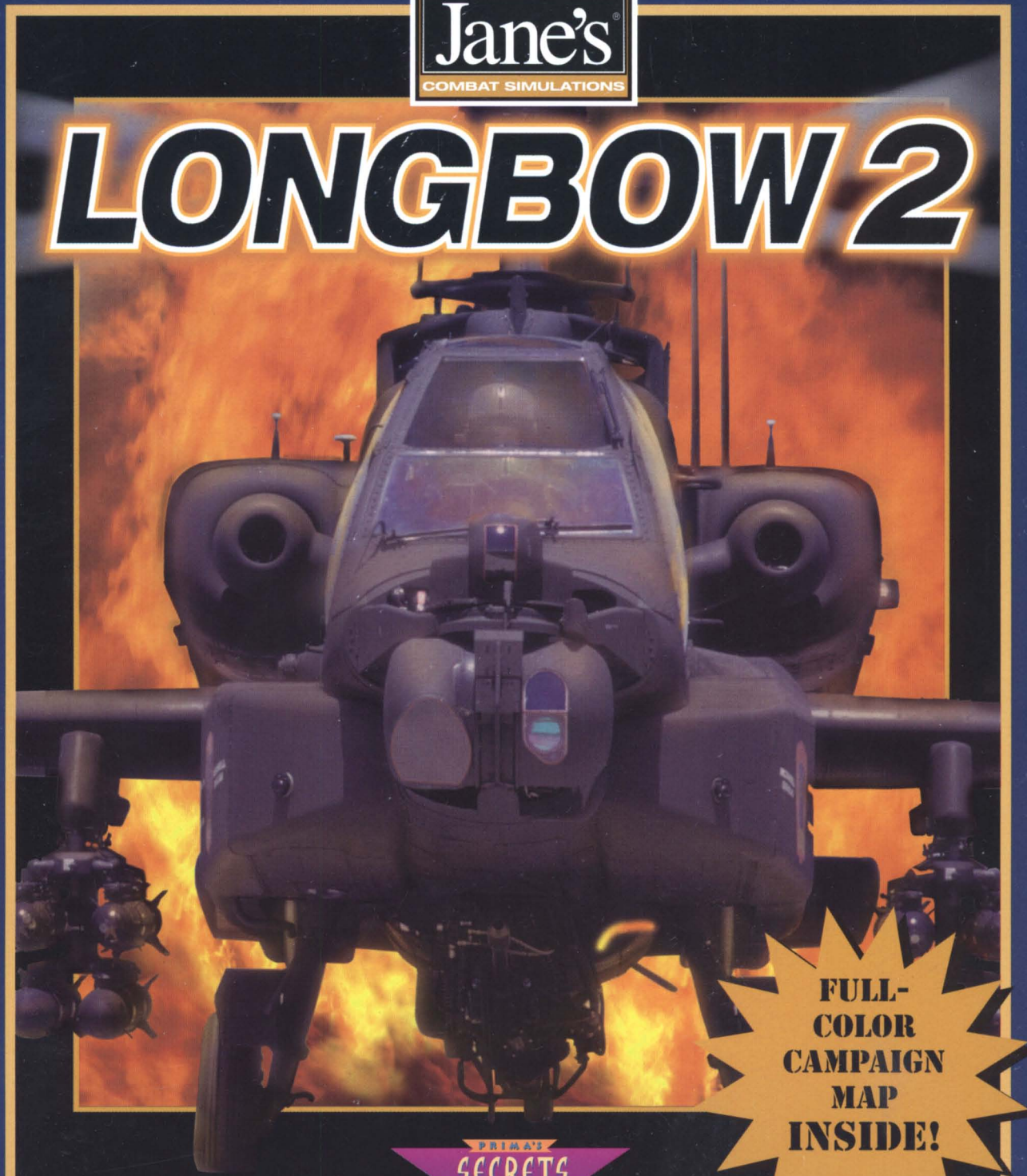
THE OFFICIAL GUIDE TO

Jane's®
COMBAT SIMULATIONS

LONGBOW 2



FULL-COLOR CAMPAIGN MAP INSIDE!

PRIMA'S SECRETS OF THE GAMES

THE OFFICIAL GUIDE TO JANE'S®

LONGBOW 2

Written by Tuesday Frase

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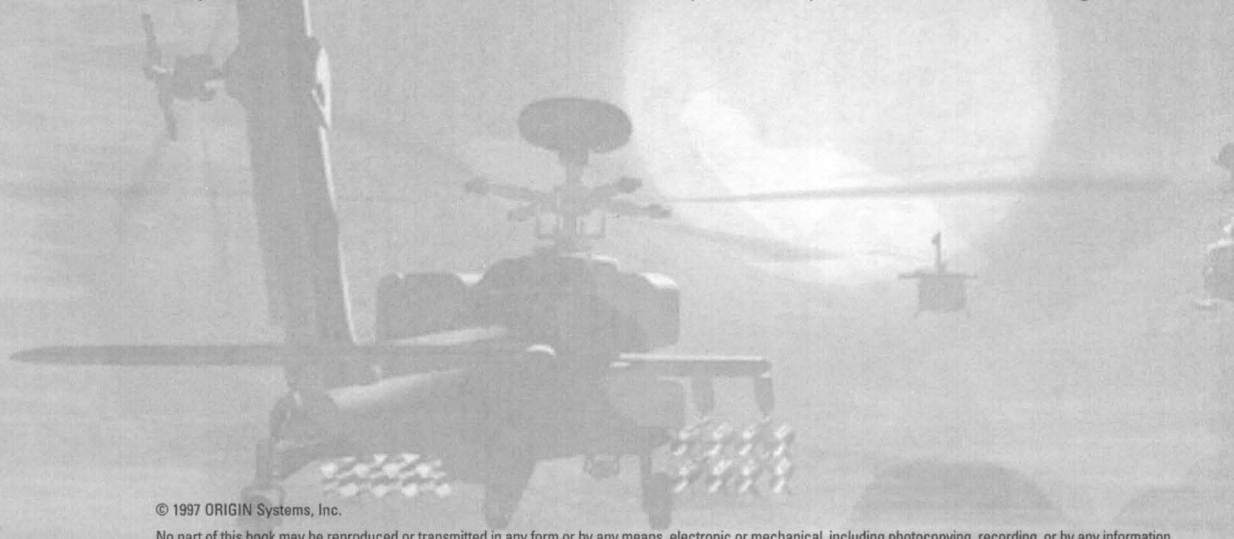

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HOW TO USE

Overwhelmed? Here's a brief summary of the chapters in this book:

Strategies and Tactics is a collection of tips and tactics on the following:

- *General Tips, pp. 8-35*

Mission Planner	TSD MFD	Camera Views and PNVS
Basic Cockpit Setup	Priority Fire Zones	Time Compression
Master Modes	Using Your Wingman	Terrain
Flight Tips	Using Your Co-Pliot/Gunner	Taking Damage
Autopilot Functions	Beating Helicopter Bandits	Campaign Missions
Using Weapons	Beating Jet Bandits	
Target Types	Beating Ground Threats	

- *Avoiding Detection, pp. 36-38*

Hiding From Radar	Disabling SAM and AAA
Low and Slow	Radar & IR Jamming

- *Multi-Player Games, pp. 39-47*

Pre-Flight Preparation	Pilot and CP/G Interaction	Missions
Staging the Attack	Multi-Player PFZs	General Tips

Game Mechanics, pp. 50-69, contains game stats for all units and discusses the damage and scoring systems in the game.

Attack Helicopter Operations, pp. 72-137, consists of excerpts from the U.S. Army's Field Guide 17-50 on various attack helicopter deployments and procedures. The table of contents at the beginning of this chapter (p. 72) can help you find the topics you're interested in.

General Mission Information, pp. 140-169, discusses the different types of missions you'll encounter in this game. You'll also find orders of battle for the campaigns, a map of the NTC theatre of operations and comments and strategies from game designer Mike Francis.

Mission Analyses, pp. 172-165, Contains maps and analyses of the single missions and the special orders which overlay campaign missions. A thumbnail index of these missions (**Mission Thumbnails**, p. 175) lists the mission names, locations, main objectives and the page the mission to help find your mission.

Jane's Sentinel, pp. 268-301, contains relevant Jane's Sentinel information on the international affairs and armed forces of Azerbaijan and Iran.

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STRATEGIES & TACTICS

STRATEGIES & TACTICS

Expert pilots may recognize some of these hints from the original *AH-64D Longbow* strategy guide. The basic dynamics of flying and playing the game haven't changed much, so we've included relevant information from that book, along with all the new material specific to *Longbow 2*.

This section gives guidelines and useful hints and tactics for playing the game. All general tips are marked with a gunsight (⌖). Tips for more advanced pilots are marked with a double-gunsight (⌖⌖). "Cheats" (things you can do in the game that aren't possible in reality) are marked by a missile (➤).

GENERAL TIPS

MISSION PLANNER

- ⌖ Use the **REHEARSE** button if you adjust waypoints for your flight or other flights, just to make sure everything is timed correctly.
- ⌖ The terrain profiler in the Mission Planning Center can give you a close look at what type of terrain you'll be facing between any two waypoints. Simply select the PROFILER button, then left-click and drag between two points on the map. A window displaying a horizontal terrain profile of that line appears.
- ⌖ The profiler button is notably useful in the NTC campaign — there's not much to hide behind at Fort Irwin, so finding a good cover spot may take awhile. Additionally, the profiler displays your weapon's range between those two points. This is an indispensable tool if you're trying to set up your flight path for a mission deep in enemy territory.
- ⌖ If you are playing with limited resources, the Mission Planner arming screen displays your current inventory of helos and weapons.
- ⌖ Study your mission objectives before you visit the Arming screen. If you're flying a CAP in friendly territory, you're not going to need to load up Hellfires — rockets would probably be more useful.
- ⌖ If you see a large, blue arrow on the mission planning map, you'll know that your friendly armor is getting ready to advance.
- ⌖ Once you're in the air, the only Mission Planner screens you can touch are the Briefing and Tasking windows — and the map, of course.

Flights: Picking Your Mission

- Find out the overall objective for the mission. Then, look to see which flight will most impact the success of that mission. When you decide which one it is, take it. The enemy AI in the game is good, but in most cases, you will accomplish more than any AI pilot will.
- Always take a Recon flight if it's offered. The key to advancing in the game is to perform reconnaissance that lets you know where the enemy is, and where he's going. The more threats you spot, the more threat icons you'll see on your map, and the better informed you'll be.
- Escort and troop insertion/extraction missions are important as well. Often, the troops that are being dropped behind enemy lines are gathering valuable intelligence information that you'll benefit from in the near future. Make sure your troops get in and out alive!
- Supply convoy missions are indicative of your progress in the campaign. If you're moving a lot of supplies to the front lines, that means your front armor forces are increasing their readiness level and preparing for an advance. And since winning the campaign is based on pushing the enemy backward, this is a good thing. Protect your convoys.
- By the same token, take out an enemy supply convoy whenever you can. Be careful, however — you aren't necessarily supposed to destroy everything you see. If you're in doubt, check the mission briefing.
- CAS missions are an important indicator of upcoming friendly movements. When friendly armor attains a high enough readiness level to move, large blue arrows will show up on the mission planning map. When that happens, support that advance. It goes toward winning the campaign.
- If you're a slow, conservative player who likes to take your time, the timing of escort missions may pose a problem. To make them easier (i.e., less time-intensive), pick a waypoint near the friendly line and increase the loiter time there for the flight you are escorting. This will cause your escort to pause just before crossing the line.
- When you're escorting Black Hawks or other aircraft, don't focus on the tanks and artillery that are not in the immediate flight path. Tanks off the beaten path are usually out of attack range, and artillery won't fire on air targets.
- If you are flying as a protected Black Hawk, keep an eye on your escort. If you see him firing Hellfires, you know there's trouble ahead of you. If you start taking small arms fire, you can use your door gun — but whatever you do, don't stop moving. You won't take out much of anything besides soldiers, but you might get lucky and hit a helicopter.

Waypoint Manipulation

Most of the missions lay down the best route as the default waypoint progression. You can add, delete or adjust custom waypoints before a mission by using the computer in the Mission Planning Area. During flight, you can do the same thing by opening up the navigation map with the Alt N command.

You don't have to fly to each and every waypoint, although you shouldn't skip any unless you know for sure there's nothing there. The game doesn't care how you approach the primary targets, as long as you accomplish the mission. You can use this to your advantage in many missions.

The best indication that you should alter waypoints is when you're flying correctly (low and slow), but keep getting shot down by SAMs. Some missions are littered with SAMs that block the path you're supposed to take. And 90% of the time, what's going to kill you is a missile from a 2S6. By concealing your position behind ridges and traveling through valleys, you can often avoid SAMs, especially 2S6s.

Examine your map carefully before each mission, and follow these general strategies:

- A good soldier is a well informed one. Before each mission, be sure to absorb information from your navigational map and briefing in the mission planner. They contain intelligence information on just where AAA, SAMs and enemy aircraft have been spotted recently. Don't fly blind!
- If you ever get lost, bring up the your navigational map by pressing Alt N. As long as you keep your waypoint indicator visible on your heading tape, you shouldn't get lost. But if you do, this map can help you out.
- Look for conspicuous ridges close to the primary waypoint. The game designers love to position SAM sites just over a ridge, where you won't see them until you bob up or pass over the crest. The same altitude you need to top the hill also gives your presence away. (This was modeled after actual military strategy.)
- Waypoints that are far apart (15+km) almost always have SAMs or enemy FARPs in between them. Cruise low and bob up to 300 or 400 feet every so often to ID SAMs. When you find them, you may be able to adjust your waypoints so that you weave around their arcs.
- You can create waypoints to simply mark places you want to be aware of (for instance, if you want to stop midway through a pass or valley). You can see this type of info while in the nav map, but it's useful to have some quick way to get a point of reference or know when you're about to reach a terrain change.

- You don't have to create a new waypoint every time you need to add one in a mission. You can drag waypoints that you've created in flight to a new location at any time during the mission.
- You can't change waypoints for some flights that you escort (e.g., MH-53J Pavelows). For other computer-controlled flights, you can change their waypoints at will.
- You can manually change your current waypoint by pressing W or Shift W. The number of the current waypoint appears as "WO#" to the left of the High Action Display (the large rectangle at the bottom of the IHADSS display).
- A good way to survive a mission, especially if you're damaged, is to backtrack — instead of heading directly to the last waypoint, go back the way you came. The given path has fresh enemies and can be really dangerous. (Only do this if you're not escorting something.)

  The sneakiest way is to go back to your starting point (which is usually in friendly territory) and then slide on over to the landing point (also in friendly territory). That way you make the last leg of the journey without hostile forces shooting at you. Feel free to modify the waypoints.
- After you receive the "Mission Successful" message, you can land at any FARP to end the mission. You don't have to move to the landing FARP waypoint. Note that if you land anywhere else besides a friendly FARP and aren't captured, your score is reduced (see **Scoring**, p. 62).
- If you die, any waypoints you added/moved before starting the mission reappear when you re-fly the mission.

BASIC COCKPIT SETUP

Between the Longbow and Kiowa cockpits, it's easy to feel overwhelmed by all the different modes and screens. The good news is, you won't need half of what's available to you, and the other half won't take long to master.

Longbow

- While you're learning to fly a Longbow, try this cockpit configuration when you take off. It's a favorite among our playtesters.
  - [R] Engage rotor.
  - [U] Display enemy target IDs on Upfront display.
  - [Ins] Switch to LOAL (lock on after launch) missile launch mode.
  - [<,] Cycle through to ASE left MFD page (pilot's seat).
    Right MFD shows TSD page by default.
  - [0] (Numpad) Switch to CPG seat.
  - [<,] Cycle through to Communications left MFD page.
  - [>.] Cycle through to Systems right MFD page.
  - [0] (Numpad) Switch back to pilot seat.
  - [End] Switch to Cruise IHADSS mode.
  - [Home] Activate FCR target acquisition mode.
  - [Pg Dn] Change FCR range to 10km.
  - [P] (Night missions) Activate PNVS.

Kiowa Warrior

- If you're flying a Kiowa, try this cockpit setup.
  - [R] Engage rotor.
  - [<,] Cycle through to VSD MFD page (pilot's seat).
  - [0] (Numpad) Switch to CP/G seat.
  - [<,] Cycle through to ASE MFD page.
  - [Del] Change ASE range to 10km.
  - [P] (Night missions) Activate PNVS.
  - [0] (Numpad) Switch back to pilot's seat.

MASTER MODES

You'll find that after you play for a while, you'll have certain preferences and spend the first minute or so after takeoff setting up your MFDs and modes the way you want them. (See the previous page for a couple of possibilities.)

You can do this somewhat automatically when you press [M]. The [M] key cycles through master modes and changes the missile launch, IHADSS and MFD modes simultaneously, in both the Longbow and Kiowa. If you rely on master modes, INDIRECT is the one we recommend. Of course, you can always adjust modes independently with the following keys:

Automatic Mode Keys

[M] **Cycle** through master modes

[Shift][1] **Nav** master mode

[Shift][2] **Direct** master mode

[Shift][3] **Indirect** master mode

[Shift][4] **ATA** master mode

Individual Mode Keys

[End] Cycle through **IHADSS modes**

[<,], [>.] Cycle through **MFD pages**

[Home] Toggle between **target acquisition modes (TADS/FCR)**

[Ins] Toggle between **missile launch modes (LOBL/LOAL)**

[Pg Up] Toggle between **radar modes (air/ground)**

Master Mode Settings

Longbow

Master Mode	IHADSS Mode	Left MFD Page	Right MFD Page	Target Acquisition System	Missile Launch Mode
NAV	Cruise	ASE	TSD	TADS	LOAL
DIRECT	Transition	TADS	TSD	TADS	LOBL
INDIRECT	Bob-Up	WPN	TSD	FCR	LOAL
ATA	Cruise	Radar*	TSD	FCR	LOBL

* In air radar mode

Kiowa Warrior

Master Mode	Left MFD Page	Right MFD Page
NAV	ASE	TSD
DIRECT	MMS	VSD
INDIRECT	MMS	VSD
ATA	MMS	VSD

IHADSS Mode

Longbow

Unless you want to know every detail of your helicopter's instrumentation, leave your IHADSS in Cruise or Transition mode. Press [End] until one of these appears in the upper left corner of the IHADSS. Either mode is good to fly in — it's a matter of preference. Cruise gives you a pitch ladder, and both Cruise and Transition modes give you an altimeter.

- ⌖ Use the Cruise or Transition IHADSS mode whenever you're flying nap-of-the-earth.
- ⌖⌖ Use the Bob-Up mode when you're hovering and want to make sure you don't stray too far away from your original position when you pop up and then descend.
- ⌖⌖ Use Hover IHADSS mode whenever you're hovering but don't really care whether you drift or not.

MFD Pages

The Tactical Situation Display (TSD) and Aircraft Survival Equipment (ASE) pages are the most important ones. You'll need the other pages for other things (radar, TADS camera view, system damage, etc.), but these two are the most important ones. Press [<,] to change the left MFD; [>.] to change the right MFD.

MFD	Longbow	Black Hawk	Kiowa
TSD	⌖	⌖	⌖
Comms	⌖	⌖	⌖
System	⌖	⌖	⌖
ASE	⌖		⌖
Radar	⌖		
TADS	⌖		
Weapons	⌖		
Engine	⌖		
Flight	⌖		
VSD			⌖
MMS			⌖

⌖ In a Longbow with radar, it's best to fly with your ASE and TSD MFD pages active. You'll use these more often than the rest of the pages, especially if you're using FCR target acquisition. (When TADS is active, however, you'll probably want to bring up your TADS page instead.)

- The TSD shows you the battle line and what enemies are within FCR range. Try zooming to 10km in this page. You can acquire a target simply by left-clicking the mouse on a target icon in this page. By right-clicking-and-dragging, you can create a Priority Fire Zone. In LOAL mode, Hellfire missiles you fire will automatically acquire targets within that zone.

- The ASE is primarily applicable to SAM avoidance (not available on the Black Hawk). Keep it zoomed out to 25km (or 10km, at least). This gives you a bigger picture of the battlefield than you can see on the TSD. Most of the time, you'll look at the SAM circles in the ASE to find out how close you are to a SAM's threat radius. The other thing it tells you is whether you're being tracked by enemy radar (a solid line appears) or missiles (a solid diamond appears). If you see either, drop down immediately to break the radar or missile lock.

Other Modes

Longbow

- **LOAL vs. LOBL Missile Launch Modes.** There are two different missile launch modes for use with Hellfires. LOBL (lock-on before launch) mode locks onto a target in your target list (which is updated whenever your radar detects threats). You must have the target selected when the missile is launched. LOBL mode features a small, square targeting box.

  The second mode is LOAL (lock-on after launch), which displays a large, square targeting box. LOAL allows you to fire off multiple Hellfires into a target zone (PFZ) without exposing yourself to enemy fire. The missiles will find their individual targets after you launch them, not before.

  You need LOAL mode 99% of the time. LOAL displays a very large weapon constraint on your IHADSS. What LOAL effectively means is that you can fire a Hellfire missile even if you don't have a valid line of sight. Why would you want to do this? You can pop up from a hover, acquire your targets, then fire upon the enemy while safely behind a hill.

- **FCR Target Acquisition Mode**. Assuming you're in the Longbow with radar, you should always stay in FCR. There's only one exception to this, and that's if you're searching for something that can't be detected with a radar. CIS soldiers, for instance, can only be targeted if you're in TADS mode. They're too small to be seen by the FCR.

- **Upfront Display Mode.** Keep your Upfront display in target identification mode (press [U]). Otherwise, you may accidentally toast a friendly because you have no other way to ID friendlies.

FLIGHT TIPS

- Un-learn all you know about flying jet fighters — the helicopter is a totally different beast. But although you can't out-run an airplane, you can out-maneuver one.
- It's a good idea to stay below 50 feet when cruising to your waypoints. This keeps you concealed, but it also prevents you from seeing what's around you. Try climbing to 200 feet every once in a while to update your FCR and TSD.

  If you go above 200 feet for longer than a second or two, you'll be detected by nearby SAMs. Almost without exception, they'll call in an Su-25 or MiG-29 against you.
- Don't underestimate the power of a well-timed, offensive air strike. If you detect enemy helicopters from a distance and you don't mind waiting and hiding out for a while, call in an air strike. It may take a few minutes for the F-16 to arrive, but its firepower more than makes up for the delay.
- Never turn right while you're moving without being very careful. Your wingman always flies on your right flank, and you'll collide with him if you're not careful. It isn't a problem if you're hovering, of course.
- If you pull your nose straight up, you may overtorque, and veer to the right ... and hit your wingman.
- First-time fliers, do yourself a favor and jump directly into the ADVANCED or EXPERT flight models. Once you get used to them, you'll be glad you never bothered with the others. The other flight models keep you from doing steep banks and other maneuvers that can help you become a better pilot.
- To make a really tight turn: pitch up, lose collective and apply rudder simultaneously, then nose down.
- Make note of what the other flights are trying to do in order to accomplish their missions. You may be able to help them out when your mission is completed. On the other hand, if you're running low on fuel, or think that you'll most likely be shot down if you leave your waypoints, look after your own interests first.
- If you need to lose altitude without gaining any more speed, drop your collective a bit. Once you find an altitude you're happy with, gently restore collective until the arrow is once again centered on the bar.
- Remember that if you drop collective quickly when flying low, you need to increase it quickly as well, or you'll crash. (You can also lose altitude by pitching the nose downward with the cyclic, but this increases airspeed.)

- In the ADVANCED and EXPERT flight models, your primary method of adjusting altitude is the collective control. Keep a constant watch on the altimeter.

  In the Black Hawk, the altimeter is the top, rightmost dial gauge.

  In the Longbow or Kiowa Warrior, look for the long bar with the scrolling arrow. It appears in the IHADSS (Longbow) or Vertical Situation Display (Kiowa Warrior). When the arrow is in the middle of the bar, you are neither gaining or losing altitude. If the arrow drops, you're losing altitude. Similarly, a rising arrow indicates a gain in altitude.

- On the REALISTIC flight model, it's hard to stay low and keep a constant speed at the same time. To deal with this, set your collective to about 75% and use the cyclic to change your altitude. You can use collective too, but making large collective adjustments can put you down in a pile of debris before you know it.

- Slowing your helicopter down can be quite a task. The easiest way to do this is to drop collective to about 30%, pitch up your chopper's nose, and watch your airspeed drop. This causes you to gain some altitude, but it's the fastest way to bleed off airspeed.

  Once your airspeed drops to 15 knots or lower, level out the helicopter and restore collective to 70 or 80%. Next, press [H] to autohover (or transition into a hover).

- When flying with the ADVANCED flight model, make sure you don't have too much forward speed while approaching a waypoint. If you do, you'll find yourself coming in too quickly, then fumbling to slow down as you fly past the targets. Not only does this loft you up, it also makes your chopper a sitting duck for all nearby threats, and they'll lock you up. About 1km before you want to hover, drop collective to zero and glide in. Add slight collective at the end of the glide to avoid crashing.

Flight Controls

- You won't use the tail rotor much at high speeds, but you'll need it all the time at speeds under 60 knots. Your tail rotor is just as important as the collective or cyclic. The more adept you are at controlling all three simultaneously, the better pilot you'll be.
- A good set of external rudder pedals certainly helps control the tail rotor and seriously add to the simulation experience. Another useful option is to program the tail rotor controls to a 2-way or 4-way hat switch on a programmable stick or throttle.
- A good programmable joystick is also highly recommended for this simulation. That is, one with at least four buttons, a hat switch and an analog throttle wheel. Controlling the collective precisely is a must in this sim. A separate throttle control is actually your best choice, followed by an analog throttle control.

  The more buttons on your stick, the better. Having more switches and hats to replace keystrokes not only makes this sim more interactive and realistic, it also keeps your hands on the stick and collective instead of the keyboard. You'll find this an indispensable aid.
- If you don't have a throttle stick or wheel, try assigning the collective [+] and [-] keys to the up/down positions on your hat switch. Then, place the rudder on the left/right positions. This gives you all of your major flight controls on a single switch, leaving your other hand free to control the mouse or keyboard.
- Autohover is a good button for your joystick if you've got one with a lot of buttons. Or, you can define the full forward position of your throttle device as the [6] collective setting on the keyboard. This way, if you need to come to a hover, all you have to do is push the throttle all the way forward and let go of the cyclic stick. The only drawback is that you now need to use the keyboard to get 100% collective (or assign it to a joystick button).
- If your joystick has a lot of buttons, assign the wingman "Attack My Target/PFZ" command ([Ctrl][3]) to one of them. In the heat of battle, you'll be able to send him after something without having to take your hand off the joystick.

Flying the Longbow Without Radar

- If you like to keep the realism high, fly the Longbow without radar throughout these missions. To compensate for the lack of an FCR, frequently cycle through your available targets as you move over new terrain.
- In the Longbow without radar, trying flying with TADS as one of your main MFDs. Use [U] to toggle your Upfront view.
- If you're used to flying a radar Longbow, use [T] and [Alt][T] to find targets and best targets. It compensates for not having the TSD showing you where all the targets are on the field. Unless you're constantly cycling through your targets, you have no idea what's out there. Something will come into range while you're still concentrating on the last target you saw.
- For escort duty, nothing beats a Longbow. A Longbow without radar will do the job just fine and fosters helicopter conservation, but either model works. The Kiowa, on the other hand, doesn't have enough power to fly escort, and you won't be of much use to anyone if you take a Black Hawk.

Flying the Kiowa Warrior

- It takes real piloting skill to fly a Kiowa. It's a recon chopper: fast and maneuverable, but you've got to be smart enough to get in and out without being seen. The targeting system needs line of sight, which means you have to get in close, take your pictures and make it back home.
- Kiowas are harder to detect than Longbows, so SAMs have a harder time hitting you if you're in one.
- If you assign the computer players to use Kiowas, they'll often have a better chance at succeeding than if they were using Longbows. (Computer wingmen tend to hide better than they fight.) Also, if you send your Longbows out and they get shot down, you won't have them for your own strike missions. It will be 3 to 5 missions before you'll be able to replace one.

Flying the Black Hawk

- A Black Hawk is fast but unmaneuverable. It's the closest thing to flying a rocket-powered elephant that you can experience.
- Black Hawks are really only insertion/extraction choppers. They are best at going from Point A to Point B in a straight line, with no enemy confrontations. You can only aim the door guns yourself if you put the Black Hawk on autopilot, which almost guarantees you'll be killed in a combat situation.
- The Black Hawk is best flown in a multi-player scenario. It adds suspense, because you're relying on your friends in their Longbows to clear out the area.
- Try flying the Black Hawk in a multi-player insertion/extraction mission if you like a challenge. It has no IHADSS, no missiles, no good displays, and next-to-useless door guns. When you fly one of these, you really have to sit back and think your way through. It's a challenge.
- If you do want to fly in the Black Hawk, remember that your trigger activates the door guns, even when you're in the pilot's position. Your AI door gunner will aim (and he's not all that bad), but you control when he fires.
- Because you're depending on your fellow pilots anytime you're in a Black Hawk, it's really a bad idea to fly with a computer wingman. Computer wingmen aren't good enough at recognizing threats to keep a Black Hawk alive all the way through a mission.

AUTOPILOT FUNCTIONS

- If it's a long stretch between waypoints, you might want to autopilot (A). In enemy territory, decrease the autopilot speed (Ctrl A) to reduce your chances of being spotted.
- If your helo is damaged and hard to fly, try autopilot. It might get you home.
- Remember, you can't hide *and* use autopilot. Autopilot keeps your altitude around 100 feet, so make sure that no one nearby can attack you before you activate it. The one exception is the Hover Hold key (H), which maintains your current altitude.
- If you get lazy and don't want to spin to bring the waypoint carat into view, hit auto-pilot briefly. This gets you oriented in the right direction. This is useful if you've got autopilot set up as a joystick or throttle stick button — you don't have to touch the keyboard at all to reorient the helicopter.
- If you insist on using autopilot with enemies around, activate time compression to 8x. This reduces the likelihood of a missile hit.
- You can usually autopilot home to the last waypoint. It will drop you into a hover over your landing FARP, so all you need to do is drop collective to land.

TIME COMPRESSION

- One small time-saving trick is to turn on your helicopter's rotors, then turn on Time Compression (Tab) to shorten the time it takes to achieve full speed.

- Time compression makes you harder to hit. This is because the game checks every few seconds (in real time) to see where the weapon is in relation to your position. When the game time gets speeded up, the frequency of checks is reduced. Similarly, don't fire *your* weapons while time-compression is active. They're also less accurate because of fewer game checks.

TERRAIN

- Your cardinal rule as a pilot should be to fly as low as you can whenever you can. Fifty feet is a good bet for cruise altitude, and although it isn't easy to remain that low, you need to master it to survive. Building up the skill to constantly fly nap-of-the-earth is something our playtesters recommend to every aspiring helicopter pilot.

  Practice as much as you can at that level, and then try to master flying under 30 feet or less. You'll be thankful later, when your Commanding Officer pins yet another medal to your chest because you completed your objectives and made it back with your chopper intact.

- You cannot hide behind buildings.

- If you know something is waiting over a hill for you, go around the hill if possible. That way, you won't have to be so high to get a valid LOS.

- The direction (north, south, west, east) from which you attack a waypoint can be very important. Before you get too close to the primary area, check for hills, valleys and ridges that will let you move within 8km of the area and still conceal your position. If your current direction exposes you too much, manipulate an extra waypoint to make an approach from a different direction. It's okay if waypoint lines cross each other.

- If the primary targets lie on flat ground, but are positioned behind a mountain range, search for a canyon passage that will let you slip in unnoticed. This is a prime strategy in some missions, and adding an extra waypoint in a pass often preserves your element of surprise.

USING WEAPONS

Longbow, Kiowa Warrior

Note: *The Black Hawk carries only guns.*

- If you're flying the campaign, use your Mission Planner Arming window to figure out what you have left in the way of helos and weapons.
- You can cycle through gun burst rates by pressing [G] and change the number of rounds that are fired with each pull of trigger.
- Don't point your nose down when using Stingers and Hellfires. Always pull your nose up a little bit. This keeps them from slamming into the ground if you're low.
- Reserve ammo until you've reached primary objectives. Then, let loose, but concentrate on strategic targets — SAMs and AAA, incoming enemy helicopters, or whatever is the biggest threat for your given mission.
- If you're playing with limited weapons inventory and have weapons left once you've completed a mission, they go back into your total inventory.
- Don't forget about FARPs if you run out of fuel or ordnance. They affect your score, but use them when you're more concerned with survival than medals.
- In single-player games, you can change your Gameplay/Realism setting from SIMPLE to EXPERT right before you fire. Then, after you get full points for the kill (without the penalty for playing on SIMPLE), you can change it back.

Guns

- Use guns against small artillery pieces and soldiers.
- Strafing is best at speeds under 60 knots. Any faster than that, and you'll have a lack of maneuverability when you need it the most.
- If you're taking out a line of targets with guns, approach from one end and strafe them in a linear path instead of attacking them at a random angle.
- Anything you can kill with rockets, you can kill with guns. You can carry a *lot* more bullets than rockets, and rockets take up space that could be carrying Hellfire missiles. Sometimes, that can be a good thing — but not usually.
- You can elect to arm the Black Hawk with either M60D or M134 doorguns, but you'll want to take the M134 minigun in all cases — it has a lot more ammo.
- If you're flying solo in a Black Hawk, you can target threats from the pilot's station. Whenever you pull the trigger (or press [Enter]), the doorgunner will automatically target whatever threat you've designated. This method is fairly accurate, and you don't have to do the targeting.

  If you switch to the doorgunner's position, you can aim the doorguns yourself. Use the Numpad [2], [4], [6], and [8] keys, or press [Alt] and move the joystick to aim. Trade volume for accuracy, and watch where the bullets hit — merely relying on the sight won't help you much. If you see that your shots hit wide or short, adjust the gun position to compensate.

Rockets

- Rockets are good if you're facing a lot of helos. If you can aim relatively well, you can use them against air targets.
- HE rockets are best for helicopter engagements because they don't have any minimum range requirements. Multi-Purpose Submunition Rockets (MPSMs), on the other hand, have a minimum range of about half a kilometer or so. Either rocket type will work against ground targets, especially against clustered targets. Use them sparingly in either case, because rockets don't reach your front lines that often.

Hellfires

Longbow, Kiowa Warrior

- Most campaign missions can be flown effectively if you and your wingman carry a double load of Hellfire missiles. In most missions, you'll be thankful that you have 16 Hellfires, instead of the default rack of 8. (Of course, read your briefing to make sure your mission involves ground targets. If you're facing nothing but helos, Hellfires won't do a whole lot of good.)
- Of all the pieces of ordnance you can carry, the Hellfire takes the cake. Tinker around with the different modes of delivery — LOAL and LOBL. You can toggle between them by pressing Insert.
- Most targets worth destroying take a Hellfire missile apiece to kill. Others, such as hardened bunkers, take two.
- Use LOAL for pop-up attacks with Hellfires. LOBL is good for firing at targets in your line of sight when you're not worrying about being shot at. It's also quicker if you're trying to pick off specific targets in succession.
- LOBL doesn't have a lot of applications, unless you want to be certain you don't fire off a Hellfire without a valid lock, or if you're extremely picky about target types. In LOBL, you can't fire unless the missile box is solid; in LOAL, you can fire without a lock.
- If you're loading up yourself and your wingman with Hellfires, give yourself RFs (radar versions) and your wingman laser Hellfires. This helps spread out your Hellfire use, which is important when you have a limited supply.

  During flight, use your RFs to attack high-priority threats that you spot at long range. Pass targets at shorter range and/or lower priority off to your wingman. Why? Laser Hellfires have a shorter maximum range than RF Hellfires.
- Take radar Hellfires whenever possible. Their range is 8km, and you don't have to keep the same target locked until impact. (Laser Hellfires, however, require that you keep a lock. This is because you're using the laser designator in the TADS/PNVS turret to "light up" the target with a laser beam.)
- With laser Hellfires, you can't change targets after launching a missile. This is because you must maintain the laser designator.
- There's a Hellfire trick you can use (which you may have discovered by now). In LOAL mode, you can fire your Hellfires even if you're out of range or don't have a valid missile lock in the IHADSS display. If you move within range or get a good LOS before the missile timer counts down to 1, then you'll get the hit.

- Fire a Hellfire, then cycle through targets to get the next target you want. This keeps you from wasting missiles in the PFZ on things you can easily destroy with guns later.

TARGET TYPES

- Against air targets, use Stingers. If you don't have any, try rockets.
- If you're getting shot from ground targets you can't seem to spot on your radar, chances are you're facing a soldier with a shoulder-mounted SAM. Switch to TADS and your guns, then toast him.
- Deploy only a single Stinger at each air threat, then follow up with guns.
- If you're firing at an Su-25 or MiG-29, come to a hover, stay low, and fire at him as he makes a head-on approach. As he flies over, be quick with your chaff pods and be ready to spin around 180 degrees. As he passes over you (but before he banks and returns for a second pass), fire at him again. Don't fire while he's banking — there's a greater chance you'll miss.

  Remember, Frogfoots are good for points (at 500, they have the highest point value).
- You can launch Hellfires at air threats if you're at least 2km away from them (if you're desperate). However, they're not extremely accurate. Only do this if you're out of Stingers and your gun is inoperative.
- Grounded helicopters are just like ground threats — target them with Hellfires. (Your wingman, however, will launch Stingers at them.)
- Hardened bunkers and tanks are hard to destroy with bullets if REALISTIC WEAPON DAMAGE is active. Use missiles or rockets instead — otherwise, you waste time and rounds.
- Artillery is soft. Don't use rockets or missiles against them, use machine gun fire. They won't really put up a fight. The closer you are, the less ammo you'll need.

TACTICAL SITUATION DISPLAY MFD

Longbow, Kiowa Warrior

- You can't use the mouse to lock onto TSD targets if TADS targeting is active.
- In the Longbow, you must be in FCR target acquisition mode to update the targets that appear in your TSD. If TADS appears in the MFD display, press [Home] to switch to FCR. (The Kiowa, in contrast, only uses MMS — which is always active.)
- If all the targets on your TSD appear to be little boxes, you're zoomed out too far. Press [Pg Dn] to cycle through TSD ranges — the boxes will take on individual icon shapes.
- Circles with "tails" represent helicopters, and solid triangles denote enemy aircraft. Once you pick them up with FCR, they'll stay on the TSD display even if you switch to ground mode.
- Extending the TSD range can sometimes help you ID more targets. Try going to an extended TSD range as you're about to enter enemy territory.
- ABCCC (press [Ctrl][~]) is a valuable target-gathering tool. Use it to download other helicopter's targets onto your TSD — this allows you to get valuable information on areas before you enter them.

PRIORITY FIRE ZONES

Longbow, Kiowa Warrior

- When you carry RF Hellfires, make it a habit to use PFZs (priority firing zones you create by right-clicking and dragging in the TSD MFD). They make targeting and firing a lot simpler, and you can use them to assign target areas to your wingman.
- If there are two or three sets of targets you want to attack, go ahead and set up your PFZs, then choose the first one you want to use. [Q] will cycle through them, so when you get close enough, just press [Q] instead of taking the time to set up a new PFZ.
- Once a PFZ is empty, delete it by clicking on the PFZ label with both mouse buttons simultaneously. Old PFZs will just confuse you, especially if you're trying to cycle through them in the heat of combat.

- Some targets move into a PFZ after it's created. These will *not* be added to the target list automatically. To add a unit (such as a mobile SAM site) to the currently selected PFZ, hold down [Shift] and left-click on the target's TSD icon.
- PFZs can cycle through up to 16 targets apiece. Try to avoid creating large zones — keep them small and accurate (i.e., target only a few specific items at a time).

USING YOUR CO-PILOT/GUNNER

Longbow, Kiowa Warrior

- You can control both the pilot and CP/G functions in the game, or assign spotting and/or countermeasure duties to the CP/G in the OPTION menu.
- Just because you can't see anything when your CP/G says "Threat Front" doesn't mean that he's rambling random warnings. His vision is just better than yours (and your sensor range is probably set too low).
- To take full advantage of the extra MFDs in the Longbow's front seat, set up those two MFDs differently than the MFDs in the pilot seat. We recommend keeping up the ASE and TSD in the pilot's seat, and the Weapons MFD and System MFD in the CP/G's seat. If you need to see any other MFDs, switch out the System MFD in the CP/G seat and leave the others as they are.
- If your CP/G calls out something by name — "Helicopter, 3 o'clock" — it means it's a formidable threat. This is very useful info if you don't like to fly with your ASE up — if you listen to your CP/G, he'll give you a lot of the warnings that the ASE would. You can also keep the ASE autopage feature on, so that the ASE page will automatically pop up in one of your MFDs when you're threatened. (On is the default setting; use [Shift][A] to toggle.)

USING YOUR WINGMAN

- Time compression can leave your wingman behind. Watch out for this when you're about to go into heavy combat.
- Your wingman picks his weapons according to his targets. He'll use cannon for lightly armored targets at close range, rockets for medium-armored targets at close range, and Hellfires against heavily armored targets and any long-range threats. He'll use Stingers against air targets.
- Your wingman will follow you around relentlessly, unless you are attacked by enemy air threats. He will then break formation to defend you, but you can use Ctrl 5 to call him back.
- Wingmen can dogfight. They'll try stand-off attacks first, using Hellfires and Stingers. They can hit targets — even other helicopters — with rockets. They don't use textbook maneuvers but will respond to an opponent's moves and try to position themselves for a good shot.
- When you're in a masked position and want to waste your enemy's missiles, you can use your wingman for a double-lure maneuver. Find him a good, masked spot behind which to hover and order him to "Stay Here" (Ctrl 9). Then, go off and find another good position for yourself. Now, if you pop up, so will he. He'll also drop when you drop. With luck, you can both draw a missile and drop before either one gains a good lock.
- In some situations, you simply need more ordnance than one helicopter can carry. To ensure you have enough ordnance to complete the mission at hand, always use your wingman's weapons first. A good leader always brings his wingman home with him, but sometimes it's just not possible. Don't feel too guilty about it ... after all, this is war.
- Arm him with Stingers. This greatly increases his chance of survival.
- Your wingman needs you to have a valid line of sight (LOS) before he can fire at a target (it's your targeting system that identifies targets for him). His weapons, however, use his LOS to the target. Hovering can help his accuracy (when you hover, he does too).
- Next to Hellfires, your wingman is your most valuable tool. The attack helicopters should remain hidden, for instance behind a hillside. Once the lead finds the threats, then the attack pilots proceeded to engage them as a team.

- Use your wingman as your second set of ordnance. The "Attack My Target" command (Ctrl 3) should become second nature to you. Once you've locked onto a target, hit that command, and your wingman will fire on whatever target you give him. Keep firing on other targets in the area, and alternate until all threats are eliminated.
- Use your wingman against tanks, immobile objects, and other items you don't want to waste your Hellfires on. Your wingman only uses LOBL missile launch mode.
- Don't send your wingman after grounded helicopters. He'll get shot down by surrounding threats.
- Be careful about telling your wingman to fire on things that are directly to your left. If you are hovering, it shouldn't be a problem for him to go around you, but if you're moving, he may get confused and shoot at enemies that are ahead and to your left ... making it very easy for you to fly into his fire.
- If you're waiting around for your wingman to finish up some targets, go to TADS MFD and select the same current target as your wingman. By zooming in as far as possible, you can verify what targets he's destroyed ... they'll appear courtesy of the FLIR/DTV/DVO camera.
- If you need to conserve Hellfires, put your wingman in cover mode and use your guns on the small fry.
- You may not want to bother with certain mundane targets (like tanks or small artillery sites). Instead, send your wingman after them.
- You can easily keep track of the number of remaining Hellfires on your wingman's aircraft if your system has more than the minimum RAM requirement. Activate the DETAILED HELICOPTERS option in the OPTION menu, then pan the F6 external camera view to see how many Hellfires are still mounted on his wing pylons.
- If you hit Alt Q and end your mission before the other pilots finish, it calculates your score according to the chance of their success.

BEATING HELICOPTER BANDITS

- In helicopter vs. helicopter warfare, make sure you target the Hokums first. They're the only enemy helos that can fire air-to-air missiles at you.
- You can tempt helicopters away from a SAM-infested FARP by ascending. They'll acquire you and move away from the FARP. This way, you can eliminate them and stay out of the airfield's SAM and artillery range (unless 2S6s are present).
- Helicopters continually analyze the tactical situation to decide where to go and what to do. If the situation is right, they may perform something that looks like a textbook maneuver. However, this is merely a reaction to their opponent's maneuvers — no "Stern Conversion" string is called up in the AI code. So, as in real life, using a textbook counter-maneuver may not work.
- Enemy helicopters will drop chaff and take evasive maneuvers, so it is possible to miss them with a perfect shot.
- If there's only one enemy chopper, tail him and he won't shoot at you. Avoidance is his first routine.
- If you saw a helicopter a few moments ago, and it no longer appears when you make a 360° sweep of the area, chances are he's right on top of you. This is an avoidance routine of sorts ... he won't fire on you, but he will hide directly above you. If this happens, yank back the cyclic stick and apply additional collective. You'll slice backward with your nose up, a perfect position to fire at your opponent with the chain gun.
- In the AI structure, an enemy helicopter's preferred position is behind its target, and it will continually maneuver to get there. Use air radar to "check six."
- Helicopters paired as wingmen will attempt to support each other (i.e., one will attack from the left and the other will attack from the right).
- The Mi-24 "Hind" and Mi-28 "Havoc" are built like flying tanks and have tons of chaff dispensers. Therefore, most of the time it takes two Stingers to bring one of them down. At the same time, Stingers are precious and you won't want to waste two of them on a single chopper. If the first one doesn't take down the helo, wait until you can maneuver within chain gun range.
- There is no hard and fast rule about whether enemy helicopters will attack you. They have their own mission agendas, the same as you do. If they a) see you and b) have attack capabilities and c) it doesn't counter their standing orders, they'll attack. If not, they'll leave you alone.

BEATING JET BANDITS

- Not many missions have planes. In the ones that do, make sure you stay hovering. Although it makes you more vulnerable, it also lets you fire more accurately. Hovering near one of your FARPs is especially preferable. If you get into trouble with fuel or weapons, you'll be able to land and restock your tank and pylons. You'll also have the added support of Avenger SAMs and Patriot missile sites.
- Try to save your air strikes for MiG-29s. It will take a while for the F-16 to intercept them, but it's better than trying to take them down yourself.
- If you are being engaged by a MiG-29, try shooting a missile at it — even a Hellfire. The warning tone he gets if it locks on might be enough to get him to break off, and give you a little breathing room until your F-16s can get there.
- If you find yourself facing an enemy air strike, greet the aircraft early with a Stinger head-on just as he moves within range. Sometimes, this can cause him to break off the attack.
- If you're trying to evade a missile fired by an enemy air strike, search out the end of a ridge or fairly steep hill. Pitch down and stay low. As the aircraft makes its attack run against you, slide around the edge of the ridgeline or hop over the ridge just as the plane arrives. If executed correctly, this maneuver will put terrain in between you and any missiles fired at you.
- Su-25 Frogfoots often look like they're running away after they make an attack pass. Sometimes they are (especially if they're damaged or out of missiles), but sometimes they're just heading out enough to make a second pass.
- In air target missions, activate ground radar occasionally to check for SAMs. Then, go back to air mode to deal with airborne threats. You don't want to get surprised by a SAM missile.
- Once they're out of ammo (see **Object Stats**, p. 50, for loadouts) planes will return to where they started. If they start to bug out, you know they've expended most of their stores.
- You don't have to take out every air threat you encounter. First, determine if you are going to fly through their attack zone. If not, don't worry about them. A good way to determine if they are going to attack you is to go to the F10 or F11 views and see if they're even trying to track you. These views align the camera with the current target. If they aren't, you're fine.

BEATING GROUND THREATS

- Enemy SAM sites are networked, so it is entirely possible for you to be acquired by one site and actually fired on by another. This means that the radar lock and the missile could be coming in from completely opposite directions.
- Always stop and bob up pretty high right before you cross the border. Since SAMs won't usually fire at you while you're in friendly territory, you can get a good read on what awaits you before crossing enemy lines.
- Whenever you approach your primary targets, take out the surrounding AAA and SAM sites first. This removes the deadliest threat to your survival, and lets you move in closer. Close is good; it means you can use guns instead of precious Hellfires.
- If something that gets its targets from an external radar hasn't detected you yet, all you have to do is destroy its accompanying radar. If it's seen you, you need to destroy it *and* its radar.
- Your helicopter's radar signature is smaller when you're hovering, and it's harder for radar-guided SAM missiles to track you.
- The signature of dug-in vehicles is reduced by 75%, making them harder to hit.
- All of the SA-series SAMs except the 2S6 have one drawback. If you can sneak up on them and move into weapon range without being detected, you can use guns against them. Why? Because once you're within their minimum missile-firing range (1-3km for radar SAMs), you're too close for their missiles to track you accurately. Hills are your best friend for this tactic — hover behind a hill, pop up and toast him.
- Beware of the Rapier SAM — it can fire over hills, and it's very lethal. Take out its accompanying Blindfire radar first thing. This means it will have to maintain its line of sight on you to hit you. If you don't take out the radar, it merely lofts a guided missile that can track you down, even if you're out of sight.
- Once you get close enough, guns or a single Hellfire missile can take out a Rapier launcher.
- If you take out the Rapier's Blindfire radar, you can lure it into launching its missiles at you. Pop up until you spot a missile on your ASE, then drop down to break its lock. Without the Blindfire, the missile is blind once it can't see you.
- Most strike missions can and should be completed at a distance. You don't necessarily have to see what you're firing at.
- Use F7 or F11 to find out how many missiles a Rapier has left — they're visible on the launcher.

- If a SAM locks and fires on you, you can often break the lock by dropping to a very low altitude — even if a missile is already on the way.
- One in every four soldiers is carrying some type of shoulder-launched SAM.
- 2S6s and SA-11s tend to cluster together.
- For 2S6s, you'll see a second, smaller circle that indicates their gun range. The gun uses a separate radar to acquire and track you, and is almost as deadly as a missile.
- Don't call air strikes in on 2S6s. They'll probably bring down the A-10s.
- SAMs can only carry three to eight missiles apiece. (Loadouts for SAM sites appear in **Object Stats**, p. 50.) If you've got a lone SAM firing at you, keep track of how many missiles he's launched.
- Against 2S6s, it's vital to remain undetected. They have a long maximum range, and you need to be far inside their threat radius to attack. To take them out, mask yourself with terrain and stay low when you approach. When in Hellfire range, bob up. It will take them a good 20 seconds to lock you up and fire, so you shouldn't have a problem surprising them. If you get detected first, however, say your prayers.
- 2S6s, SA-8s and ZSU-23s are the most dangerous threats out there. Of them, 2S6s are the most hazardous — they boast both long-range missiles and short-range guns.
- If you're attacking a SAM site, it's okay if he launches a missile as long as you get him first. Even if one is in the air, it will lose its lock when yours hits.
- Take out radar sites first. Some missiles are radar controlled. Once the radar is gone, they aren't anywhere near the deadly threats they are when they can track you.
- Some infantrymen carry shoulder-launched weapons, an entirely real threat to a combat helicopter. It's impossible to make yourself 100% infantry-proof, but you can minimize the threat by keeping an eye on the ground when flying NOE, and by not loitering over heavy ground cover.
- To detect an infantryman, you need to switch to TADS because the TSD won't track them. They show up as SOLDIER on the TADS MFD.

CAMERA VIEWS AND PNVS

- A great way to identify your threats visually is to use an exterior camera view. From a hover, press F7 until you find the threat you want to eliminate. Then, jump back to your previous view and unleash your firepower. Always make sure you're at a safe hover altitude before doing this, however.
- Use external cams for target identification, to follow missiles, and to verify target destruction. Several of the cams — such as Death View — can be set to pop up on an as-needed basis. See the *Reference Card* for the keystrokes.
- The F7 *Next Target* view can help you identify targets earlier than if you're relying on your target acquisition equipment alone.
- Sometimes you can see an enemy, but you shoot all day and never hit him. If your system says you can see him but you keep missing, hit F11 to bring up your Inverse Tactical View, which gives you a view from the enemy's perspective. If you (from the enemy view) can't see your chopper, your machine gun and rockets won't hit him. Climb or otherwise change position.
- If you find one threat, use your F11 external view to get it in sight, then pan around to see if there are others in the area.
- To get a really good look at what's going on, get rid of your cockpit and use the cockpit-free view (Shift 1). (This is especially useful when you're strafing with your guns and have forward velocity.)
- If you play in invisible cockpit view a lot in the Longbow, use the Cruise IHADSS mode when flying. The pitch ladder gives you a good, concrete reference to where the ground is in relation to your flight path.
- If you're having trouble seeing things in external camera views at night, use gamma correction (use the OPTIONS menu), or adjust your monitor's brightness.

⌖ Throughout *Longbow 2*, you'll face many nighttime, dusk and dawn missions. Use your PNVS! (Press P to toggle it on/off.) At first, it's a bit eerie, but this enhanced visual system will guide any good pilot through a mission.

⌖⌖ In night missions, switch back and forth between white-hot to black hot FLIR modes in the Longbow's HDD. Different terrain responds differently to each mode, and some things appear more clearly in a particular mode.

CAMPAIGN MISSIONS

- In the Iran campaign there is the possibility of be assigned a "special mission." These missions are a lot of fun, with great detail and unusual assignments such as dropping off troops to inspect a chemical truck. These are assigned according to two things — the exact position of your phase line and a random chance factor. See **Special Missions**, p. 236. You'll know you're flying a special campaign mission if "Special Operations Command X-Ray" appears in the Air Tasking Order (ATO) of the mission briefing.
- You see movies at certain points during the campaign. If you miss part of one, or just want to view it again, use the News Scrapbook. You can find it in the Training Building back on the Base.
- Your success isn't based entirely on whether you win or lose, it is the cumulative success of your forces. If you are very close to winning the campaign, and lose a mission, you won't suffer much more than some lost land that you'll have to reclaim.

TAKING DAMAGE ...

- If you know you're about to get nailed by a missile, try to turn so that you take the hit on one of your flanks. You don't want to get hit in the front or rear if you can avoid it — the damage will affect more crucial systems.
- If your tail rotor gets damaged and you've still got an important target left, try landing and ordering your wingman to attack targets. This sometimes helps, and you'll still be able to autopilot home safely in some cases.
- If your engines go out or your rotor starts making a strange thumping sound, reduce your forward speed, gain altitude, and try to autorotate (glide without engine power) into the nearest FARP. See the **Auto-Rotational Descent Chart** in Appendix D of the *Reference Manual*, for safe autorotational speeds for all three flyable helicopter types.
- If you're really, really damaged, use autopilot to return to base. It's probably more adept at flying an injured aircraft than you are. As long as you have one engine running out of the two, you can usually get home.
- If you land when damaged and need to take off again, you may need to re-engage your rotor (press Ctrl R). With one engine out, this can take a long, long time. Time compression helps with this.
- If at any point in a mission your screen goes black, it probably means you got a dead hit to the center of your cockpit.

AVOIDING DETECTION

Much of your success in *Longbow 2* will depend on how well you use terrain and strategy to remain undetected. Staying hidden usually means staying low and among ground cover — decreasing the chance that radar systems can pick you up and pinpoint your location. You want to get a lock on them before they get a lock on you. Understanding how radar systems track and at what altitudes and ranges they can pick you up is invaluable.

HIDING FROM RADAR

If you want to avoid being detected, the best thing you can do is avoid radar. Two general principles hold here.

- Radar systems cannot detect things beyond their maximum range, and the farther away a target within range is, the harder it is to pick up accurately.

When possible, use the nav map before and during your mission to alter your course so that you avoid all known radar systems — the radar ranges for known SAM sites show up as red circles. The ranges listed for SAM and AAA sites (**Object Stats**, p. 52) will give you an idea of the strength of the radar systems in this game.

All radar systems also have minimum ranges. However, most of these are well within the attached SAM launchers' missile ranges, so getting to this minimum range might be a bit hairy.

- Radar systems can't see through the earth.

The second best tactic is to put a mountain or hill between you and the radar. Again, you can use the nav map to plot a course that hides you from known radar. Use valleys (dark green areas on the nav map) and pick an attack position near the target where you can stay hidden from nearby radar systems.

See **Waypoint Manipulation**, p. 10, for tips on moving waypoints. Some of the mission analyses (p. 176-265) suggest alternative courses for specific missions where appropriate.

In situations where you have to fly through radar ranges and there are no convenient valleys to take cover in, your best course is to stay low and fly slowly. The following tips explain why.

LOW AND SLOW

You've heard it many times before — to avoid being detected, stay low. Well, just how low is low? The minimum altitude at which a radar can pick you up depends on several factors — the strength (and skill level) of the radar, your distance from it, your aspect toward it and your speed.

- The closer you are to a radar system, the lower the altitude at which it can pick you up.
- You're harder to pick up if you're hovering.

If you're moving at all, your movement stands out against the returns from stationary ground clutter — the faster you are flying, the lower the altitude at which a radar can pick you up.

- When you're moving forward, you're easier to pick up from the front and aft than you are from the side.

This is due to Doppler shift — as you move toward or away from the radar, you generate a Doppler shift in the radar waves which can be picked up through ground clutter. If you fly perpendicularly to the radar's radius, you don't generate this shift.

- There is a "reaction time" delay between acquiring a target and firing the first missile.

Reaction time includes the time it takes for a system to acquire a lock on its target, pass information to a tracking radar, track the target, aim the launcher and fire a missile. (Reaction times for IR systems are shorter than those of radar systems because IR systems can skip the tracking phase.)

Reaction times vary greatly according to the situation. In general, targets at close range can be engaged sooner than faraway targets, and subsequent missiles are fired faster than the first missile.

DISABLING SAM & AAA SITES

Different missiles require different detection systems and locks. For example, the SA-11 requires a *search radar* to find a target, and a *tracking radar* to track the target until the missile hits. The tracking radar is on the launcher, but the search radar is a separate radar vehicle. On the other hand, the SA-15 has a combination search/tracking radar that is built into the SAM launcher vehicle.

Understanding the search and track systems used by each weapon will help you deal with them — in the examples above, taking out either the Snow Drift radar (the search radar) or the SA-11 launch vehicle (which houses the tracking radar) would disable the SA-11, but you'd have to take out the SA-15 to totally disable it.

FIGURING THE PERCENTAGES

Each aircraft has an **IR Jam** and a **Radar Jam** chance, listed in the **Object Stats** on p. 50. Each missile has an **Acc**uracy **%** and an **E/IR CCM** chance (**Weapon Stats**, p. 54) All three numbers work together. A missile has a base chance of hitting its target (the Accuracy %). An aircraft with the appropriate jammer has a chance of jamming and deflecting the incoming missile (IR or Radar Jam). However, if an aircraft has jammers (countermeasures) the missile can neutralize the jamming with electronic or IR counter-countermeasures (E/IR CCM).

For example, if the target helicopter has a 47% jammer strength, and the missile has a 31% ECCM rating, then the missile actually has a 70% chance of hitting its target (86% - 47% + 31% = 70%). (Of course, the target could still get lost in ground clutter, etc., but this is the missile's base chance of hitting its target.

Of course, the E/IR CCM is only included in the calculation if the aircraft has an active jamming system of the appropriate type (IR or radar). If the aircraft doesn't have an active jammer, only the missile's Accuracy % is figured into the calculation.

RADAR & IR JAMMING

- Jamming reduces the chance of a guided missile hitting you. But don't forget that your enemies can jam as well. If your missile doesn't kill something, it's probably been deterred.
- You'll want to make sure that your radar and IR jamming devices are active whenever you're in a battle area. [R] activates radar jamming, [I] initiates infrared jamming.
- Most ground threats use radar-guided weapons. The SA-7, SA-14 and SA-18 (shoulder-held SAMs carried by soldiers), along with the SA-9 and SA-13 SAMs, however, use IR weapons. Don't forget to activate IR jamming.

MULTI-PLAYER GAMES

Longbow 2 offers support for two-player play (via modem, direct cable or Internet) or four-player play (LAN). One player acts as the master player on a host machine, and others connect to that machine to play a game. For specifics on setting up multi-player games, see the *Multi-Player Guide* that came with the game.

The **Attack Helicopter Operations** handbook on pp. 74-137 gives actual battlefield tactics that are particularly applicable to player vs. player and multiple players vs. the computer. Versions of this guidebook are given to budding Army pilots to help them prepare for combat training.

MISSIONS

Our playtesters recommend the following missions for multi-player play:

- Insertion and/or extraction missions (e.g., *Wolf's Den* or *Smooth Flight)* can be a great deal of fun and a good exercise in teamwork. Have one player fly as an escort in a Longbow, and the other as the Black Hawk insertion team. Aside from flying as a pilot and CP/G team, this mission setup provides the most interactive experience.
- To add on another level of intensity, fly as the pilot in the aforementioned mission with a third player acting as a CP/G in the Longbow. As pilot, you'll have the toughest job of all — flying, communicating with the CP/G, and communicating with the insertion/extraction team.
- Another fun mission involves taking along another player as a wingman instead of as a pilot in another flight. This lets you work cohesively from separate choppers, and encourages experimentation with ambushes and other involved attacks.
- If you're playing with four players, let all human pilots fly as wingmen in the first 2 flights and and let the computer pilots handle the remaining 2 flights on their own. This tends to make the mission easier (especially at lower difficulty levels), and the mission scores are consistently higher at the end of the missions.

PRE-FLIGHT PREPARATION

- Make sure all players read the briefing carefully. If you don't know exactly which flight you're in, or what your primary objectives are, you won't contribute all you can to the mission. Everyone will have different mission priorities — never destroy everything you see indiscriminately without knowing the purpose of the battle.

- Before you take off, make sure that everyone else is clear on who's who. Callsigns are an important identifying aspect in radio communications. Writing them down often helps. (If you're flying a single mission, callsigns are listed for each encounter in **Single Missions**, pp. 176-235.)

- Designate a leader. Each flight has a lead pilot, but one person needs to be in charge overall. Chat beforehand about how you want to approach the mission. Examine the terrain around the battle area and know how you're going to divide up duties once you're there.

- A correct mix of helicopters is important. If a mission involves reconnaissance, but no one's in a Kiowa, that's a problem. The Longbow can perform scout missions, but at a much higher risk of being detected. The Kiowa, on the other hand, can remain almost completely hidden while gathering targets.

  Taking along the Kiowa as a scout helicopter and following it with a couple of Longbows is usually the best approach for any type of recon mission. That way, you can let the Kiowa lead and position itself in a suitable hovering position behind a hill or in a valley near the battle area. That pilot can then use the MMS to gather all targets in the area. Meanwhile, the Longbow pilots can maintain a holding position several kilometers away and download targets from the Kiowa.

- Don't limit your group's weapons to a single type. Even if the mission describes a general air-to-ground battle, you're going to want to have a couple of air-based Stingers along in case there's trouble. The opposite applies as well — few missions are SAM-less or AAA-free.

  A good mix for a ground-based mission is about 75% Hellfires and 25% Stingers and/or rockets. For air-to-air missions, reverse that.

- If you're using a scout, make sure that all players know exactly where that pilot is. Don't position your Longbows directly opposite of the Kiowa — that puts it in the line of fire. Make your Longbow attacks from an angle that doesn't put the scout helicopter in danger.

STAGING THE ATTACK

There are a multitude of ways to accomplish a given mission. You should decide ahead of time from what direction you're going to attack, and how you're going to approach the target area. It's not a bad idea to gather your forces in a holding area several kilometers away from the waypoint, then send someone in to scout out the terrain and the enemy situation. Whatever you do, don't rush in for an attack without first assessing and organizing the battlefield.

The **Attack Helicopter Operations** section of this book (specifically, **Offensive Operations,** p. 95 and **Combat Support**, p. 114) outlines basic approach and attack methods you may want to try.

PILOT AND CP/G INTERACTION

- Some of our playtesters swear that flying with another player in a single Longbow or Kiowa is the most realistic way to play the game. It allows both players to concentrate fully on the tasks at hand — with one player piloting the aircraft, and the other handling targeting and weapons.
- If you have more than one phone line, or you're playing over the Internet or a network, try using a speakerphone to communicate while you're playing. It mimics a radio headset (sans the headphones, of course) and gives you the advantage of real-time communication. The last thing you want to be doing if a Hind or Rapier is dogging you is to take your hands off the joystick to type a chat message.
- If you're sharing the cockpit, keep different MFDs open in the pilot and CP/G seats. This will allow you to assess and react to more information than if you're duplicating efforts by viewing the same MFDs.

  In the pilot's seat, keep the System MFD and ASE open — this allows you to deal with damage, SAM threats, incoming missiles and aircraft. (Coordinate with your CP/G in cycling between air and ground radar modes.)

  In the CP/G's seat, you'll definitely want the TSD up, as well as the Weapons or TADS MFD. These are your main targeting and weapons pages.

OPTION RECOMMENDATIONS

The master player has limited control over the mission options. To see what options are currently active, press Alt M to show the *Multi-Player Mission Options* dialog box. You can access this anytime before takeoff.

Try flying with these options selected:

Mission Time Limit 15 MINUTES / 30 MINUTES / 45 MINUTES / 1 HOUR / UNLIMITED

Unless you're on a limited time schedule in reality, stick with something in between 45 MINUTES and UNLIMITED. Anything shorter leaves open the possibility that the game will time out right as you're setting up the winning shot. (This isn't a problem in Death Match, when all that matters is who kills the most objects and survives the longest. However, it can impact campaign missions.)

Friendly Fire Damage ALLOWED / DISALLOWED

This option definitely ups the realism of the game and increases the stress level — but it also trains you to play close attention to where everyone is and what they're doing. If you're playing with people you haven't logged much time with, leave this one disabled at first. Later, once you know everyone's skill level and typical approaches and actions, enable it and see how it impacts the game. Hopefully, your friends won't get too upset if you inadvertently shoot them down.

Player Regeneration NEVER / INSTANTLY / 10 SECONDS / 20 SECONDS / 30 SECONDS

Keep the INSTANTLY option on in all cases! If you've spent 15 minutes preparing for a mission, talking with your other pilots and studying your assignments, the last thing you're going to want to do if you're shot down is repeat the entire process. Not to mention that you'll have to wait for everyone else to either abort or finish.

There's no real reason to set regeneration to 10, 20 or 30 seconds — not unless the battle area for that mission tends to get really crowded and you have the regeneration distance set to 0km. If that's the case, you may want to add in a slight delay to keep an enemy threat from immediately shooting you again while he's still watching you.

Regeneration Distance AT FARP / 0 KM / 2.5 KM / 5 KM / 10 KM

This one is only available if you're playing Death Match. The optimal regeneration distance is 2.5km or 5km. That's far enough from the battle area to put the regenerated player away from the fray, but it's close enough to allow him or her to quickly rejoin a friendly attack. 0km can be a real challenge, but useful, if you and your friends are staging an attack from perfectly orchestrated battle positions.

The AT FARP option is the most realistic, since that mimics a new helicopter being summoned to battle, but it can be frustrating if everyone else is already halfway through the mission at a distant waypoint. If you are regenerated at a FARP, the best path back into the battle is usually the original path — anything that was dead before will still be dead, and you should be able to proceed quickly.

Shift E Re-enter Death Match in a new helicopter (if heavily damaged)

Rearm/Refuel Frequency NEVER / ONCE / UNLIMITED

Once again, what option you select depends on what level of realism you want to maintain. UNLIMITED gives you an endless supply of fuel and weapons, but tends to make the battle much easier than it would be normally. On the other hand, NEVER doesn't leave much room for variance — you might be overly cautious with your weapons and not experiment with different approaches.

ONCE is a nice compromise. It still makes you look at your weapons and make a conscious decision on whether or not to attack a given target. It also gives you access to additional ordnance if you run into unforeseen difficulties and need it.

Available Weaponry ALLOW ALL / NO MISSILES / GUNS ONLY / RANDOM

(Death Match only) What you select here should be determined by the mission type you're flying. Limiting everyone's weapons to GUNS ONLY is a great way to brush up on your TADS and cannon skills. And since mounted helicopter guns and FFARs are unguided and don't have a minimum range, it can tighten up the battle area and make quick maneuvering a key tactic.

If you've teamed up with your friends to fly a Death Match mission, you'll almost always need to have ALLOW ALL active. Otherwise, you don't stand a great chance of completing the mission objectives. Even if you've got unlimited ammunition, taking out all the enemy primaries with guns is a timely process and puts you in constant danger.

RANDOM adds a certain factor of surprise to the mission — you don't know what you're going to get until you get it.

GENERAL TIPS

- Communication is important. When you're flying with other players as wingmen, pay close attention to who is firing at what targets. If you and the other pilot(s) are not communicating as to who is attacking what, both of you might waste your ordnance on the same threat.
- Watch the direction of fire very closely. Given the chaotic nature of an active battlefield, you may not always know where you friends are. If allies happen to be facing you from across the battlefield, they won't appreciate you shooting them down.
- Since each team has a limited number of friendly strikes available, coordinate any air and artillery strikes your team calls in. They can really help pull you out of a tight situation, so you don't want players wasting them at inopportune moments.
- If you frequently play with the same friend or group of people, you may want to come up with custom radio messages that indicate what you are about to do, or want them to do. Try editing **CHATMACROS.TXT** — instructions for doing this are in the **Chat Windows** section of the *Multiplayer Guide*. In **CHATMACROS.TXT** you can set up four sets of 12 custom messages (48 in all).
- If your entire group is low on ammo, you may need to pick your shots carefully. Using an aggressive luring tactic against ground-based missile threats — especially with four players — can entertain you while you're waiting for an incoming friendly air strike. Position everyone at the outermost range of the most dangerous SAMs in the area, making sure that everyone has some type of terrain cover. Then, have everyone pop-up at various intervals to try and lure the enemy threats into wasting their missiles. If you immediately drop behind cover, adjust your position horizontally and keep your chaff pods handy, you probably won't get hit.
- Ground threat loadouts appear in **Object Stats**, p. 50, and ranges are given in **Weapon Stats**, p. 54.
- Only the Master can control the unlimited ammo option.
- If you're carrying rockets, or playing without missiles, bump your rocket salvo setting up to 4. Damage-wise, this gives better damage potential than a single rocket, and it doesn't fire off half or all of your rockets in a single pop.

- Try this for an ambush — if you see enemies moving in through a valley, split up and slide around the ridges on either side. After you've passed up their position (staying masked behind the ridge, of course), come up over the ridge and attack them from the rear. This is especially effective against enemy supply convoys — provided you can avoid or eliminate their accompanying helicopter escorts.

- Use your partner as a decoy — while he piques the interest of SAMs and AAA, you can sneak up from another direction and initiate the main attack. A decoy can also help draw attention away from an insertion/extraction team.

- Before you start the mission, divvy up threat types. For instance, have one player take out strictly AAA, another SAMs, a third enemy helos, etc. This will cut down on ordnance wasted, especially during campaign missions.

- Use your external views to your advantage. If you target another player,you can hide behind a hill and go into the F11 view. This can give away your opponent's direction and location. If you see the rear of his helicopter, he's coming right at you. (The camera is behind him.) As he approaches your position, the camera will start to pan up and over you. That's your cue to pop up and toast him with Stingers or rockets.

- If players are in different flights, you can use the Comm MFD to see which players have completed their missions. If someone's idle, you can call on him for backup. Likewise, if you mop up early, go help someone else out.

- In Death Match (Instant Action, multi-player style), get above your opponent if you're fighting with the GUNS ONLY.

MULTI-PLAYER PFZS

- PFZs can be an integral part of flying multi-player missions, especially if you're utilizing target handoffs. However, it can be confusing when you're trying to distinguish between PFZs created by different pilots. To help you keep these straight, the labeling differs slightly.

  Each PFZ is identified by a player number, followed by the zone number. The zone number automatically increments by one each time a PFZ is added, no matter who creates it. PF3-0, for instance, was created by Player 3 and was the first PFZ to be created in that mission. The next PFZ to be created will reflect that player's number and will have a zone number of 1 (PF3-1, for example).

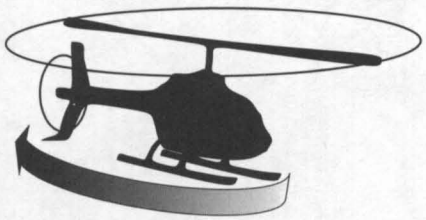
- To transmit your PFZs to someone else, just press Ctrl Bksp. Your target list and PFZs will be transferred to other players' TSDs. If someone else transmits, you'll get their PFZs and targets (unless you've already got 16 zones defined). You have to manually delete PFZs from your TSD.

- Generally, it's good to have some kind of organization agreed upon beforehand. You don't want to have everyone creating PFZs that overlap — that increases weapons waste and duplicates effort.

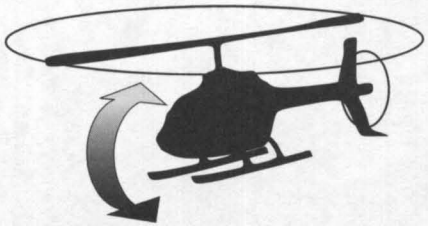
- The best way to use PFZs in multi-player play varies. If you're all attacking from a line formation, you might want to take the sector approach (see **Attack Helicopter Operations**, p. 72) and have everyone designate their own PFZs directly in front of them and take out only those targets. If you send a Longbow in ahead of time as a scout, you can designate that pilot as the PFZ creator, then assign PFZs to different pilots based on location.

JUST FOR KICKS

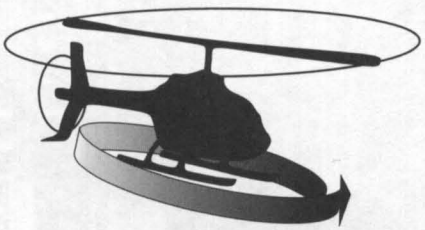
Scout helicopters have a method for signaling attack aircraft visually, using their position, attitude and movement. You may want to try duplicating these in a multi-player game with a scout/attack team. The diagrams below that illustrate the signals are based on diagrams from the *FM-1750 Attack Helicopter Operations* manual excerpted later in this book.



A 180° turn is a signal for the attack helicopter to follow the scout.



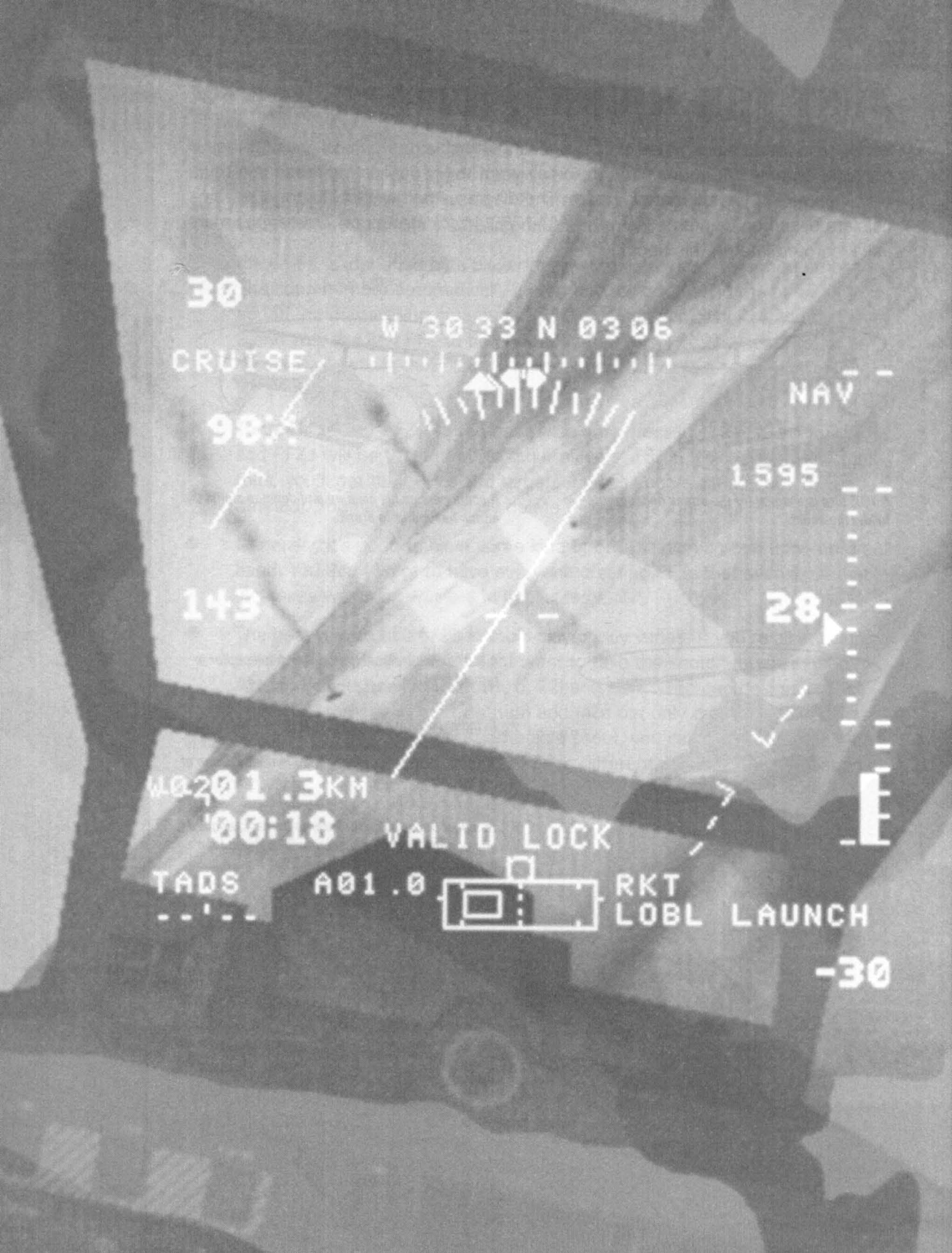
A scout pitches his nose up and down to signal the attack helicopter to crank.



A 360° turn is a signal for the attack helicopter to remain in place.

To indicate firing positions for several attack helicopters, the scout helicopter touches his skids to the ground with his nose facing in the direction of the targets.

To signal the attack helicopter to unmask, acquire and engage targets, the scout will land and then ascend.


30
W 3033 N 0306
CRUISE
NAV
98
1595
143
28
W0201.3KM
00:18
VALID LOCK
TADS
A01.0
RKT
LOBL LAUNCH
-30

GAME MECHANICS

GAME MECHANICS
OBJECT STATS

Struct. Pts. Each object in the game has an assigned number of structural points, which determine how much damage that object can take. An object with 225 structural points can take 225 points of damage before it is destroyed. Dug-in ground objects and grounded aircraft can absorb more damage than the number listed. (See **Weapon Stats**, p. 54, for a complete listing of weapon damage points.)

Arm. Every object has an armor rating — Lt. (Light), Med. (Medium) or Hvy. (Heavy) — to indicate how well the object is protected from damage. Each weapon has a "Hit %" that indicates its chance of damaging an object with each armor rating. (See **Weapon Stats**, p. 54, for "Hit %" stats.)

Ch/Fl (aircraft only). Aircraft countermeasures (**Ch**aff and **Fl**ares) can be used to decoy some IR- and radar-guided missiles. This column lists the number of chaff pods or flares an aircraft carries.

Kill Pts. These points are added to your cumulative mission score when you destroy the object. (See **Scoring**, p. 62.) Kill points are positive for enemy kills, and negative for friendly fire kills.

Spd. (aircraft only). The aircraft's maximum speed, in knots (nautical miles per hour).

Climb Spd. (aircraft only). How quickly the aircraft can gain altitude, in meters per minute.

Pitch, **Roll**, **Yaw** (aircraft only). **Pitch** (pitch) how far (in degrees) the aircraft's nose can swing up and down. **Yaw** is how far it can swing to the right and left. **Roll** is how far it can pivot clockwise and counter-clockwise around its nose-to-tail axis.

Helicopters

	Struct. Pts.	Arm.	Ch/Fl	Kill Pts.	Spd.	Climb Spd.	Pitch	Roll	Yaw	Radar Sig	IR Sig	Radar Jam	IR Jam
AH-64D	85	Med.	30/30	300	158	990	15°	60°	30°	90	40	31%	47%
OH-58D	60	Lt.	15/15	400	128	469	15°	60°	45°	49	13	–	47%
UH-60L	60	Lt.	15/15	300	160	239	10°	30°	20°	113	58	–	47%
CH-47C	70	Lt.	0/0	300	154	561	10°	20°	15°	282	107	–	–
MH-53J	120	Lt.	60/60	300	170	762	10°	20°	15°	244	197	78%	63%
AH-1J	75	Lt.	30/30	300	170	494	15°	60°	30°	75	44	–	–
Ka-50	100	Med.	64/64	300	189	990	15°	60°	50°	86	53	–	30%
Mi-8	100	Lt.	0/96	300	180	750	10°	30°	20°	184	108	–	–
Mi-24D	100	Med.	0/96	300	180	750	10°	30°	20°	122	88	–	30%
Mi-28N	80	Med.	64/64	300	162	816	15°	60°	30°	122	53	–	30%

Airplanes

A-10A	100	Med.	60/60	500	381	1828	15°	60°	20°	120	73	35%	–
AC-130	90	Lt.	120/120	400	321	610	10°	20°	10°	250	100	35%	–
F-16C	50	Lt.	30/30	500	915	15,000	30°	75°	22°	83	111	35%	–
MiG-29	50	Lt.	30/30	500	455	15,000	30°	70°	23°	113	120	–	–
Su-25	100	Med.	128/128	500	513	1820	20°	40°	15°	90	80	–	–

Radar Sig and **IR Sig** (aircraft only). These numbers reflect an aircraft's radar and IR signatures — the higher the **Rad Sig**, the more easily the aircraft is detected by radar systems and radar-guided missiles; the higher the **IR Sig**, the more likely it is to be seen by IR missiles.

Radar Jam and **IR Jam** (aircraft only). Percentage probability the aircraft will spoof radar- and IR-guided missiles.

Radar type (radar, SAMs and AAA only). Whether radar (or internal radar system) is used to find and acquire targets (S=search), track them once they're acquired (T), or both (S/T).

Linked with (radar, SAMs and AAA only). Lists the missile/AAA/radar systems the radar described in the previous column can be linked to.

Min R and **Max R** (radar, SAMs and AAA only). **Min**imum and **Max**imum **R**ange — the closest and farthest points from the radar that it can detect an aircraft (in km).

Min H (radar, SAMs and AAA only). **Min**imum **H**eight at which an aircraft can be detected when it is 10km from the radar system (in feet).

Visual Range (ground vehicles and infantry) Maximum distance (in kilometers) at which the unit can visually detect an aircraft.

Night Vision (ground vehicles and infantry) Whether the unit can see an aircraft at night.

Loadout. All the weapons that the object has mounted. In some cases, the loadout may vary; the possible variations are described in each such case.

Pointless Objects

Most non-tactical targets (houses, city buildings, common bridges, etc.) are killable. However, destroying them won't increase your mission score. The number of structural points for these types of objects roughly correspond to how large the object is.

Helicopters

	Loadout				
AH-64D	M230 (1200)	AGM-114C (8) or AGM-114A (8)		AIM-92C (4)	FFAR (38)
OH-58D	M2AC (500)	FFAR (14)	AIM-92C (2)	AGM-114A (2)	
UH-60L	M60D (4000)	M134 (4000)			
CH-47C	—	—			
MH-53J	M134 (5000)				
AH-1J	M197 (750)	BGM-71 (4)	FFAR (38)		
Ka-50	2A42 (500)	AT-12 (12)	S-8 (40)	SA-16 (4)	
Mi-8	Light Machine Gun (4000)				
Mi-24D	VSPU-24 (1470)	AT-6 (4)	S-8 (128)		
Mi-28N	2A42 NPPU-28 (250)	AT-12 (16)	S-8 (40)	SA-16 (4)	

Airplanes

A-10A	GAU-8 (1174)	AGM-65G (6)		
AC-130	—	—		
F-16C	M61 (512)	AIM-9M (4)	Paveway (2)	
MiG-29	GSh-301 (150)	AA-11 (6)		
Su-25	AO-17A (250)	AS-14 (4)	S-8 (64)	

Radar

	Struct. Pts.	Arm.	Kill Pts.	Radar Type	Linked With	Min R	Max R	Min H
Blindfire	30	Lt.	200	S/T	Rapier	.2	10	150
Clam Shell	100	Lt.	200	S	SA-10	.5	150	200
Dog Ear	70	Lt.	200	S	ZSU-23-4, SA-9, -13, -15	.4	35	200
Flap Lid	70	Lt.	200	S/T	SA-10	.5	40	100
Patriot Radar	25	Lt.	200	S/T	Patriot	.2	170	200
Skyguard Radar	30	Lt.	200	S/T	Skyguard	.1	20	125
Snow Drift	60	Lt.	200	S	SA-6, SA-8, SA-11	.5	100	200

SAMS / AAA

	Struct. Pts.	Arm.	Kill Pts.	Radar Type	Linked With	Min R	Max R	Min H	Vis R	Night Vis	Loadout
2S6[1]	75	Med.	250	S/T	SA-15, -19	.1	13	15	2	No	SA-19 (8)
Avenger SAM	25	Lt.	200	—	—	—	—	—	4	Yes	FIM-92C (8)
Patriot SAM	25	Lt.	100	—	Patriot Radar	—	—	—	—	No	Patriot (4)
Rapier SAM	25	Lt.	100	—	Blindfire	—	—	—	4	No	Rapier (4)
RBS-70/M113 SAM	40	Lt.	200	—	—	—	—	—	4	No	RBS-70 (6)
SA-8	70	Lt.	250	T	SA-6, -8, -11	.4	15	125	2	No	SA-8B (6)
SA-9	40	Lt.	200	T	Dog Ear, SA-13, ZSU-23-4	.4	15	125	2	Yes	SA-9B (4)
SA-10	70	Lt.	100	—	Clam Shell, Flap Lid	—	—	—	—	No	SA-10 (4)
SA-11	60	Lt.	100	T	Snow Drift	—	—	—	—	No	SA-11 (4)
SA-11 Command	60	Lt.	200	—	Skyguard Radar	—	—	—	—	No	—
SA-13	60	Lt.	200	T	Dog Ear, SA-9, ZSU-23-4	.2	12	50	4	Yes	SA-13 (4)
SA-15	70	Med.	250	S/T	Dog Ear, SA-9, -13, ZSU-23-4	.5	25	60	—	No	SA-15 (8)
M163 Vulcan	40	Lt.	150	T	—	—	—	—	2.5	Yes	M168 (2280)
Skyguard Gun	25	Lt.	150	—	—	—	—	—	2	No	Skygrd (238)
ZSU-23-4	70	Lt.	150	T	Dog Ear, SA-9, -13	.1	4	50	2.5	No	AZP-23M (2000)
ZU-23	30	Lt.	150	—	—	—	—	—	2.5	No	ZU-23 (2400)

[1] Also features a 2A38M (1904).

Artillery/Rockets

	Struct. Pts.	Arm.	Kill Pts.
BM-25 MRS	30	Lt.	150
SCUD Launcher	60	Lt.	200
SO-122	60	Lt.	150
M270 MLRS	50	Lt.	150
M109	60	Lt.	150

APCs/IFVs

	Struct. Pts.	Arm.	Kill Pts.	Visual Range (km)	Night Vision	Loadout	
BMP-1	—	—	100	1	No	100mm (40)	
BMP-2	50	Med.	100	1.5	No	25mm (500)	AT-4 (1)
BMP-3 IFV	60	Med.	100	2	No	25mm (500)	AT-10 (8)
BRDM-2	40	Lt.	100	.8	No	Hvy. MG (2500)	
M2 Bradley IFV	70	Med.	100	1.5	Yes	25mm (300)	BGM-71(2)
M113	40	Lt.	100	—	—		

Tanks

	Struct. Pts.	Arm.	Kill Pts.	Visual Range (km)	Night Vision	Loadout	
M1A2	250	Hvy.	150	2.5	Yes	—	
T-72M	200	Hvy.	150	2	No	120mm (39)	AT-8 (6)
T-80U	225	Hvy.	150	2.5	Yes	120mm (39)	AT-11 (6)
Zulfiqar	175	Hvy.	150	2	No		

Trucks

	Struct. Pts.	Arm.	Kill Pts.
HMMWV	25	Lt.	50
Truck	40	Lt.	50
Fuel Truck (Enemy)	15	Lt.	50
Fuel Truck (Friendly)	20	Lt.	50

Infantry

	Struct. Pts.	Arm.	Kill Pts.	Visual Range (km)	Night Vision	Loadout
Soldier	1	Lt.	50	2 / .4 [1]	Yes [1]	See note [2]

[1] Non-scout US and CIS soldiers with guns have a visual range of only .4 km. CIS and Iranian soldiers with SAMs cannot see at night.

[2] Soldiers will carry either an M16A2 (US) / AK-74 (CIS, Iran) (500 rounds) **or** an SA-7, SA-8, SA-14 or Stinger (1).

Structures

Note: *Only structures with kill points appear in this list. The following points only apply when the structure is a mission objective.*

	Struct. Pts.	Arm.	Kill Pts.
Bunker, Hardened	1000	Hvy.	100
Sand	100	Lt.	100
Command	100	Lt.	100
Guard Tower	45	Lt.	100

WEAPON STATS

WEAPON TYPES

Type	*Acronym*	*Description*
Mounted Gun	Varies	Fixed or rotating turret gun mounted on helicopters and aircraft. Some have lead-gunsight and slewing abilities linked to cockpit systems.
Folding-Fin Aerial Rocket	FFAR	Small, unguided rocket fired from a fixed or vertically mobile rocket pod mounted on helicopters and aircraft.
Bomb — Laser-Guided	GBU	Guided bomb carried by aircraft, that is dropped over a laser-designated ground object and guid-ed to its destination via the laser.
Air-to-Air Missile	ATA	Missile carried by helicopters or aircraft to be fired at other aircraft.
Air-to-Ground Missile	ATG	Missiles carried by helicopters or aircraft to be fired at ground objects.
Anti-Ship Missile	AS	Missiles carried by helicopters or aircraft to be fired at ground objects.
Air-Intercept Missile	AIM	Missile carried by helicopters or aircraft that can be fired at other aircraft. AIMs typically have longer ranges than normal ATA missiles. Ground-launched versions have the designation FIM.
Anti-Tank Guided Wire Missile	ATGW	Tank-destroying missile carried by helicopters or aircraft and guided by very long, thin wires.
Anti-Aircraft Artillery	AAA	Heavy gun round fired by ground guns at helicopters or other aircraft. Specifically used to defend areas against air attack.
Surface-to-Air Missile	SAM	Large, ground-launched missile fired at helicopters or other aircraft. Specifically used to defend areas against air attack. This type includes shoulder-mounted versions for infantry use.
Surface-to-Surface Missile	SSM	Large, ground-launched missile fired at **ground targets**.

STAT DEFINITIONS

Caliber (guns only). Diameter of the gun's ammunition, in millimeters.

Mass of the warhead, in kilograms (other weapons only).

Type (other weapons only). The type of explosive material used in the weapon. A HEAT round is more powerful than HE contact explosives (HE c), which are more powerful than HE blast explosives (HE b).

A/G. Some weapons can only attack targets in the **A**ir and, some can only fire at targets on the **G**round. This column lists whether a weapon can be fired at an airborne target, and whether it can be fired at a target on the ground.

Max Range (guns only). The farthest distance at which a target can be hit, in kilometers. (To find if you're in range of a particular ground gun, you can target it and check your range to it in the TSD MFD.)

Min/Max Range (other weapons only). This lists a weapon's maximum range, just like the previous entry. However, since most other weapons require a brief period after being launched, fired or dropped to arm themselves, this column also lists the minimum range at which the weapon can strike. Both ranges are given in kilometers.

The game checks minimum and maximum range when you trigger a missile, rocket or bomb. The weapon will fire only if the target is within these parameters.

Accuracy **%** (other weapons only). This number is used twice. First, before the missile fires, this is the chance the missile system can lock onto a target it has located and is tracking. Second, once the missile has been launched, this is the base percentage chance that it will hit its target. This accuracy percentage is actually an overall average — most weapons have a better chance of striking when fired at the rear of a target (especially IR-guided weapons), and have a lower chance of striking when fired at the side of a passing target. Also remember that even if a missile has a 100% base accuracy, other factors (chaff, evasive maneuvers, and so forth) usually mean there is a chance the weapon will miss.

E/IR CCM (other weapons only). A missile's percentage chance to counteract jamming. All aircraft have a chance of jamming radar and IR-guided attacks (see **Object Stats**, p. 50, for a list of strengths). If an aircraft's jammers are active, its jamming chance reduces the missile's Accuracy %. A radar or IR missile's ECCM or IRCCM percentage works to counter that reduction.

For example, if a missile has 100% accuracy, but its target's radar jammer chance is 40% and the missile's EC/IR CM chance is 20%, then the missile's accuracy is reduced to 80% (100% - 40% + 20%).

Decoy Rejection (other weapons only). Every time a target drops a decoy (chaff for radar-guided missiles, flares for IR-guided missiles), the missile has this chance of rejecting the decoy. For example, if a missile has a decoy rejection rating of 94%, then there is a 94% chance it will ignore the decoy.

Hit % — Lt., Med., Hvy. When a weapon scores a hit, this is the chance that the hit will be a *direct* hit versus a *glancing blow*. For example, a ZU-23 has a 50% chance of a direct hit against lightly armored vehicles, a 25% chance against medium armored vehicles, and a 2% chance against heavily armored targets.

Dam/Rd (guns) or **Dam. Pts.** (other weapons). How much damage each missile, rocket, bomb or round of ammunition can inflict, in Structure Points (see **Structure Points**, p. 50).

Rate (guns only). The number of rounds the gun can fire per second.

Spd. (guns only). How quickly the projectile travels, in meters per second.

FOV Angle (Field of View angle) (other weapons only). The total angle the seeker in the nose of a missile can "see." A missile with a 90° FOV angle can detect and attempt to follow objects 45° to either side of its nose.

Turn rate (other weapons only). How quickly the missile can turn, in degrees per second.

Guidance (other weapons only). How the weapon is guided: by TV, IR (infrared), Radar, SARH (semi-active radar homing), Laser, Wire, R/Opt (radio command and optically) or Unguided.

Aircraft Guns

	Cal. (mm)	A/G	Max Range	Hit % Lt.	Hit % Med.	Hit % Hvy.	Dam/ Rd.	Rate (rd/s)	Spd. (m/s)
24A2	30	A/G	3.5	40%	25%	4%	30	15	990
NPPU-28	30	A/G	3.5	45%	30%	5%	35	10	990
M61	20	A	1.5	60%	25%	2%	20	67	1030
M134	20	A/G	2	60%	15%	0%	20	50	869
M197	20	A/G	2	40%	20%	2%	20	13	1030
M230	30	A/G	3.5	40%	25%	3%	30	10	792
M2AC	12.7	A/G	1.5	25%	10%	1%	12	10	900
M60D	7.62	A/G	1.5	8%	1%	0%	5	10	853
VSPU-24	12.7	A/G	1.5	60%	20%	1%	12	76	1000
GAU-8/A	30	A/G	4	100%	70%	30%	120	70	1036
Gsh-301	30	A/G	2.5	45%	25%	4%	30	15	1000
AO-17A	30	A/G	4	100%	70%	30%	120	50	1036
Lt/Med. MG	7.62	A/G	1.5	10%	1%	0%	3	10	853

Other Aircraft Weapons

	Mass	Type	A/G	Min/Max Range	Acc. %	E/IR CCM	Decoy Rej.	Hit % Lt.	Hit % Med.	Hit % Hvy.	Dam. Pts.	FOV Angle	Turn Rate	Guid
AS-14	317	He b	G	2/12	100%	n.a.	n.a.	127%	127%	127%	6340	20°	24	TV
AGM-65G	136	HEAT	G	.5/20	100%	n.a.	n.a.	127%	127%	127%	6800	20°	24	TV
AIM-92C	3	HE c	A	.2/4.5	109%	75%	95%	94%	70%	12%	90	80°	18	IR
AIM-9M	10	HE b	A	.4/8	78%	60%	100%	100%	94%	8%	200	80°	18	IR
AA-11	7	HE b	A	.4/8	78%	60%	100%	100%	70%	6%	148	120°	18	IR
AGM-114C	8	HEAT	A/G	.5/8	99%	n.a.	n.a.	100%	100%	94%	400	50°	25	Radar
AT-6	10	HEAT	G	.5/5	84%	n.a.	n.a.	100%	100%	100%	500	40°	15	Radar
AGM-114A	8	HEAT	A/G	.5/6	95%	n.a.	n.a.	127%	127%	127%	400	50°	24	Laser
AT-12	8	HEAT	A/G	.5/8	91%	n.a.	n.a.	100%	100%	94%	400	50°	28	Laser
Paveway	2000	HE b	G	n.a.	n.a.	-	-	100%	100%	100%	9x250	90°	15	Laser
BGM-71	4	HEAT	G	.5/4	77%	n.a.	n.a.	100%	100%	79%	200	40°	18	Wire
FFAR	5	HE b	A/G	-/3	n.a.	-	-	100%	47%	4%	100	90°	n.a.	Unguid
S-8	5	HE b	A/G	-/3	n.a.	-	-	100%	47%	4%	100	90°	n.a.	Unguid

SAM/AAA/Ground Guns

	Cal. (mm)	A/G	Max Range	Hit % Lt.	Hit % Med.	Hit % Hvy.	Dam/ Rd.	Rate (rd/s)	Spd. (m/s)
A38M	30	A	4	60%	30%	4%	30	66	1000
AZP-23M	23	A	2.5	60%	30%	3%	23	66	970
Skyguard	35	A	3.5	35%	24%	4%	35	18	1000
ZU-23	23	A	2.5	50%	25%	2%	23	33	970
25mm Cannon	25	A/G	2.5	40%	20%	3%	50	3	1000
30mm Cannon	30	A/G	2.5	40%	20%	3%	50	3	1000
120mm Cannon	120	G	3	127%	127%	127%	250	1	1800
M16A2	5.56	A	0.8	10%	1%	0%	5	2	900
AK-47	7.62	A	0.8	10%	1%	0%	5	2	900
M168	20	A	2.6	60%	25%	2%	20	50	1030
Lt/Med. MG	7.62	A/G	1.5	8%	1%	0%	3	10	853
Heavy MG	12.7 or 14.5	A/G	1.5	25%	10%	1%	12	10	900

Other SAM/AAA/Ground Weapons

	Type	A/G	Min/Max Range	Acc. %	E/IR CCM	Decoy Rej.	Hit % Lt.	Hit % Med.	Hit % Hvy.	Dam. Pts.	FOV Angle	Turn Rate	Guid
FIM-92C	HE c	A	.2/4.5	81%	60%	100%	95%	71%	12%	90	40°	18	IR
SA-7	HE c	A	.8/3	29%	–	25%	31%	24%	4%	30	10°	14	IR
SA-14	HE c	A	.5/4.5	55%	20%	50%	63%	47%	8%	60	80°	18	IR
SA-13	HE b	A	.8/5	65%	40%	50%	95%	38%	3%	80	50°	13	IR
SA-9B	HE b	A	.5/8	36%	20%	55%	63%	25%	2%	52	50°	14	IR
SA-16	HE c	A	.5/-3	71%	40%	60%	63%	47%	8%	60	40°	20	IR
SA-18	HE c	A	.5/5	75%	50%	90%	63%	47%	8%	60	80°	20	IR
Patriot	HE b	A	.5/1.6	89%	60%	120%	99%	99%	58%	1460	120°	10	SARH
SA-8B	HE c	A	1.5/15	65%	35%	90%	100%	100%	31%	800	80°	15	SARH
SA-10	HE b	A	3/47	85%	60%	110%	100%	100%	79%	2000	180°	10	SARH
SA-11	HE b	A	1.5/15	71%	55%	110%	100%	100%	55%	1400	120°	13	SARH
SA-15	HE b	A	1.5/12	71%	50%	110%	100%	85%	7%	300	180°	12	SARH
SA-19	HE b	A	1.5/8[1]	71%	40%	79%	100%	85%	7%	180	120°	12	SARH
AT-8	HEAT	G	1.5/4	71%	–	–	100%	90%	63%	200	40°	11	R/Opt
AT-10	HEAT	G	1/5	84%	–	–	100%	90%	63%	200	40°	15	Laser
AT-11	HEAT	G	1.5/5	83%	–	–	100%	100%	79%	250	40°	11	Laser
RBS-70	HE	A	.2/7	66%	n.a.	n.a.	79%	63%	40%	100	40°	19	Laser
AT-4	HEAT	G	1/2.5	68%	-	-	79%	63%	40%	50	20°	15	Wire
BGM-71	HEAT	G	.5/4	77%	n.a.	n.a.	100%	100%	79%	200	40°	18	Wire
Art. Rocket	n.a.	G	n.a.	n.a.	-	-	99%	99%	99%	250	n.a.	n.a.	Unguid
Art. Shell	n.a.	G	n.a.	n.a.	-	-	99%	99%	99%	500	n.a.	n.a.	Unguid

[1] Actual minimum range is probably much shorter, but this is the range at which it will switch to guns.

[2] Also uses radar guidance.

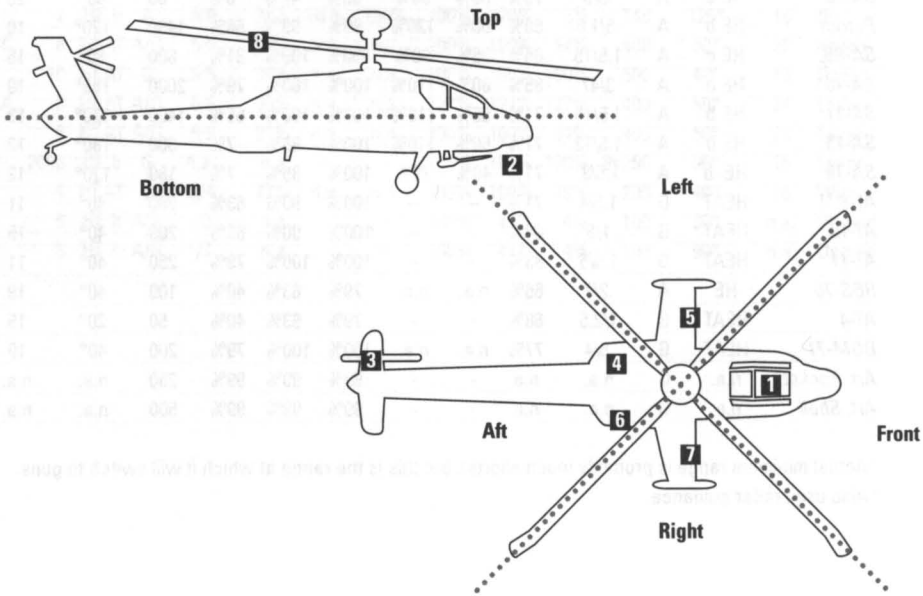
DAMAGE

In *Longbow 2*, each helicopter is divided into six parts — front, aft, left, right, top and bottom. Each of these sections (except the bottom) is the primary location for one or more of the helicopter's systems and components. The damage done to each of the components in that section determines how much damage the helicopter takes as a whole.

When a weapon hits, it strikes a particular section. There is a percentage chance that it will damage a component in that section. If it doesn't damage a component in that section, it will damage a randomly chosen system elsewhere on the helicopter.

Let's say a soldier standing directly in front of your Longbow fires an SA-7 at you, and this SA-7 hits the front of your helicopter. Looking at the first table below, we see that there is a 16% percent chance your cockpit will be damaged by this hit. There is an 8% chance that your cannon will be damaged. The remaining 76% chance (100% - 16% - 8% = 76%) is that something else on your helicopter (chosen at random) will be damaged.

The following tables list the percentage chance that a system will be damaged when its section is hit for all three player helicopters. The information in the Longbow table applies to both models, except that the Longbow Radar can't be hit if it's not on the helicopter. If a system is destroyed, it can't absorb any more damage.



AH-64D Longbow (with and without radar)

Section	System/Component	% Chance System is Damaged
Front	1 Cockpit	16%
	2 Cannon	8%
Aft	3 Tail Rotor	20%
Left	4 Left Engine	39%
	5 Left Wing	20%
Right	6 Right Engine	39%
	7 Right Wing	20%
Top	8 Main Rotor	39%
Bottom	None	

OH-58 Kiowa Warrior

Hit Location	Systems/Components	% Chance System is Damaged
Front	1 Cockpit	39%
Aft	3 Tail Rotor	39%
Left/right	4, 6 Engine	39%
Top	8 Main Rotor	39%
Bottom	None	

UH-60L Black Hawk

Hit Location	Systems/Components	% Chance System is Damaged
Front	1 Cockpit	16%
Aft	3 Tail Rotor	20%
Left	4 Left Engine	39%
Right	6 Right Engine	39%
Top	8 Main Rotor	39%
Bottom	None	

SYSTEM DAMAGE

Each of the systems on the aircraft can withstand a certain maximum amount of damage. If a system is already destroyed, there is no chance that it will absorb any more damage.

If a system is hit by a missile delivering more damage points than the system can take, then 10% of the remaining damage points are distributed randomly to another system. For example, if a Stinger with 90 points of damage hits your left engine, which can take up to 60 points of damage, 10% of the remaining 30 points (or 3 points) is applied to another system, selected at random.

Damage Effects

In all three helicopters, the System MFD page lists the operational status of each of the systems. Systems that have taken 50% damage or less are listed as OK. Beyond 50% damage, a system is listed as MARG (marginal). At 100% damage, it is INOP (inoperable).

Cannon. When MARG, the helicopter's cannon stops tracking targets. When INOP, it stops firing. The chance that your gun will overheat increases as your gun takes damage.

Cockpit. If your cockpit reaches the INOP damage level, you die.

Left/Right Engine. Once one of your engines reaches INOP, it stops. Engine torque on the remaining engine increases, since it is having to work harder. Your rotor RPM will drop unless you reduce your collective to about 50% (press 5). Reduce collective further if rotor RPM continues to drop.

If one engine goes out completely, it's a good idea to disengage your rotor completely (press R) and make an autorotational landing. If an engine stops, land while you still can.

If both engines go out, disengage your rotor immediately and begin an autorotational landing. Your rotor RPM, and thus your lift, will quickly drop to zero if you have dead engines connected to your rotor. All the power you have left is whatever your rotor provides before it stops spinning.

Left/Right Wing. With MARG damage, your Stinger station stops firing. At 75%, your outboard pylon stops firing. Once INOP, your inboard pylon stops firing. Also, above MARG damage to the left or right you will notice the aircraft begin to roll slightly toward the damaged side. Rolling will increase as damage increases, and there's not much you can do to counteract it.

Main Rotor. You lose lift, control and forward thrust as you take damage. With MARG damage your main rotor rpm will begin to drop and the helicopter will begin to pitch toward the ground. This will increase as your damage increases.

Tail Rotor. As you take damage, your chopper will begin to yaw to the right. To reduce this effect, lower your collective. Once INOP, you won't be able to turn to the left at all when you're hovering. The yaw to the right is reduced somewhat by airspeed — higher speeds might help you maintain straight flight.

Longbow Radar (Longbow only). Once INOP, you lose your radar and your Radar MFD page goes blank. Since your FCR system is then non-functional, sensor systems automatically switch to TADS target acquisition mode. You won't be able to switch to FCR mode or fire your RF Hellfires. (If you try to fire RF Hellfires, INVALID MODE will appear in the Weapon Inhibit Field of your IHADSS.)

Critical Subsystems

Each system has a chance of being damaged. If damage does occur, one of the subsystems within that system is likely to take damage. For example, the FLIR, MFDs, jamming equipment and TADS are all part of the Longbow's "cockpit" system.

AH-64D Longbow	
Cockpit Hit	
Left/Right MFD	8%
Laser	8%
TADS	8%
PNVS	15%
FLIR	8%
Radar Jammer	15%
APR (ASE)	15%
Flight Control (SCAS)	8%
IHADSS	4%
Main Rotor Hit	
FCR	15%
Engine Hit	
Oil Line	9%
Bottom/Aft Fuselage Hit	
Fuel Line	8%
Hydraulics	8%

OH-58C Kiowa Warrior	
Cockpit Hit	
Left/Right MFD	8%
Laser	8%
TADS	8%
PNVS	15%
FLIR	8%
APR (ASE)	15%
Engine Hit	
Oil Line	8%
Fuel Line	8%
Hydraulics	8%

UH-60L Black Hawk	
Cockpit Hit	
MFD (Left only)	8%
PNVS	15%
APR (ASE)	15%
Flight Control (SCAS)	8%
Engine Hit	
Oil Line	8%
Fuel Line	8%
Hydraulics	8%

SCORING

In the game, you earn points for successfully completing missions and for destroying key objectives. Although scoring is an important part of the game, it doesn't determine whether you win or lose a mission or campaign game.

In the campaign, "success" means you've survived long enough to fulfill all of the objectives for whichever flight you chose to pilot in that mission, and that you've completed enough mission objectives to win.

Aside from that, your active pilot also receives points, which are added to that pilot's cumulative record. It is this scoring, not mission success/failure, that determines the pilot's eligibility for promotion and medals.

You earn a score for every single- or multi-player mission you fly — whether it be an Instant Action (Death Match), Single or Campaign mission. These mission scores are tallied, and a cumulative score is kept for each pilot you create. (If you don't select a pilot when starting the game, whichever pilot you flew with last is the active pilot by default. Any score will be added to that pilot's record.)

MISSION SCORE

Your score for each mission is based on your Kill Points (points you earn for destroying objects) for that mission. This number is modified by several factors.

MODIFIERS

- Realism Modifier (RM)
- Flight Model Modifier (FM)
- Enemy Modifier (EM)
- Landing Modifier (LM)
- Success Modifier (SM)

EQUATION

$$\textbf{Score} = \frac{(\text{Kill Points} \times \text{RM} \times \text{FM} \times \text{EM} \times \text{LM} \times \text{SM}) + \text{Bonus Points}}{\text{Number of FARP Landings}}$$

In order to get the highest score, you need to concentrate on several things:

- Rack up as high a kill total as you can.
- Score as close to 100% as you can in each modifier category and earn your bonus points.
- Try to avoid making FARP landings for additional weapons and fuel.

Kill points for objects are given in **Object Stats** (p. 50). The modifier categories, and how to improve your score in them, are explained in detail starting on the followiing pages.

The options used to calculate your Realism Modifier, Flight Model Modifier and Enemy Modifier scores can be changed during flight. Your modifier scores in these categories change when you change these options, and your mission score from that point on is calculated with the new modifier scores.

Kill Points

You earn points during a mission for every tactical object you destroy. Different objects have different point values. All kill point values are listed in **Object Stats**, p. 50.

- You earn kill points for every enemy you and your wingman destroy.
- You don't earn points for objects that other flights kill.
- You don't earn any points for enemies destroyed by air strikes or artillery strikes that you call in. (However, strikes can provide timely assistance when you need extra firepower.)
- Aircraft on the ground are worth 100 points (-100 for friendlies), regardless of type.
- The listed points are *subtracted* for any friendly objects that you or your wingman destroy. You lose full points for killing friendly units, no matter what options you have chosen.
- You don't lose any points for friendly objects that are destroyed by enemies.

Realism Modifier (RM)

The more realistic options you choose, the higher your score. Your level of realism is computed for each kill based on the options you have active on the REALISM Option menu at that time. This modifier can range from 66% to 100% (.66 to 1.00). It can drop to 0% (that's right — nothing) if you select one of two cheats. See the following note.

Note: *If you set WEAPONS LOAD to UNLIMITED AMMO or INVULNERABILITY to ON at any time during the mission, your score for that mission will not be added to your pilot's cumulative score. You will see the score on the chalkboard at your debrief, but it won't count toward medals or promotions.*

1.00 EXPERT (or all CUSTOM options on)
.86 ADVANCED
.66 SIMPLE (default)

If REALISM is set on CUSTOM, subtract the following from 1.00 for all that apply:

-.10 If LANDINGS is set on EASY.
-.20 If LANDINGS is set on NO CRASHES.
-.02 If REALISTIC JAMMERS is off.
-.02 If REALISTIC TADS TARGETING is off.
-.30 If REALISTIC WEAPON DAMAGE is off.

The remainder is your realism modifier. In other words, if you are flying with LANDINGS set on NO CRASHES and everything else set to be realistic, and you destroy a Snow Drift radar vehicle, you earn 160 points (200 x .80).

Flight Model Modifier (FM)

You are also rewarded for flying with a realistic flight model, but the stakes aren't quite as high. Your flight model score is determined by the flight model options you have selected on the Option menu and can range from 83% to 100% (.83 to 1.00)

1.00 EXPERT (or all options under CUSTOM are active)

.94 ADVANCED

.83 SIMPLE (default)

If FLIGHT MODEL is set on CUSTOM, subtract the following from 1.00 for all options that are ***off***:

-.03 REALISTIC COLLECTIVE

-.01 GROUND EFFECT

-.01 WEIGHT EFFECTS

-.01 TRANSLATIONAL LIFT

-.04 FULLY AEROBATIC

-.04 FULL DYNAMICS

-.01 ALTITUDE EFFECTS

-.01 WIND

-.01 TURBULENCE

Landing Modifier (LM)

To get a 1.00 Landing Modifier, land at a FARP to end your mission — as close to the tents as you can without hitting them.

1.00 You finished the mission at a FARP.

.80 You finished the mission anywhere else (including crashes, captures or even quitting out of the mission in midflight).

Enemy Modifier (EM)

The category of enemy you have active on the menu is also factored into your score for each kill. Your enemy's skill level is determined by a sliding bar on the GAMEPLAY option menu. Selecting the least-skilled opponents (CATEGORY III) reduces your final score by 16% (.84 modifier). Selecting the highest skill (CATEGORY I) results in a 1.00 modifier — i.e., no score reduction.

Success Modifier (SM)

You are rewarded for achieving your mission objectives. Your objectives may be to kill, sight, rescue or defend a certain number of primaries. How many primaries you actually kill, sight, rescue or defend determines whether you succeed or fail. A rough idea of the success/failure categories is given below, but these can vary greatly from mission to mission. See the individual **Mission Analyses**, starting on p. 172, to get exact numbers for each mission.

1.00 SUCCESS+ (S+)	More than 90% of primaries
.90 SUCCESS (S)	60-90% of primaries
.50 FAIL (F)	Less than 60% of primaries
.25 FAIL– (F–)	No primaries

Bonus Points

You get 1000 bonus points for flying a SUCCESS or SUCCESS+ mission. This score is added *after* all of the modifiers so you get the entire 1000 points, no matter what enemy skill and realism levels you flew with. It pays to meet your objectives.

Number of FARP Landings

Once your points are tallied as described above, this total is divided by the number of times you landed at a FARP. Think about that — your entire score is cut in half if you return to refuel or re-arm only once (1 rearming landing + 1 final landing = 2 landings). *Get the job done the first time out.*

Example Equation

Let's say you fly an entire mission against CATEGORY 1 enemies, with Realism and Flight Model options set on ADVANCED. You kill 1 T-72 tank, 1 Blindfire radar vehicle and 3 2S6s, without coming back to re-arm or refuel. You land at your final waypoint, and your superiors declare that you have flown a SUCCESS (but not SUCCESS+) mission.

SCORE FACTORS

Kill Points	950 (1 T-72@150, 1 Blindfire radar@200, 3 2S6s@3 x 200)
Realism Modifier	.86
Flight Model Modifier	.94
Enemy Modifier	1.00
Landing Modifier	1.00
Success Modifier	.90
Bonus Points	1000
# of FARP Landings	1

EQUATION

$$\textbf{Score} = \frac{(\text{Kill Points} \times \text{RM} \times \text{FM} \times \text{EM} \times \text{LM} \times \text{SM}) + \text{Bonus Points}}{\text{Number of FARP Landings}}$$

$$\textbf{Score} = \frac{(950 \times .86 \times .94 \times 1.00 \times 1.00 \times .90) + 1000}{1} = \frac{691 + 1000}{1} = 1691$$

PILOT RATINGS

While scoring basically keeps track of how many objects you've killed, pilot ratings take into account many factors. These include how well you've trained, how long you've flown, and how efficiently you've accomplished your missions to date.

To view the pilot rating of an active pilot, look at the individual Pilot Record. To view the pilot ratings for your squadron, select *View Squad Data* from your pilot's personal locker, then select *View Default.*

Your pilot rating can come in handy when you're picking opponents or friendly pilots for multi-player games. It provides a clear-cut measuring stick for comparing skills.

To figure your pilot rating, the game measures your skill in each category listed below. The number listed for each category represents the maximum number of points that can be earned in that area. When added together, their sum is 110.

Base Rating	10 points
Training missions	10 points
Leadership	20 points
Flight hours	20 points
Weapons efficiency	20 points
Mission efficiency	20 points
Kills	20 points
	120 points

Your rating is re-figured after each mission (based on cumulative career totals for that pilot) and the pilot rating is updated.

Training Missions — 10 points

Each time a pilot completes a training mission, you're awarded 2 points. Since five training missions are available, 10 points is the maximum you can earn for each pilot.

Training = Completed Training Missions x 2

Leadership — 20 points

Leadership is a cumulative score from 0 to 20 that is continually calculated as long as your pilot remains alive. You begin the game with 10 leadership points. Subsequent increases or decreases are based on survivability (how many helicopters you've flown, versus how many you've lost).

$$\textbf{Leadership} = 10 + \frac{\text{(Helicopters that have survived - Helicopters lost)}}{4}$$

Leadership is not allowed to fall below 0 or go beyond 20.

Flight Hours — 20 points

How long you've flown also affects your pilot rating. Flying time is divided into "normal" hours (training missions) and "combat" hours (all other mission types).

- For every hour of combat time (60 minutes), you receive half a point.
- For every hour of normal flight time, you receive one-quarter point.

$$\textbf{Flight Hours} = \frac{\text{Hours combat time}}{2} + \frac{\text{Hours normal time}}{4}$$

Once you've earned 20 points in this category, you can't earn any more. (It takes 40 hours of combat time to earn maximum points, or 80 hours of training time, or any combination thereof.) Although this is based on all flight hours in all helicopters, the *View Squad* Data page of your pilot's locker breaks flight hours down into all three helo types.

Weapons Efficiency — 20 points

Weapons efficiency measures how well you've applied your ordnance. This calculation is based on cumulative totals for what target types you've killed, and how many weapons you've fired. Higher priority targets (such as 2S6s) will yield you more points than less important targets (such as buildings). Similarly, the fewer weapons you waste, and the more sophisticated the targeting method, the higher your weapon efficiency rating. A pilot's Weapon Efficiency is not allowed to fall below 0 or go beyond 20.

Weapons Efficiency =

10 + (Target Weight x No. of Targets) - (Weapon Weight x No. of Weapons fired)

Target types are weighted:	
Aircraft	1.5
SAM	1.5
AAA	1.2
Armor	1.0
Artillery	0.6
Support	0.5
Troop	0.2

Weapon types are weighted:	
Hellfire RF	1.0
Hellfire LR	0.8
Stinger	1.0
Rocket MPSM	0.1
Rocket HE	0.05

Your overall weapons rating is an average of your efficiency with each weapon type. However, the *View Squad* Data page of your pilot's locker also displays your total weapons fired, total hits, and efficiency ratings for each weapon type.

Mission Efficiency — 20 points

When you successfully complete a mission, your mission efficiency rating increases. This rating has a maximum of 20 earnable points, but 20 points are possible only if you've flown every mission successfully. Mission efficiency is calculated for the duration of a pilot's career.

Mission Efficiency = $\frac{\text{Successes}}{\text{Missions Flown}} \times 20$

Kills — 20 points

Each target you kill is worth 1/10 point. After you make 200 kills (20 points), you can't accumulate any more, except to offset friendly fire kills.

Friendly fire kills affect your kill rating — for each kill, you lose an entire point.

Kills = $\frac{\text{Enemy Kills}}{10}$ - Friendly Kills

This rating is based on the total number of targets killed, regardless of type. The *View Squad* Data page of your pilot's locker, however, shows cumulative totals for all target types (but not efficiency ratings for each).

PROMOTIONS

When you create a pilot, the new pilot initially has the rank of Warrant Officer (WO1). Advancing in rank is a matter of earning cumulative points for completing missions (see **Mission Score**, p. 62). Scores needed for promotion are listed below. Note that your pilot rating doesn't affect promotions:

Rank	Cumulative Mission Scores Required
Warrant Officer 1 (WO1)	Your initial rank
Chief Warrant 2 (CW2)	6,000
Chief Warrant 3 (CW3)	10,000
Chief Warrant 4 (CW4)	16,000
Chief Warrant 5 (CW5)	22,000
Captain (Capt.)	50,000
Major (Maj.)	100,000
Lieutenant Colonel (Lt Col.)	150,000
Colonel (Col.)	200,000

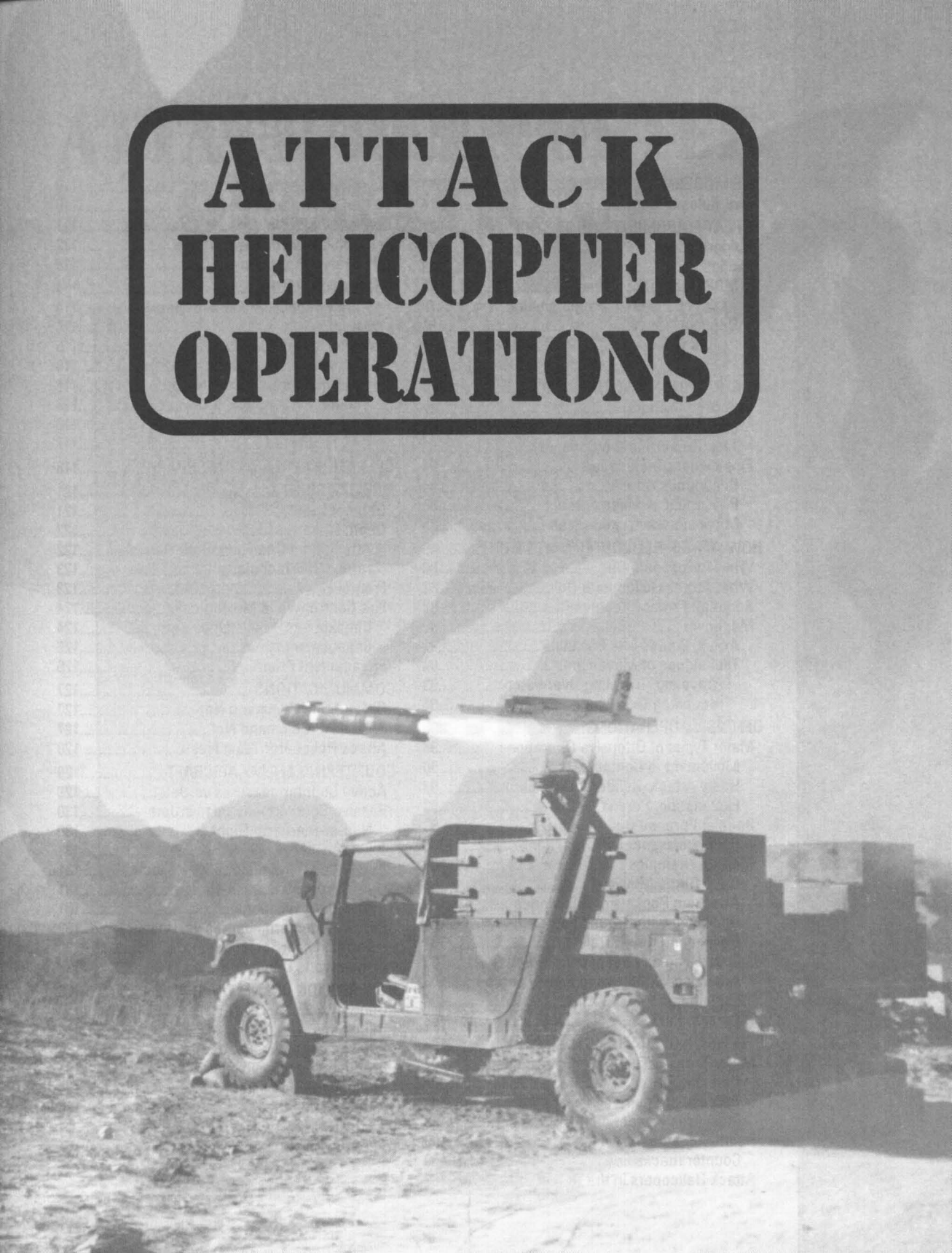
COMMENDATIONS

The table below lists the commendations awarded in the game and the criteria for earning them. A brief description of each medal follows.

To earn an award for a mission, you have to *successfully complete it.* Even though you might attain a score above 7000, you can't earn a Distinguished Flying Cross if you don't fulfill the mission objectives.

Award	Score	Additional Requirements
1 *Congressional Medal of Honor*	7500	125,000 cumulative score
2 *Distinguished Service Award*	6500	100,000 cumulative score
3 *Silver Star*	6000	
4 *Legion of Merit*	5500	
5 *Distinguished Flying Cross*	5000	Awarded no more than once every 4 missions
6 *Bronze Star*	4000	Awarded no more than once every 5 missions
7 *Air Medal*	2000	Awarded no more than once every 6 missions
8 *Army Commendation*	1000	Awarded no more than once every 8 missions
9 *Army Service Ribbon*	N/A	Every new pilot has this (received upon graduating flight school)
10 *Purple Heart*	N/A	Successful return (to any friendly FARP) with 3 or more helicopter components damaged
11 *Overseas Service Ribbon*	N/A	5 successful missions in Iran/Azerbaijan (for all missions except Instant Action)
12 *Liberation of Azerbaijan*	N/A	Win Operation Fallen Crescent
13 *Armenian Freedom Ribbon*	N/A	5 successful Operation Fallen Crescent missions

ATTACK HELICOPTER OPERATIONS



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ATTACK HELICOPTER OPERATIONS

Note: *All material in this chapter originated as a US Army field manual (FM-17-50) detailing attack helicopter operations. Information has been abridged for space, but appears in its original text form. The diagrams from the original manual depict Cobra helicopters in attack maneuvers, but all tactics described are applicable to the Longbow, which was not operational when the manual was written.*

At times throughout this chapter, reference is made to specific enemy doctrine. In such cases, the referenced are to standard Soviet doctrine. It is worth noting that both the Iranian forces of the Azerbaijani campaign and the Red teams of the MTC campaigns are organized according to this same Soviet doctrine.

This chapter describes how attack helicopter companies and battalions fight. Attack helicopter units are combat maneuver elements organized primarily to destroy armored forces. This may be accomplished by destroying tanks and other armored vehicles. It may also be accomplished by attacking enemy rear areas to destroy and disrupt critical support elements. Attack helicopter units are normally supported by field artillery and USAF close air support. They fight a coordinated battle along with other combat maneuver elements. Attack helicopter units are members of the combined arms team.

Attack helicopter companies are found in the —

Attack helicopter battalion (ATKHB)

Division combat aviation battalion (CAB)

Air cavalry combat brigade (ACCB)

Armored cavalry regiment (ACR)

When used in this publication, "he," "him," "his," and "men" represent both the masculine and feminine genders unless otherwise stated.

THE MODERN BATTLEFIELD

OVERVIEW

The modern battlefield continues to change. Much of the change is due to new technology applied to a number of new and improved weapon systems. Weapons continue to improve in range, accuracy and lethality. At the same time, the Threat has become more effective by adopting combined arms tactics and task-organized forces.

Recent combat has shown that aerial weapon platforms, especially armed helicopters, are effective. Combat aviation units have faced challenges from systems other than air defense guns and missiles. Massed small-arms fire, vehicle-mounted automatic weapons, tank main guns and even antitank guided missiles (ATGM) have been employed against helicopters. Aerial and ground elements will be challenged by opposing tactical aircraft, both fixed and rotary wing, as well as indirect fires.

Success on the modern battlefield will depend on the basic tenets of AirLand Battle doctrine: initiative, depth, agility, and synchronization. Attack helicopter units apply these tenets, with special emphasis on —

- Indirect approaches.
- Speed and violence.
- Flexibility and reliance on the initiative of junior leaders.
- Rapid decision-making
- Clearly defined objectives and operational concepts.
- A clearly designated main effort.
- Deep attack.

Attack helicopter units can fight and survive on the modern battlefield in spite of the increased range and lethality of modern weapons. They use several of the same principles that armor and mechanized infantry units do:

- See the battlefield.
- Use the terrain.
- Use overwatch techniques.
- Suppress, neutralize, or destroy enemy air defense systems with smoke, high explosive ammunition, and electronic countermeasures.

FIVE RULES OF COMBAT

The modern battlefield is complex and makes many demands on soldiers and leaders; but the keys to gain and maintain the initiative in any tactical situation can be summarized in simple terms. Though it would be easy to over-simplify such a summary, the Five Rules of Combat have been tried and proven in modern battle. Briefly stated, the Five Rules of Combat are:

- Move.
- Shoot.
- Communicate.
- Secure.
- Sustain.

All five rules apply to attack helicopter units as much as any other combat maneuver elements. They are guidelines for the US Army from the individual soldier to the task force. They apply to all kinds of units, whether combat, combat support, or combat service support.

Each rule has from two to four parts, discussed briefly in this section. The Five Rules of Combat are incorporated throughout this manual as they apply to attack helicopter operations.

Move

Establish a Moving Element. Use terrain flight and movement techniques on the way to battle. In the battle, use the mobility of attack helicopter units to full advantage.

Get in a Better Position to Shoot. Good mission planning includes terrain analysis, intelligence, and reconnaissance. It applies to selecting the best possible firing positions for the designated engagement area or enemy targets.

Gain or Maintain Initiative. For attack helicopter units, this includes capitalizing on mobility to achieve surprise and concentrating firepower to keep the enemy off balance.

Move Fast, Strike Hard, Finish Rapidly. This captures the dynamic essence of attack helicopter operations at their best.

Shoot

Establish a Base of Fire. Units must make effective use of all organic and direct or indirect supporting fires.

Maintain Mutual Support. Attack helicopters do this with ground maneuver elements, combat support, and US Air Force assets.

Kill or Suppress the Enemy. The main mission of attack helicopter units is to defeat armored forces. Suppression of targets, such as air defensive systems, command and control, or logistics systems can degrade the enemy force as well as destroy maneuver elements so units can carry on with the primary effort. Suppression of enemy air defense (SEAD) can assist in the destruction of command, control, and logistics systems through reducing their protection.

Communicate

Keep Everybody Informed. The flow of information up and down the chain of command is vital. It relates to plans and orders, reports, and coordination and synchronization of effort.

Secure

Use Cover and Concealment. This applies to ground support as well as combat air maneuver elements. Assembly areas and forward arming and refueling points (FARPs) must be terrain-masked and well camouflaged. In all operations, helicopter crews use terrain flight, techniques of movement, and masked routes to conceal their actions.

Establish Local Security and Conduct Reconnaissance. Aeroscouts and ground elements provide early warning to protect attack helicopters and allow them freedom of action.

Protect the Unit. Commanders must preclude unnecessary losses to make sure enough attack helicopter assets will be available for the duration of an operation and for the next operation as well.

Sustain

Keep the Fight Going. These are the watchwords of the maneuver elements and their combat service support. It relates to initiative, continuity, command and control, maintenance and repair, and recovery and rescue.

Take Care of Solders. Maintaining the physical ability to fight is essential, but equally important is preserving the spirit and the will to win.

THREAT EQUIPMENT AND TACTICS

OVERVIEW

The Threat has vast manpower and a wide variety of powerful weapons. Threat forces are highly mobile, well-protected, and extremely lethal. Threat tactics and doctrine stress rapid penetrations and envelopments to exploit opponents' weaknesses. Threat forces are also fully able to mass large forces at critical times and places for breakthrough operations. Threat commanders may be committed to accomplish their missions despite high risks and heavy casualties.

Threat organizations reflect a complementary combined arms mix of modern weapon systems. Threat forces are mainly armored, with many tanks and armored fighting vehicles. The ground forces are supported by an array of modern air defense weapons. These include —

- Missiles.
- Air defense artillery.
- Vehicle-mounted machine guns.
- Tactical aircraft for counterair.

Most of the Threat's artillery, tactical bridging, and mobile support equipment is self-propelled.

Threat units carry a complete array of individual and vehicle nuclear, biological and chemical (NBC) protective gear and de-contamination equipment. Most Threat armored vehicles provide positive pressure protection for their crews.

Success in battle against such a formidable force depends on several key factors:

- Friendly forces must understand the capabilities of Threat systems.
- They must be able to identify Threat and friendly systems quickly, especially on a fluid and nonlinear battlefield.
- Fighters and leaders at all levels must understand Threat tactics and doctrine related to their levels of responsibility.

Finally, friendly forces must be able to integrate this knowledge with sharp fighting and leadership skills. This means avoiding Threat strengths and capitalizing on Threat weaknesses to accomplish missions and win battles.

VULNERABILITIES

Threat forces are well-equipped, but vulnerable.

Although Threat forces have one of the best-equipped and trained armies in the world, they are vulnerable. Every weapon and system has weaknesses which can be exploited.

- Light armor is vulnerable to all antitank weapons found on the modern battlefield.
- Self-propelled air defense vehicles with radar antennas and thin overhead cover are especially vulnerable to artillery with variable time fuzes.
- Most antitank guided missiles (ATGM) can be temporarily defeated by suppressing the gunner or obscuring his vision.
- Destruction of organic air defense battery-level command and control vehicles will degrade coordination and disrupt local air defense fires.

TACTICS

Threat forces are combined arms teams.

Threat forces are organized as combined arms teams as low as regimental level. For example, the motorized rifle regiment (MRR) is organized with a tank battalion, three motorized rifle battalions (MRB), and an artillery battalion, It also has an engineer company, a signal company, a chemical section, an air defense battery, and an antitank company. Medical and transportation companies, a traffic control element, and service platoons may also be found in the MRR.

Threat forces are trained to fight at night and during periods of reduced visibility. Basis tactics are the same under these conditions, but objectives will not be as deep as those during daylight and good weather.

MRR Battle Disposition

Typical battle dispositions of motorized rifle units are shown on the following pages.

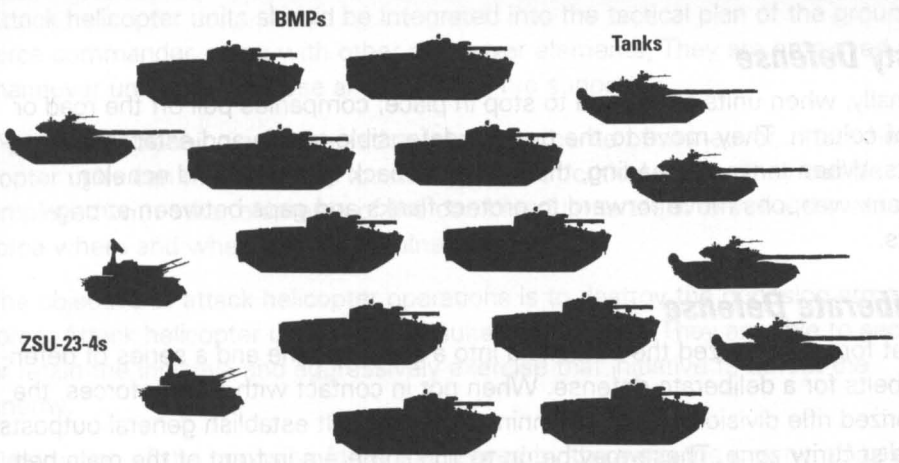
Reconnaissance units are used to find the limits of enemy defensive positions. Knowing those limits, the main body will bypass defensive positions and attack from the flanks and rear.

The regimental attack is organized in two echelons. In the first echelon, combat units are responsible for the primary mission. Second echelon forces follow the route of advance of the first echelon force, but have secondary or follow-up missions.

First Echelon

Emphasis is on the combined arms team. Tanks almost always lead the attack. Threat forces use massive field artillery fires to support maneuver elements. Artillery airbursts can inhibit helicopter operations in forward areas.

MOTORIZED RIFLE BATTALION ATTACK



As does a tank battalion, a motorized rifle battalion attacks an objective using an assault formation as shown.
***WARNING:** Expect air defense artillery in this formation.*

Threat forces employ air defense artillery (ADA) to protect combat formations installations, and troop movement from air attack. ADA weapons occupy carefully selected positions to ambush helicopters flying nap-of-the-earth (NOE).

In addition to weapons primarily designed for air defense, all combat units are trained to engage high performance aircraft and helicopters with small arms and machine guns. Threat tank crewmen are also trained to use their main guns to engage helicopters.

Second Echelon

The use of the second echelon is consistent throughout Threat doctrine. Therefore, even for combined arms armies, there will be a second echelon. The distance between echelons depends on the tactical situation. The march formation, direction of advance, and area of commitment are designed to support the attack of the first echelon. The second echelon formation will most likely include air defense weapons.

Defense

Threat doctrine stipulates that defense is only a temporary measure conducted while forces consolidate to continue the offense. Defense is conducted in depth from a series of strongpoints.

The Threat recognizes two types of defense: the hasty defense and the deliberate defense.

Hasty Defense

Normally, when units are forced to stop in place, companies pull off the road or out of column. They move to the nearest defensible terrain and establish strongpoints. When tanks are leading, they may pull back to the second echelon. Antitank weapons move forward to protect flanks and gaps between strongpoints.

Deliberate Defense

Threat forces organized the battlefield into a security zone and a series of defensive belts for a deliberate defense. When not in contact with enemy forces, the motorized rifle divisions (MRD) manning the main belt establish general outposts in the security zone. These may be up to 15 kilometers in front of the main belt. Probable deployment of the general outpost force would be on the order of one battalion for each 8 to 12 kilometers of frontage.

Security Zone

First echelon regiments of the main defense belt also establish a system of outposts in the security zone. Their missions are to:

- Protect the main defense belt against surprise attack.
- Prevent enemy reconnaissance.
- Conduct counterbattery operations.
- Deceive the enemy as to the true location of the forward elements of the main defense belt.
- Prevent the enemy force from clearing obstacles.

ORGANIZATION AND OPERATIONS

OVERVIEW

Attack helicopter units should be integrated into the tactical plan of the ground force commander, along with other maneuver elements. They are employed as maneuver units, not as close air support or fire support.

With proper planning and integration into the scheme of maneuver, attack helicopter units can move quickly to critical points at critical times. They can be employed with other elements of the combined arms team to strike the enemy force where and when it is most vulnerable.

The objective of attack helicopter operations is to destroy the opposing armored force. Attack helicopter units are well suited to this end. They are able to secure or retain the initiative and aggressively exercise that initiative to defeat the enemy.

Destruction of the opposing force is achieved by throwing the enemy off balance with massive fires from unexpected directions, then following up rapidly to prevent his recovery.

The best results are obtained when initial blows are struck against critical units and areas whose loss will degrade the coherence of enemy operations, rather than merely against the enemy's leading formations.

Attack helicopter units can rapidly shift their efforts to take advantage of enemy weaknesses. This allows commanders to apply the basic tenets of AirLand Battle doctrine:

- Initiative.
- Depth.
- Agility.
- Synchronization.

UNIT ORGANIZATION

Tables of organization and equipment (TOE) detail manpower and equipment authorizations for attack helicopter battalions and companies. Many Army units are organized under modified tables of organization and equipment.

To determine manpower and equipment authorizations for a specific unit, it is necessary to consult the authorization document for that unit.

Organization for Combat

Organization for combat is the grouping or tailoring of a combination of combat and combat support units to accomplish a specific mission. Fundamental considerations are essential to determining an appropriate task organization. They are mission, enemy, troops available, terrain and weather, time, and space.

Mission

The mission of the attack helicopter company and battalion is to destroy enemy armor and mechanized forces using aerial combat power. Fire and movement are an integral part of the combined arms teams during offensive, defensive, and retrograde operations.

Attack helicopter units, with their mobility, firepower, and shock effect, can be committed early in battle. Attack helicopter units can reinforce ground combat units to form combined arms teams. They can attack, defend, or delay by engaging the enemy with direct and indirect fire.

In a deliberate attack of a prepared enemy defensive position, attack helicopter units may be used to overwatch ground maneuver forces. Attack helicopter units are not suited for missions requiring occupation of terrain. But they may use organic and supporting fires to deny terrain to the enemy for limited periods of time.

Enemy

Attack helicopter units are employed against armor and mechanized targets. They are least effective against enemy defenses without reinforcement from ground maneuver units. Deliberate attack of an enemy in prepared defensive positions requires tank and mechanized infantry forces.

Attack helicopters together with tanks and mechanized infantry can be used to pursue a retreating enemy or to attack his flanks and rear.

Troops Available

The attack helicopter company (ATKHC) commander must give considerable attention to regulating movement of attack platoons between forward arming and refueling points (FARPs) and the battle.

To do this, attack helicopter units may use the continuous attack employment technique. As one element is attacking, the second element is enroute between the battle and the FARP. The third element may be at the FARP. By replacing elements in this fashion, sufficient forces can be kept in the battle, delivering continuous fire on the enemy.

Terrain and Weather

Open rolling terrain that affords good observation and long-range fields of fire favors the use of attack helicopters. Combat within built-up areas or in heavily forested areas does not take advantage of the attack helicopter's long-range fires.

Time

Employed too late, the attack helicopter unit will not be able to destroy enemy forces at the critical time and place. Employed too early, they may have to disengage for fuel or ammunition at an undesirable time.

Task Organizing the Company

During the conduct of any attack helicopter operation, one person in the air must be in charge. This is the Air Battle Captain (ABC). The term identifies the leader who orchestrates, manages, directs, coordinates, and integrates the attack helicopter elements as part of the combined arms team within the ground scheme of maneuver for the operation.

The ABC must be involved early in mission planning and understand the commander's concept of the operation. As the battle begins, the ABC must be ready and able to —

- Orchestrate all actions by attack and scout aircraft in the battle area.
- Coordinate, call for, and control all indirect fires.
- Maintain contact with the ground maneuver commander and, when appropriate, the next higher aviation unit commander.
- Request and integrate additional combat assets into the battle, such as US Air Force close air support aircraft.

EMPLOYMENT TECHNIQUES

Attack platoons formed from the attack helicopter company may be employed in a variety of ways. However, in order to maintain continuous fire on the enemy, rotation of attack helicopter elements is necessary. Three acceptable methods are:

- Continuous attack.
- Phased employment
- Maximum destruction.

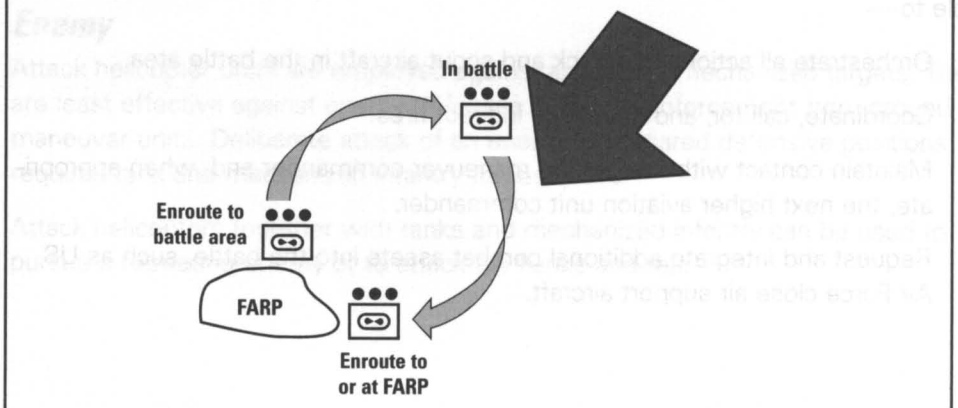
Whichever employment technique is used, it may be feasible to have scout helicopters remain in the battle area as attack helicopters cycle in and out. This allows scouts of the company to accomplish other necessary tasks, such as —

- Coordinating with ground maneuver units.
- Adjusting supporting fires.
- Providing security for the operation.
- Reconnoitering future positions or routes.

Continuous Attack

Generally, the continuous attack method is followed: one third in battle, one third enroute, and one third at the FARP. Platoon and section leaders of the element enroute monitor communications or overwatch the element in contact. They bring the enroute element forward to battle positions so they can begin engagements just as the group in battle is ready to break off and return to the FARP.

CONTINUOUS ATTACK

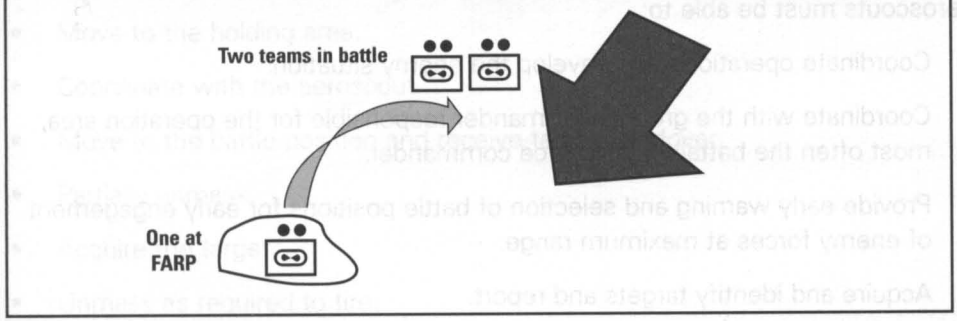


Phased Employment

Two teams engaging an enemy force together can be most effective. When both teams are employed at the same time, one company may not be able to sustain such operations for any length of time. This is primarily due to the limitations of the FARP or FARPs in the area. Phased employment, a modification of the continuous attack option, can be used to service the helicopters.

The first team is initially employed at a specified time in the operation. A second team is phased into the battle after the first team. The third attack team will be phased into the fight when either of the other teams is out of ammunition or fuel.

PHASED EMPLOYMENT

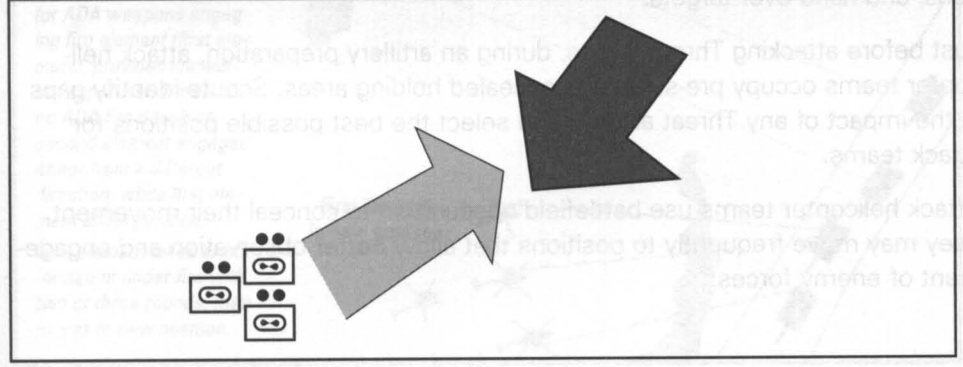


Maximum Destruction

Operating with three teams forward can provide massed firepower over a wide area, insuring maximum destruction of enemy forces for a short period. However, this severely limits the capability of one company to maintain continuous fires, depending on FARP locations and suppressive means available.

Generally, the simplest technique is best, and cycling with three teams provides the most flexibility, ease of FARP operations, and sustained antiarmor fire over long periods.

MAXIMUM DESTRUCTION



HOW ATTACK HELICOPTER UNITS FIGHT

WHAT AEROSCOUTS DO

The primary purpose of the aeroscout is to see the battlefield, acquire targets, and coordinate movement of attack helicopters as directed by the platoon leader. The platoon leader directs these efforts from one of the scout aircraft.

Aeroscouts must be able to:

- Coordinate operations and develop the enemy situation.
- Coordinate with the ground commander responsible for the operation area, most often the battalion task force commander.
- Provide early warning and selection of battle positions for early engagement of enemy forces at maximum range.
- Acquire and identify targets and report.
- Confirm or select positions that provide concealment and stand-off range for attack helicopters.
- Request and adjust indirect fires and close air support as required.
- Assist attack helicopter movement into battle positions.
- Hand over targets to attack aircraft.
- Provide local security for attack helicopters while they engage targets.

When enemy forces are observed within effective range of attack helicopters, scouts adjust artillery, direct the maneuvering attack helicopters into battle positions, and hand over targets.

Just before attacking Threat forces, during an artillery preparation, attack helicopter teams occupy pre-selected concealed holding areas. Scouts identify gaps in the impact of any Threat artillery and select the best possible positions for attack teams.

Attack helicopter teams use battlefield obscuration to conceal their movement. They may move frequently to positions that allow better observation and engagement of enemy forces.

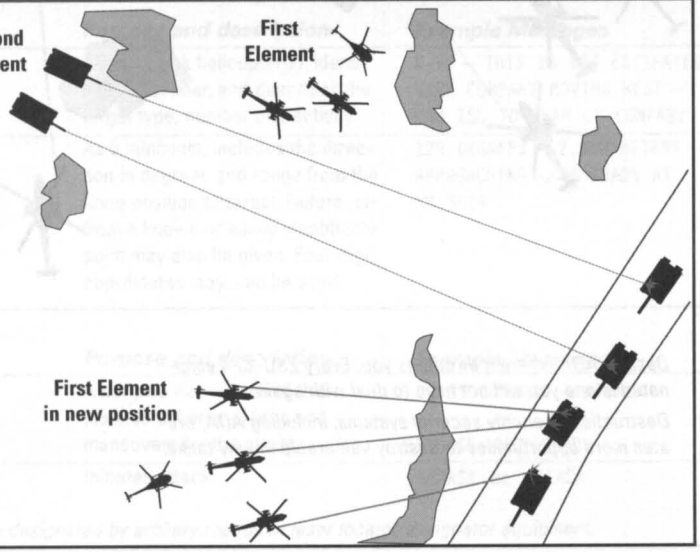
WHAT ATTACK HELICOPTERS DO

The combat power of an attack helicopter unit is in the firepower and mobility of the attack helicopter. Attack helicopters are habitually employed against armor and mechanized targets in offensive or defensive operations. Attack helicopters destroy tanks and other armored vehicles found by air cavalry, attack helicopter unit aeroscouts, or friendly ground forces. They destroy, suppress, or neutralize other enemy systems which threaten their operations or other maneuver forces.

While there are many variables in attack helicopter operations, the attack element crews consistently perform tasks related to a series of events. The success of the attack helicopter unit depends largely on how well the attack element members perform the tasks in the attack sequence.

- Move to the holding area.
- Coordinate with the aeroscout.
- Move to the battle position and receive target handover.
- Partially unmask.
- Acquire the target.
- Unmask as required to fire.
- Engage.
- Remask.
- Move to an alternate firing position or return to the holding area.

USE ALL AVAILABLE SUPPORTING FIRE



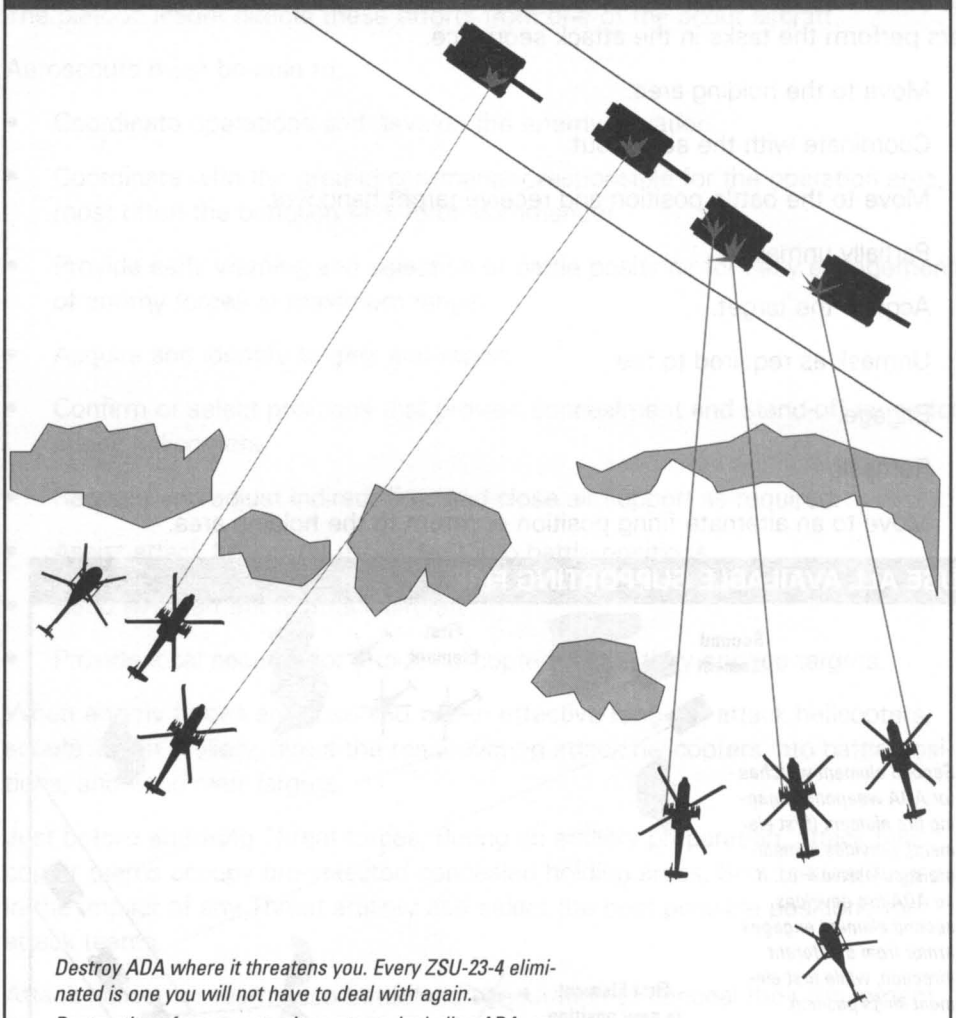
Second element watches for ADA weapons engaging fire element (first element), provides immediate suppressive fires. If no ADA fire develops, second element engages armor from a different direction, while first element shifts position.

First element takes armor formation under fire with two or three rounds, then moves to new position.

Suppressive fires will aid the attack helicopter unit by stripping away Threat air defense weapons and forcing Threat armor units to stay buttoned up, deploy, slow down, and reveal their intentions. This will restrict enemy acquisition, visibility, and control capabilities, and generally add to the enemy's overall confusion.

Scouts and attack helicopters should not stay in place. They use mobility to attack on the flanks from multiple battle positions. They shift the direction of their attacks. Radar warning receivers may help determine whether an attack should be continued from the same position.

STRIKE FROM CONCEALED POSITION AND MAXIMUM STAND-OFF



Destroy ADA where it threatens you. Every ZSU-23-4 eliminated is one you will not have to deal with again.

Destruction of enemy security systems, including ADA, creates more opportunities to destroy vulnerable enemy tanks.

SCOUT AND ATTACK TEAMWORK

Success depends on teamwork between crews.

In attack helicopter units, the success of the weapon system depends on teamwork between scout and attack helicopter crews. Success depends on the scout's ability to locate, identify, and hand over enemy targets.

The scout must also be able to do other tasks as directed by the platoon leader:

- See the enemy first.
- Coordinate with the ground commander.
- Reconnoiter routes into and out of the battle area.
- Select adequate firing positions and battle positions.
- Maintain enemy contact.
- Adjust suppressive fires from artillery, and coordinate close air support.
- Provide local ground and air security during engagement.

Attack leader decides the target priorities.

The scout may recommend target priorities and weapon selections. However, the responsibility for this decision rests with the attack element leader.

The attack helicopter crew must —

- Assess the battlefield situation.
- Acquire the most dangerous target.
- Select the most effective weapon.
- Engage and destroy the enemy.

During an attack, a key focus of the teamwork between the scouts and the attack helicopters is the target handover.

HOW SCOUTS HAND OVER TARGETS

COMPULSORY

Element	*Purpose and description*	*Example Messages*
Alert, target description	Alerts attack helicopter(s), identifies the sender, and describes the target type, number and activity	K-13 — THIS IS KO6 ESTIMATED TANK COMPANY MOVING WEST — TWO ZSU TO REAR OF COMPANY
*Target location	As a minimum, includes the direction in degrees and range from the firing position to target. Reference from a known or easily identifiable point may also be given. Four-digit coordinates may also be used.	120 DEGREES — 2,800 METERS — APPROACHING CROSSROADS AT NM 3914

IF APPLICABLE

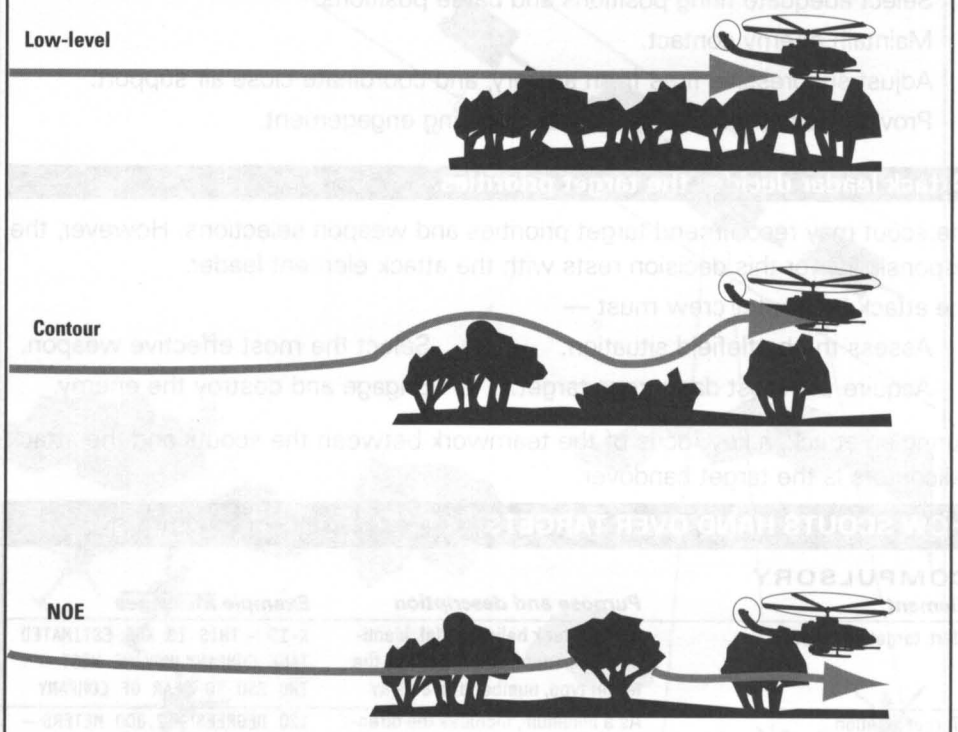
Element	*Purpose and description*	*Example Messages*
Method of attack	A concise description of the planned scheme of fires and maneuvers for the attack.	ON MY COMMAND — ATTACK or ENGAGE WHEN READY
Execution	Initiates attack.	UNMASK or ATTACK

**Target location may also be designated by artillery rounds or laser locator/designator equipment.*

MANEUVER

Modern air defense weapons enable Threat forces to detect, acquire, engage, and destroy helicopter targets under all conditions of visibility and weather. Helicopter crewmen must use terrain to avoid detection and achieve surprise. They use a combination of three types of flight — low-level, contour, and nap-of-the-earth (NOE) — depending on terrain, mission, and enemy threat to their operations. Often, flight will be conducted close to the earth's surface using terrain, vegetation, and man-made objects for concealment.

MOBILITY



Helicopters maximize the use of terrain. The special mode of flight used, whether low-level, contour or NOE (nap of the earth), will depend on the mission and the threat.

Areas, Routes and Positions

To organize and control their movement to battle, attack helicopter units apply a system of areas, routes, and positions.

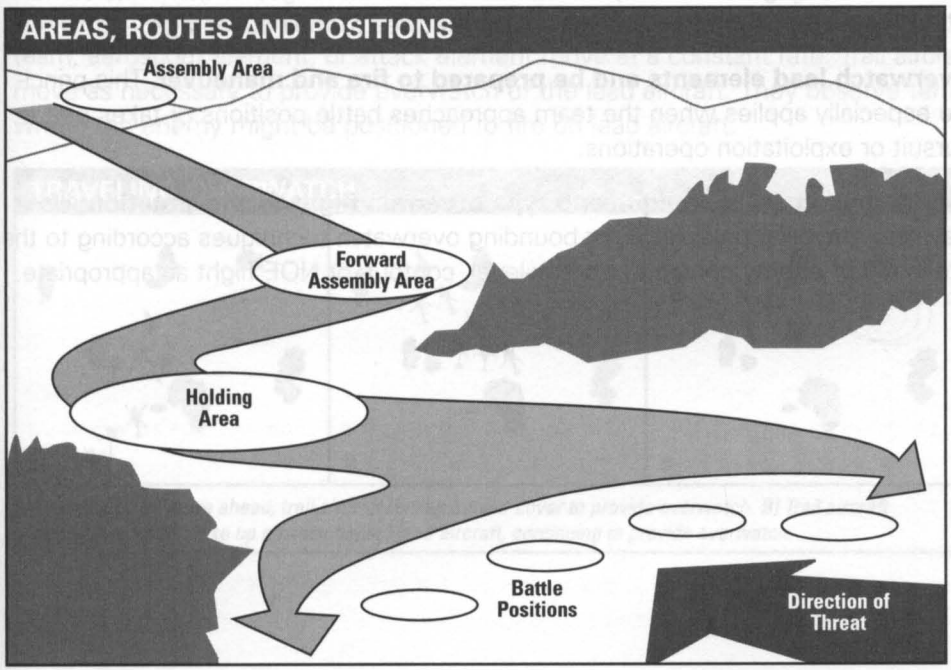
Assembly Areas are where units or elements assemble to prepare for future actions, issue orders, accomplish maintenance and resupply.

Forward Assembly Areas are areas where attack helicopters may move forward and shut down for extended periods while awaiting orders to go into battle. This location should be located at or near the ground maneuver unit's tactical operations center for more rapid response times.

Holding Areas are sites located between forward assembly areas and battle positions. They may be occupied for short periods while aeroscouts coordinate attack helicopter movement into battle positions. They should provide good cover.

Battle Positions are covered and concealed positions used by attack helicopters for target engagement. The element leader should designate element battle positions and sectors of fire based on information from aeroscouts. Individual aircraft commanders select actual firing positions.

Firing Positions within the battle position are chosen to give maximum stand-off ranges with good fields of fire. These firing positions should not give off dust and debris signatures during hover, should have well-covered maneuver entry and exist routes, and should have sufficient backdrop to prevent easy visual acquisition by the enemy.



Techniques of Movement

Because of the range and lethality of modern weapons, US forces must make maximum use of all cover and concealment afforded by the terrain. Aerial movement exposes aircraft more often than ground vehicles are exposed. The greater the threat, the greater is the need for security. Attack helicopter units adapt their type of flight and technique of movement to maintain a degree of security. The principles of overwatch apply to attack helicopter units.

TECHNIQUES OF MOVEMENT

Technique Of Movement	*Chance Of Contact*	*Type Of Flight*
Traveling	Not Likely	Low Level/Contour
Traveling Overwatch	Possible	Contour/NOE
Bounding Overwatch	Expected	NOE

Find the enemy with minimum forces. The aeroscouts are task-organized with the attack helicopters. The aeroscouts move ahead of the attack elements to assist in precisely locating the enemy and reconnoitering battle positions.

During the move, a scout should be designated to provide rear security behind the team, frequently checking for enemy ground and air threats. Once in the holding area, the attack element establishes all-around visual search.

Use all available cover and concealment. An attack helicopter unit must use stealth and engage the enemy at maximum stand-off ranges or the limits of visibility. They must, therefore, use all terrain features to their advantage.

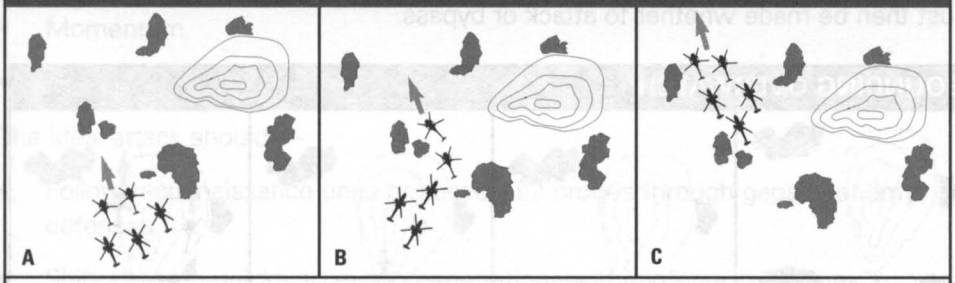
Overwatch lead elements and be prepared to fire and maneuver. This principle especially applies when the team approaches battle positions or takes part in pursuit or exploitation operations.

Adjust movement technique and type of terrain flight to the situation. Use traveling, traveling overwatch, or bounding overwatch techniques according to the likelihood of enemy contact. Use low-level, contour, or NOE flight as appropriate.

Traveling

Traveling is used when speed is important and contact with the enemy is not likely. Traveling is used to move rapidly in relatively secure areas, or from an assembly area to a forward assembly area. The attack helicopter team can use traveling, with the aeroscouts either forward or mingled with the attack helicopters. Separate elements move at a constant air speed using the appropriate type of terrain flight.

TRAVELING

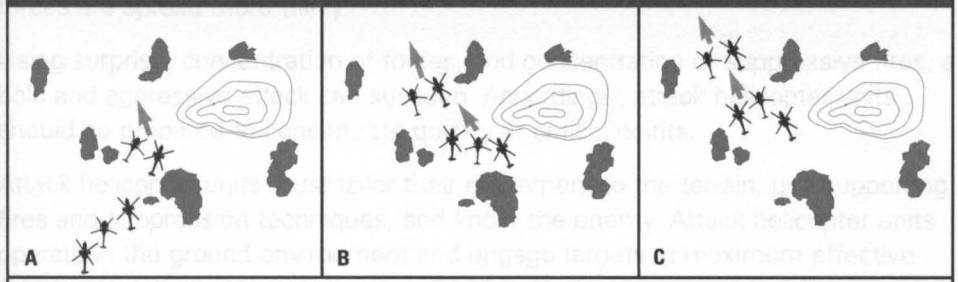


Scout and attack helicopters move together, using low-level or contour flight according to terrain. (Arrows indicate group that is moving and general direction of travel.)

Traveling Overwatch

Traveling Overwatch is used when enemy contact is possible. Lead aircraft of a team, aeroscout element, or attack element move at a constant rate. Trail aircraft move as necessary to provide overwatch of the lead aircraft. They observe terrain where the enemy might be positioned to fire on lead aircraft.

TRAVELING OVERWATCH



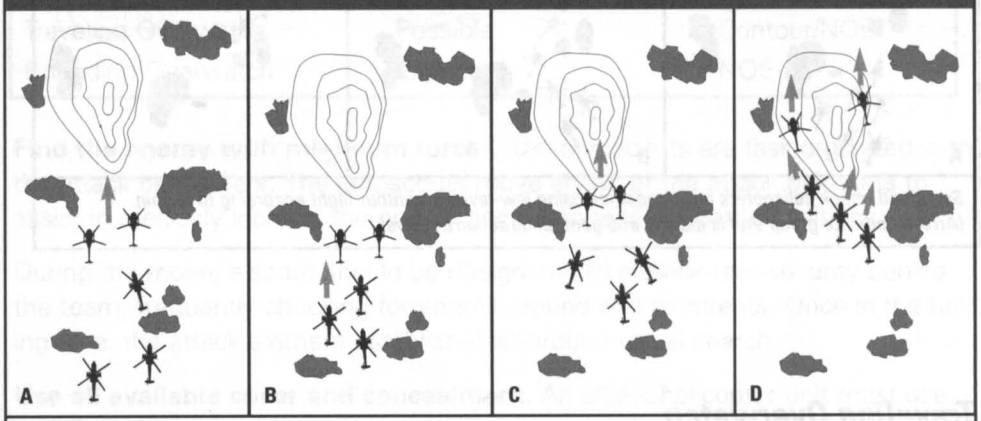
A) Lead aircraft move ahead, trail aircraft remain behind cover to provide overwatch. B) Trail aircraft leave cover and C) take up position behind lead aircraft, continuing to provide overwatch.

Bounding Overwatch

Bounding Overwatch is used when enemy contact is expected. Overwatching aircraft cover progress of bounding aircraft from a covered and concealed overwatch position. The position offers observation and fields of fire against potential enemy positions.

The attack helicopters overwatch the scouts as they move. Scouts may move as a group or by bounds. When the bounding element makes contact with the enemy, the enemy must be suppressed by the overwatching element. A decision must then be made whether to attack or bypass.

BOUNDING OVERWATCH



A) Scout aircraft move ahead, attack aircraft remain behind cover to provide overwatch. B) Attack aircraft move forward to another concealed position nearer scout aircraft. C) Scout aircraft move ahead, attack aircraft provide cover. D) As scouts split up to move around large terrain features, overwatch element divides to cover progress of both.

OFFENSIVE OPERATIONS

OVERVIEW

Offensive operations are characterized by —

- Aggressive initiative on the part of subordinate commanders.
- Rapid shifts in the main effort to take advantage of opportunities.
- Momentum.
- The deepest, most rapid destruction of enemy defenses possible.

The ideal attack should —

- Follow reconnaissance units or successful probes through gaps in enemy defenses.
- Shift strength quickly to widen penetrations and reinforce successes.

The attack should carry the battle deep into the enemy rear. It should destroy or bring under control the forces or areas critical to the enemy's overall defensive organization before the enemy can react.

Attacking a defending enemy equipped with modern weapons is a difficult and expensive operation. The defender has many advantages. Chiefly, he can select ground for defensive positions. He can use cover and concealment and choose ground which requires the attacker to expose himself where defending weapons can be brought to bear most effectively.

The defender has one great disadvantage: he cannot pick the time and place of the battle. The attack chooses the time and place of the battle and then concentrates his combat power at one or two selected points while the defender's forces are spread more thinly.

Using surprise, concentration of forces, and concentration of suppressive fires, a bold and aggressive attack can succeed. Accordingly, attack helicopter units should be prepared to concentrate quickly at critical points.

Attack helicopter units must tailor their movement to the terrain, use supporting fires and suppression techniques, and know the enemy. Attack helicopter units operate in the ground environment and engage targets at maximum effective range.

The mobility and firepower inherent in attack helicopter units allow them to quickly bring heavy direct antitank fires to bear anywhere in the attacking forces' sector. Used as part of a larger force, with supporting fires, attack helicopter units can be used in a variety of offensive operations.

MAJOR TYPES OF OFFENSIVE OPERATIONS

The five major types of offensive operations are:

- Movement to contact.
- Hasty attack.
- Deliberate attack.
- Exploitation.
- Pursuit.

Although these operations are roughly sequential, any offensive operation can develop into either a more fluid type of operation or a defense. The whole series can proceed by steps from movement to contact to an eventual pursuit. However, an attack can shift quickly forward or backward along the scale as resistance varies.

Movement to Contact

Movement to contact gains or reestablishes contact with the enemy. It may be used when neither opponent clearly has the initiative or when the enemy has broken contact. The Threat, looking ahead to operations in a nuclear or chemical environment, regards it as the type of operation likely to dominate high-intensity warfare. Whether or not this is the case, the movement to contact will certainly be a part of any nonlinear battle.

Movement to contact develops the combat situation and maintains the commander's freedom of action after contact. This flexibility, essential to maintaining the initiative, is based on the following principles:

- Find the enemy with minimum forces.
- Use combined arms.
- Maintain security.
- Move quickly.
- Balance control and initiative.

Hasty Attack

A hasty attack has minimum planning time and is characterized by violent, aggressive action. It usually develops from a movement to contact, but it can also be the means of quickly seizing the initiative after a successful defense. The principles of attack — concentration of effort, surprise, speed, flexibility, and audacity — apply in a hasty attack.

Once fire and maneuver have begun, it is necessary to determine whether the enemy can be defeated by fire and maneuver alone in a hasty attack, or if the enemy is in a well-prepared defensive posture which will require a carefully planned deliberate attack.

Deliberate Attack

The deliberate attack is necessary to destroy an enemy force or secure terrain. The deliberate attack involves a detailed scheme of maneuver and integrated fire support against a strongly defended position. Employed independently, the attack helicopter unit is least effective in attacking strongly fortified defensive positions, and lacks the staying power required to seize and hold terrain. The attack helicopter is best suited for attacking enemy armor formations on the move. It is, however, also capable of heavy and effective suppressive fires.

As part of the combined arms team, attack helicopters combine their long-range anti-armor fires and their suppressive fires with those of ground combat forces. There are several missions attack helicopters can perform in such a role:

- Participate in the deep battle scheme of maneuver.
- Attack or contain pockets of resistance bypassed by the main force.
- Provide a base of fire for assaulting ground forces.
- Dominate key terrain to the flank from which attacking ground units could otherwise be engaged or over which a counterattack would come.
- Attack withdrawing enemy forces or moving enemy reserves.
- Destroy or repel an enemy counterattack.

Exploitation

The purpose of exploitation is to prevent the enemy from reorganizing a defensive system or conducting an orderly withdrawal. This is done by rapidly advancing toward the enemy rear area, bypassing small pockets of resistance, and destroying lightly defended and undefended installations and activities. Air cavalry and attack helicopter units are particularly well-suited to conduct these operations, especially when working with ground forces.

Attack helicopter units in the exploitation are normally employed as part of a larger force. They operate very much as in a movement to contact, following the ground maneuver forces and ready to react as early as possible in the fight.

A bold exploitation should always follow a successful attack, either to destroy the enemy's ability to reconstitute a defense or disrupt his attempt to conduct an orderly withdrawal. As enemy forces become demoralized and the structure of the defense begins to disintegrate, exploitation may develop into pursuit.

Pursuit

The purpose of pursuit is to destroy enemy forces. It cuts off and destroys a retreating enemy by maintaining direct pressure on guard elements while intercepting and destroying the main force.

Pursuit requires unrelenting pressure. The speed, mobility, and firepower of attack helicopter units make them ideal forces for pursuit.

By attacking lead elements from ambush along routes of withdrawal, attack helicopters can achieve surprise, confusing, disorganizing, and fixing the enemy for the direct pressure force.

In both exploitation and pursuit operations —

- The attack helicopter moves through the penetration, avoiding the shoulders.
- Air cavalry should be used to screen, find routes, and find the enemy.
- Attack helicopters can attack withdrawing enemy columns, command posts, logistical complexes, and targets of opportunity.

SPECIAL PURPOSE OPERATIONS

In addition to the five major types of offensive operations, attack helicopter units and commanders must also be prepared to conduct the special purpose operations:

- Reconnaissance in force.
- Raid.
- Feint.
- Demonstration.
- Relief to continue the attack.

Reconnaissance in Force

The is a limited-objective operation by a considerable force in order to —

- Obtain information.
- Locate and test enemy dispositions, strengths, and reactions.

If the enemy situation must be developed along a broad front, the reconnaissance in force may consist of strong probing actions to determine the enemy situation at selected points. The enemy's reactions may reveal major weaknesses in his defensive system.

Raid

A raid is an attack into enemy-held territory for a specific purpose other than gaining or holding terrain. The purpose may be to destroy a specific unit, installation, or class of military material. Attack helicopter units may conduct raids as lone maneuver units supported by artillery and close air support (CAS).

Raid Objectives

When an attack helicopter unit receives a raid mission, the purpose will be stated in some detail. For example:

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DESTROY THE ENEMY COMMAND POST LOCATED AT COORDINATES XY 4323.
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Attack helicopter raid objectives will usually be at some depth (15-30 kilometers or further) beyond the line of contact.

Time of Raid

Raids will be of short duration so attack helicopter units can accomplish the mission with onboard fuel and ammunition. Attack helicopter companies must carefully plan their raid missions, consider proposed flight paths, mission time, possible time in a holding area, and return to an arming and refueling location.

Raid Routes

The attack helicopter raiding force should move to and from the objective area by different routes using nap-of-the-earth (NOE) flight techniques. Coordination with friendly forces as to the time and place of the passage points or lanes must be

MISSION EXAMPLES

Following are examples of offensive missions attack helicopters can perform as members of the combined arms team.

Deep Battle Missions

Enemy reserves, fire support elements, command and control facilities, and other high-value targets beyond the line of contact are all possible targets for attack. Separately or combined with other forces, attack helicopters can —

- Block enemy forces.
- Protect the force against counterattack.
- Disorganize enemy fire support, air defenses, and logistic support.

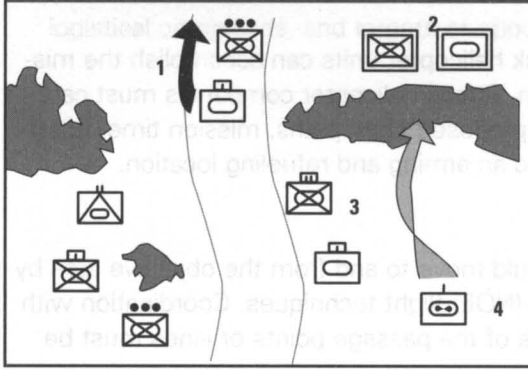
Attacking Pockets of Resistance

An attack helicopter company (ATKHC) has been placed under operational control (OPCON) of a brigade conducting an attack. As the brigade moves forward, the ATKHC will reposition its forward assembly area and FARP by bounds to remain close to lead ground forces.

While moving to contact, a lead task force is fired upon by a small mechanized enemy unit. The task force commander is ordered to bypass in order to maintain the momentum of the attack. A ground scout squad is left to maintain contact with the enemy. The enemy force realizes it has been bypassed and begins to move. Ground scouts from the task force report that movement, and the ATKHC is ordered to destroy the bypassed enemy force. The ATKHC commander elects to commit one attack platoon initially.

Aeroscouts from the platoon move forward to determine the enemy situation and select attack positions. They receive a target handover from the ground scouts. The aeroscouts call for immediate indirect suppressive fires. They direct the attack helicopter sections into battle positions from which they engage.

ATTACKING POCKETS OF RESISTANCE



1 *Lead task force; encounters but bypasses* **2** *in order to maintain attack momentum*

2 *Bypassed enemy unit*

3 *Ground squad left to maintain contact with the enemy unit*

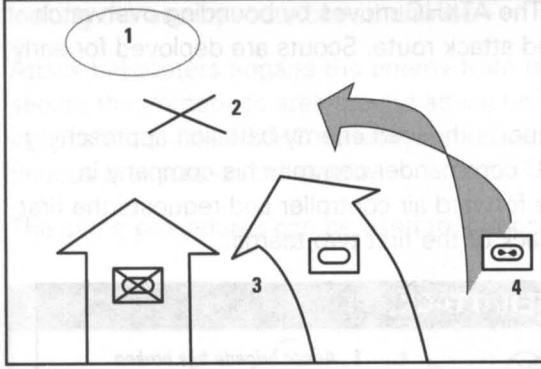
4 *ATKHC platoon ordered to destroy bypassed enemy force*

Operating with Ground Forces

In this situation, a task force runs into unexpected enemy resistance. As the task force commander prepares to attack, he is told by brigade that an attack helicopter company is available and will provide a base of fire from an adjacent battle position in concert with his scheme of maneuver. Scouts reconnoiter ahead of the attack elements to confirm the situation and select battle positions.

Using the continuous attack employment option, the ATKHC maintains a continuous base of fire. Attack helicopters suppress the enemy with automatic cannon and rocket fires and destroy point targets with missiles.

OPERATING WITH GROUND FORCES



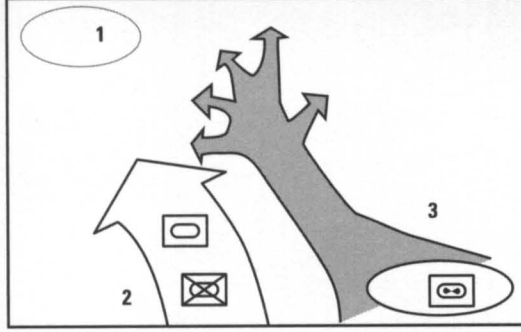
1 *Objective*
2 *Unexpected enemy resistance*
3 *Task force*
4 *ATKHC provides base of fire from adjacent battle position*

Dominating Key Terrain

Either air cavalry or attack helicopter units can dominate terrain. Key terrain or defiles on the friendly flanks could be used by the enemy to counterattack. They must be denied to the enemy.

In this situation, an ATKHC is employed to dominate terrain on the right flank of an attacking task force. Aeroscouts have selected tentative primary and alternate firing positions and entry and exit routes for attack helicopters. Attack helicopters stand by in a holding area to the rear of their battle positions. If needed, attack helicopters move forward rapidly to engage an enemy force.

DOMINATING KEY TERRAIN



1 *Objective*
2 *Attacking task force*
3 *ATKHC dominates terrain on right flank from holding area to the rear of battle positions*

Destroying an Enemy Counterattack

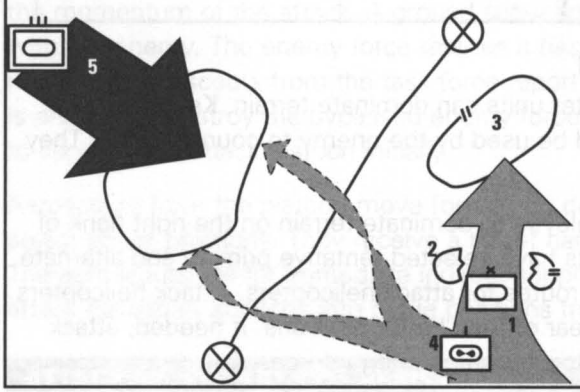
The attack helicopter's mobility advantage over ground maneuver units suits it for employment against counterattacking enemy forces. The following example illustrates how this can be done.

Friendly forces have succeeded in breaching enemy first echelon defenses. A friendly armor brigade is now making rapid gains against deeper defenses. The enemy reserve tank regiment is preparing to leave its position and counterattack the brigade.

The attack may be halted if the enemy tank regiment is allowed to counterattack at full strength. The division commander orders an ATKHC to move through the gap and attack the enemy regiment. The ATKHC moves by bounding overwatch through the gap and along the planned attack route. Scouts are deployed for early warning and security.

A scout near the engagement area reports the lead enemy battalion approaching the ambush "trigger" line. The ATKHC commander commits his company in phased employment. He contacts the forward air controller and requests the first CAS strike to correspond with the attack of the first two teams.

DESTROYING AN ENEMY COUNTERATTACK



1 *Armor brigade has broken through enemy first echelon defenses* (2) *and is making rapid gains on deeper defenses* (3)
2 *Broken enemy defenses*
3 *Enemy defenses; objective*
4 *ATKHC ordered to attack enemy tank regiment* (5)
5 *Enemy tank regiment attempting counterattack against* (1)

Attacking Withdrawing Enemy Forces

In this situation, enemy resistance is crumbling. As the task force approaches its objective, the brigade commander orders the attack helicopter company to attack the withdrawing enemy.

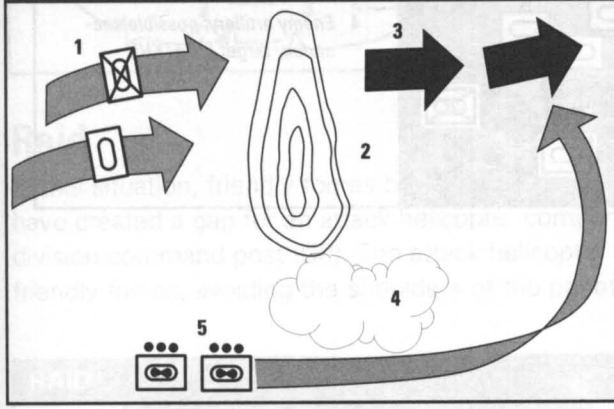
Scouts from the attacking task force and the ATKHC probe the flanks of the enemy position to locate aerial avenues of approach. A gap is located affording masked maneuver behind the enemy's defenses.

The task force commander calls for artillery smoke and HE on the flank of the enemy position to mask the maneuver of attack helicopter teams. The maneuver team, using bounding overwatch, successfully works its way to a position overlooking the enemy route of withdrawal.

Attack helicopters engage the enemy from multiple battle positions. Scouts secure the immediate area around attack helicopters and reconnoiter alternate firing positions. The ATKHC commander rotates platoons in order to maintain continuous pressure on the enemy.

The same procedures can be used to ambush reinforcing enemy units.

ATTACKING WITHDRAWING ENEMY FORCES



1 *Task force pushing toward objective* (2)
2 *Task force objective; rings indicate the topography of the hill*
3 *Retreating enemy forces*
4 *Task force commander calls for HE and smoke on flank of enemy position to mask maneuver of* (5)
5 *Attack helicopter team works its way to a position flanking enemy withdrawal route*

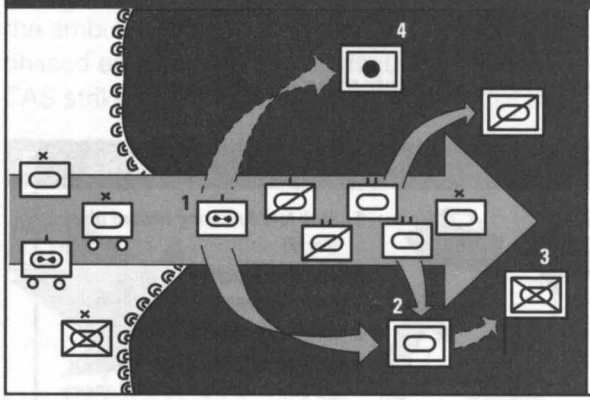
Exploitation

In this situation, an attack helicopter company is IPCON to a brigade which has penetrated enemy defenses. The attack helicopter company was deployed behind the line of contact, but ready to move forward rapidly to exploit the successful brigade attack.

Once the flanks of the salient are secured, the attack helicopter unit passes through the gap, avoiding the shoulders of the penetration.

Acting within the framework of the ground commander's plan, attack helicopter units use supporting fires and work with ground maneuver elements to attack enemy reserve forces moving to counter the penetration. Once the enemy reserve formation is destroyed, attack helicopters may be used to attack a command post deep in the rear or enemy artillery on the flanks of the penetration.

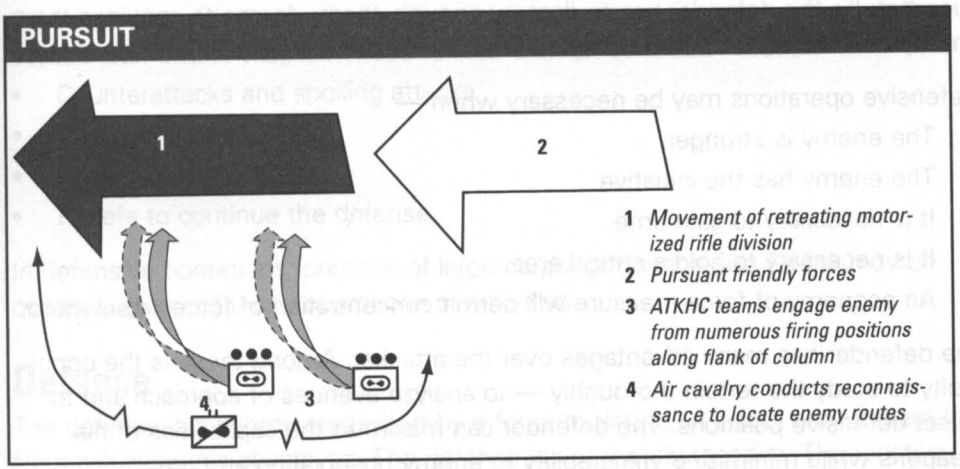
EXPLOITATION



1 *ATKHC accompanying attack brigade*
2 *Reserve formation; primary target for ATKHC*
3 *Command post; possible secondary target for ATKHC*
4 *Enemy artillery; possible secondary target for ATKHC*

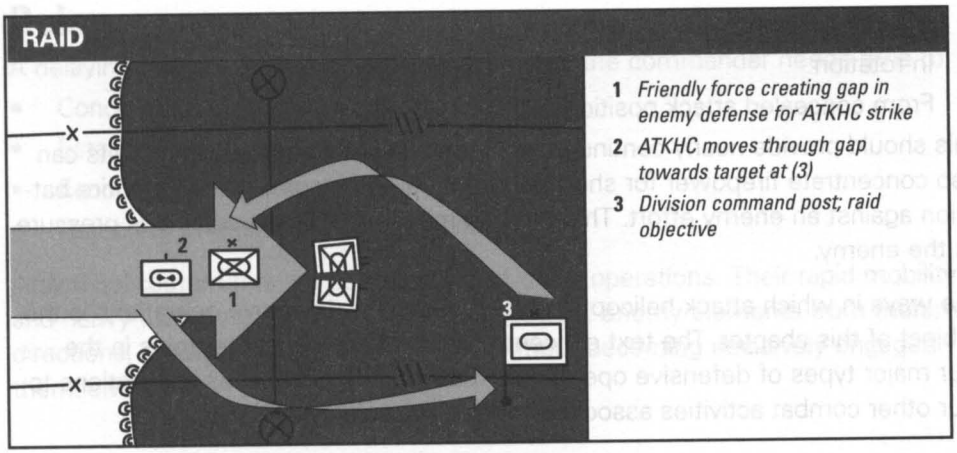
Pursuit

In this situation, a motorized rifle division is in withdrawal. Ground maneuver forces are maintaining pressure on the enemy rear guard while air cavalry conducts reconnaissance to locate enemy columns and routes. The air cavalry unit passes this information to attack helicopter elements, which quickly enter the fight along attack routes recommended by the cavalry and confirmed by scouts. While one attack helicopter element attacks the head of the enemy column to slow following elements, others use organic and supporting fires to destroy forces from many firing positions along the length of the enemy column.



Raid

In this situation, friendly forces have conducted a limited objective attack. They have created a gap for an attack helicopter company to pass through to destroy a division command post (CP). The attack helicopter company passes through friendly forces, avoiding the shoulders of the penetration.



DEFENSIVE OPERATIONS

OVERVIEW

Attack helicopter units will normally participate in defensive operations as part of a larger force. The purpose of the larger force is to prevent the enemy from controlling terrain or other features essential to the friendly force missions. To defend successfully, the defender has to destroy enough enemy forces to convince the enemy that the attack is too costly and that he must break it off.

Defensive operations may be necessary when —

- The enemy is stronger.
- The enemy has the initiative.
- It is necessary to gain time.
- It is necessary to hold a critical area.
- An economy of force measure will permit concentration of forces elsewhere.

The defender has many advantages over the attacker. Among these is the opportunity to study the terrain thoroughly — to analyze avenues of approach and to select defensive positions. The defender can maximize the capabilities of his weapons while minimizing vulnerability to enemy observation and fire.

Regardless of the mission of higher headquarters, attack helicopter units are offensive in nature. The great mobility advantage of attack helicopter units over ground forces allows them to move rapidly to the decisive point on the battlefield.

As in the offense, attack helicopters should be committed —

- In large numbers.
- In the same general area.
- Against the same attacking enemy.
- In rotation.
- From concealed attack positions.

This should provide nearly continuous anti-tank fires. Attack helicopter units can also concentrate firepower for short periods of time by committing an entire battalion against an enemy effort. This method may not provide continuous pressure on the enemy.

The ways in which attack helicopter units take part in defensive operations is the subject of this chapter. The text concentrates on attack helicopter roles in the four major types of defensive operations. It also briefly addresses applications to four other combat activities associated with defensive operations.

MAJOR TYPES OF DEFENSIVE OPERATIONS

Major types of defensive operations include —

- Defense.
- Delay.
- Defense of encircled forces.
- Rear area protection (RAP) operations.

Other combat activities normally associated with defensive operations are discussed later in this chapter. These related combat activities include —

- Counterattacks and spoiling attacks.
- Passage of lines.
- Withdrawals.
- Reliefs to continue the defense.

In defensive operations, portions of large corps- or division-size forces may be conducting any of these operations or activities.

Defense

The defense is a coordinated effort by a force to defeat an attack and prevent him from achieving his objectives. The defense is not merely reactive. The reactive and offensive elements work together within the framework of the defense. Together, they —

- Deny the initiative to the enemy as early as possible.
- Control or influence the enemy's movements.
- Reduce the enemy's opportunity to react.
- Limit the enemy's number of options.

Delay

A delaying operation is usually conducted when the commander needs time to:

- Concentrate or withdraw forces.
- Establish defenses in greater depth.
- Economize in an area.
- Complete offensive actions elsewhere.

Attack helicopter units are able to conduct delay operations. Their rapid mobility and heavy firepower allow them to quickly attack enemy elements from multiple directions, gaining time for other forces without becoming decisively engaged themselves.

Defense of Encircled Forces

The dynamic and fluid nature of the modern battlefield suggests that defending units may be bypassed by attacking elements. Among combat maneuver elements, attack helicopter units are least likely to become encircled. Because of this and their mobility, they are a primary asset for conducting offensive operations against encircling enemy forces.

Attack helicopter units can be used to attack encircling enemy forces during a defense. They may also be used during a breakout of encircled forces by:

- Conducting diversionary attacks to preserve surprise.
- Attacking moving enemy reserves or reaction forces.
- Conducting supporting attacks to establish or maintain a breakout axis.

Rear Area Protection

Rear area protection (RAP) operations protect the rear areas of division, corps, and echelons above corps. RAP prevents enemy incursions, minimizes the impact of those incursions that cannot be prevented, and limits damage caused by enemy action or other events.

Attack helicopter units can accomplish several missions related to RAP operation. They are particularly valuable against Level III enemy activity in the rear area, involving battalion-size or larger forces. They are especially effective against such forces when they are mechanized or supported by armor elements.

The ability to respond and move rapidly makes attack helicopter units valuable assets. Attack helicopters may be assigned RAP contingency missions. When this is the case, the attack helicopter company (ATKHC) commander or his representative must establish liaison with the commander responsible for RAP operations.

To be effective, RAP planning for attack helicopter units must include several special considerations in addition to the normal RAP planning factors. The special planning considerations are:

- Most probable targets of enemy action.
- Likely avenues of approach by air and land, to include drop zones and landing zones.
- Potential battle positions for attacking probable engagement areas.
- Planned and actual locations of committed friendly reaction forces.
- Availability of indirect fire support.
- Coordination with friendly air defense artillery (ADA) units.
- Rapid reaction requirements regardless of ordnance mix.
- Possible forward arming and refueling point (FARP) locations.
- Ammunition and fuel requirements.

RELATED COMBAT ACTIVITIES

Counterattacks and Spoiling Attacks

These actions may occur in either the defense or the delay, in the covering force area (CFA) or the main battle area (MBA).

Counterattacks by fire involve maneuvering to engage an enemy force's flanks or rear. A well-executed counterattack, timed to coincide with engagements by defending forces, can severely disrupt an enemy attack and block attempts to bypass or change the direction of advance. Attack helicopter companies or battalions can be committed in preplanned counterattacks. Their mobility supports precise timing, and their firepower can be focused at critical places on the battlefield.

A timely spoiling attack, launched as the enemy is assembling or beginning movement, can prevent the attack, disrupt the attack, or slow it to allow the defending commander additional time to prepare or deploy his forces.

ATTACK HELICOPTERS IN THE DEFENSE

The battle will begin early and as far forward as possible. The intent is to limit the enemy's initial thrust and to block his alternate courses of action. Ground forces will select and organize on terrain which provides —

- Long-range fields of fire or long-range flanking or crossing shots for antitank guide missiles (ATGM) and tanks.
- Good cover and concealment for the defender and no cover or poor cover and concealment for the attack enemy.
- Covered and concealed battle positions organized in depth.
- Terrain-masked counterattack routes.

Initially, forces deploy in depth in a system of mutually supporting battle positions. Since there are not enough units to occupy all positions, forces are shifted as the battle develops.

Attack helicopter units are integrated into the CFA and MBA force commander's scheme of maneuver. Their long-range firepower and mobility allow them to move rapidly, changing battle positions as the enemy situation dictates. They can work together with ground forces or independently.

MISSION EXAMPLES

On the following pages are examples of several defensive situations in which attack helicopter might be used.

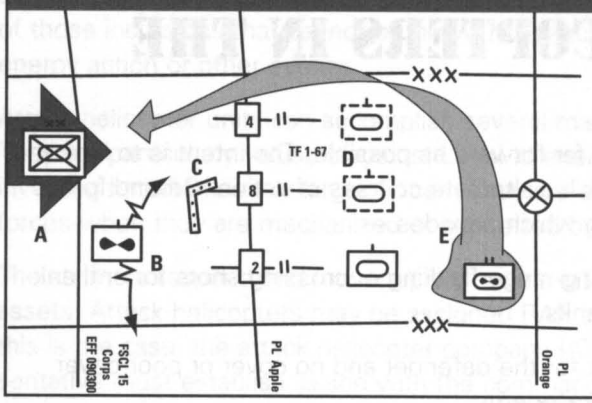
Corps Covering Force

In this situation, an armored cavalry regiment (ACR) is the headquarters for the corps covering force. The corps attack helicopter battalion is placed under operational control (OPCON) of the ACR.

The terrain is analyzed to determine critical avenues of approach into the CFA. The ATKHB may be deployed —

- Behind the CFA, as a reserve committed against the enemy's main thrust.
- In the forward portion of the MBA near where it is expected to fight.
- Forward in the CFA in order to initiate contact with enemy forces.

CORPS COVERING FORCE



A *Avenue of enemy approach*
B *Regimental air cavalry troop provides early warning*
C *Minefield laid to channel movement of enemy force*
D *Due to the width of the sector, the three squadrons are placed abreast. Task Force 1-67 primarily responsible for high speed avenue of approach (between 8 and 4).*
E *ATKHB committed to most threatened sectors*

An option for employment is to allow the cavalry elements to identify the enemy's locations, maintain contact, then hand over the battle to attack helicopter platoon leaders. Actual employment of the ATKHB is based on the specific missions, and the employment option most likely to succeed.

Air cavalry units make contact first. As the axis of the enemy's main effort is identified, attack helicopter units are committed to the most threatened sectors. Tanks, antitank ground systems, and attack helicopters engage enemy arms simultaneously. The covering force uses indirect fires to —

- Force enemy armor to button up.
- Suppress enemy air defenses.
- Cover friendly movement between battle positions.

Attack helicopters also provide overwatch while ground forces move to new battle positions.

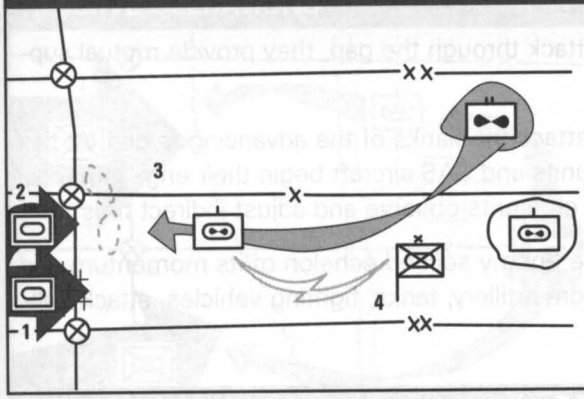
Close-In Battle

Attack helicopter units may be employed to destroy lead elements entering the main battle area or follow-on elements capable of influencing the enemy's main effort.

Attack helicopter units may be —

- Held in reserve by the division commander.
- Committed as an independent force against an enemy who has bypassed or penetrated MBA forces.
- Employed to add combat power to a ground maneuver element in contact.

CLOSE-IN BATTLE



1 *Enemy force penetrating friendly main battle area forces (indicated by crosses)*

2 *Enemy force attempting to bypass the MBA forces*

3 *ATKHC attacks force (2) from these battle positions, reconnoitered in advance by scouts*

4 *ATHKC commander coordinates with brigade fire support officer (FSO) to arrange on-call suppressive fires*

In this situation, an ATKHC of the divisional Combat Aviation Battalion (CAB) is initially in reserve. Friendly covering force elements have conducted a rearward passage through the main battle area forces. Enemy forces have penetrated the MBA. A sizable tank-heavy force is attempting to bypass friendly forces.

The division commander directs the CAB commander to commit one ATKHC OPCON to destroy the enemy tank-heavy force. Initially using the maximum destruction employment option, the ATKHC commander commits all three attack platoons.

Attack helicopter battle positions, selected earlier as a result of timely planning guidance, are quickly reconnoitered and confirmed by the ATKHC scouts. Each attack platoon moves into its position. Company scouts take positions so section leaders can acquire targets and hand them over to the attack helicopters.

As the enemy force moves into the engagement area, the ATKHC commander calls for suppressive fires and directs the unit to engage. The attack platoons continue engaging the enemy force from successive battle positions until ordnance or fuel is depleted, then return to the FARP.

Combined Arms Deep Battle

Deep battle applies fire and movement to accomplish a mission beyond the FLOT in support of deep battle objectives.

In this situation, two brigades are defending from positions along a fordable river. Intelligence indicates that the enemy is preparing to commit a second echelon element to conduct a hasty river crossing and reestablish attack momentum.

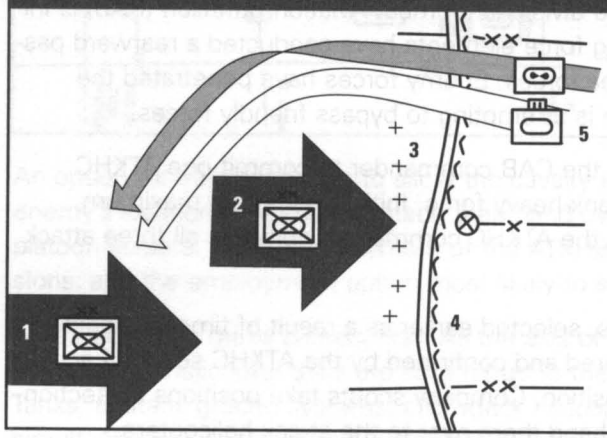
Offensive electronic warfare creates a temporary gap or window in the enemy command and control system. An armor task force and an attack helicopter battalion conduct a deep attack through this gap aimed at the advancing second echelon. The objective is to break the momentum of the enemy advance and neutralize or destroy the second echelon force.

As the ground and air elements attack through the gap, they provide mutual support.

The armor task force's elements attack the flanks of the advancing forces. At the same time, the attack helicopter units and CAS aircraft begin their engagements. Scouts from the attack helicopter elements observe and adjust indirect fires.

The deep attack forces deprive the enemy second echelon of its momentum and subject the whole force to fires from artillery, tanks, fighting vehicles, attack helicopters, and CAS sorties.

COMBINED ARMS DEEP BATTLE



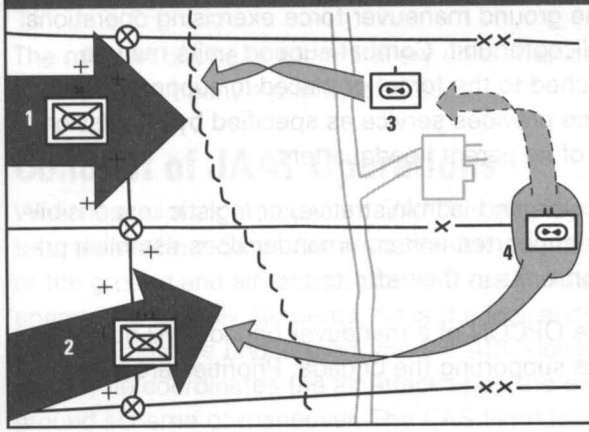
1 *Enemy second echelon forces moving in to support* (2)
2 *Enemy first echelon forces attempting to cross river* (4)
3 *Crosses indicate friendly brigade force defense positions*
4 *Fordable river*
5 *Armor task force and helicopter battalion move through gap in enemy command and control to conduct deep attack against second echelon*

Reserve Operations

This example shows a corps ATKHB OPCON to a division. Based on an analysis of the avenues of approach and information provided by the covering force, the division commander has reinforced the 2d Brigade through task organization. In addition, an ATKHC from the division CAB has been placed OPCON to the brigade.

The enemy's main attack enters the MBA in the 2d Brigade's sector. The brigade commander commits the OPCON attack helicopter company. The ATKHC and ground elements, supported by indirect fires and CAS, are committed to the main effort.

RESERVE OPERATIONS



1 *Enemy's main force entering main battle area, defended by second brigade*
2 *Enemy motorized rifle regiment attempting to bypass first brigade*
3 *OPCON ATKHC committed from the beginning to the main attack* (1)
4 *Corps ATKHC, originally held in reserve is assigned to counterattack the MRR* (2)

As the main battle develops, a motorized rifle regiment (MRR) is attempting to bypass 1st Brigade. This rapid change of direction threatens to isolate major elements of 2d Brigade and possible destruction of its command and control and communications facilities. The division commander assigns the corps ATKHB the mission to counterattack the MRR and an "on-order" mission to reinforce the 2d Brigade effort in the MBA.

The ATKHB commander commits two companies against the MRR. Each initially uses the phased employment option to bring heavy concentrated fires against the fast-moving regiment. The third company is available for immediate commitment to the on-order missions.

COMBAT SUPPORT

OVERVIEW

Combat support for attack helicopter units normally consists of —

- Air defense artillery support.
- Fire support (mortars, field artillery, and naval gunfire).
- Intelligence.
- Engineers.

It also includes close air support (CAS) and joint air attack teams (JAAT) planned and requested in coordination with ground maneuver units. These combat support assets are discussed as special sections within this chapter.

Combat support is provided by the ground maneuver force exercising operational control (OPCON) of the attack helicopter unit. Combat support units may be organic to a maneuver force, attached to the force, or placed in support of the force. A unit in support of the force provides service as specified by its mission, but remains under the command of its parent headquarters.

The supported unit assumes no command, administrative, or logistic responsibility for the supporting unit. But the supported unit commander does establish priorities which guide combat support units in their efforts.

An attack helicopter unit under the OPCON of a maneuver brigade will normally receive combat support from units supporting the brigade. Priorities are established by the brigade commander.

Combat support units organize themselves to accomplish their mission in one of three ways: direct support (DS), general support (GS), or attached.

Direct Support

The supporting unit establishes liaison with the unit it supports, and responds directly to its requests. The supported unit has priority on the effort of the supporting unit.

General Support

The supporting unit supports the supported force as a whole, responding to requests according to priorities established by the force commander.

Attached

The supporting unit provides its support exclusively to the supported unit as if it were organic to the unit to which attached. Of the three, this is the only mission that requires the supported unit to provide logistical and administrative support to the supporting unit.

FIRE SUPPORT

Fire support is the employment of mortars, field artillery, CAS, and naval gunfire to suppress, neutralize, or destroy targets. Indirect fires are used to suppress enemy air defense, permitting attack helicopters to engage enemy armored vehicles.

Field Artillery

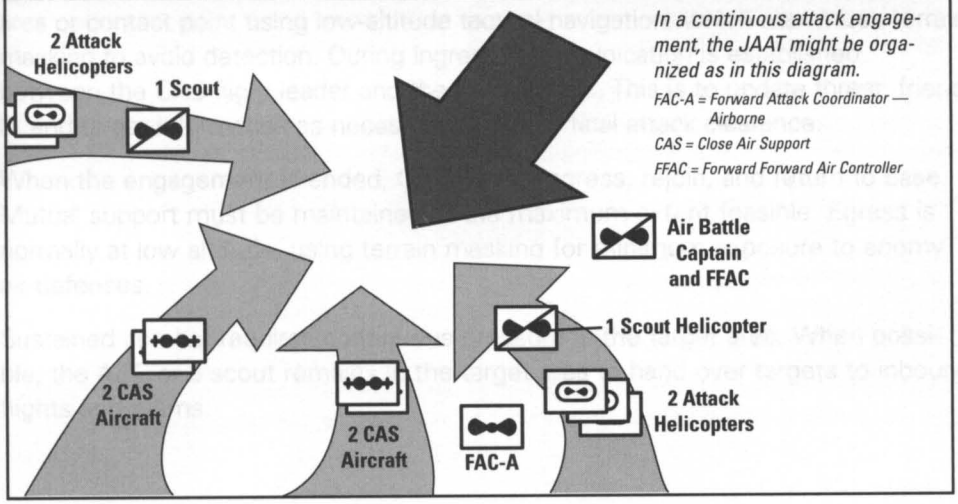
The fire support most frequently employed by attack helicopter units is field artillery, most often from the batteries supporting the force as a whole. An attack helicopter company OPCON to a brigade receives fire support from the artillery battalion in direct support of the brigade. Attack helicopter units operating under division or corps control may receive field artillery support from any artillery units within range.

The mission of one or more artillery units may be modified to reflect the attack helicopter company's priority of fires.

Conduct of JAAT Operations

When the joint air attack team (JAAT) is employed, one person must direct the total team effort. Since the air battle commander (ABC) should be keenly aware of the ground and air tactical plan and can maintain continuous contact with the enemy and friendly elements, he is the logical director or coordinator of the joint effort. It must be understood that the ABC does not dictate attack methods. Rather, he coordinates the air attack upon the enemy in consonance with the ground scheme of maneuver. The CAS flight leader and attack helicopter section leaders manage their individual elements. Thus, the overall responsibility for the JAAT orchestration rests with the ABC.

JAAT CONFIGURATION



Scouts

Upon receipt of the mission, scout elements reconnoiter the target area for battle positions, avenues of approach, choke points, and potential engagement areas. Particularly important is locating enemy air defense systems for subsequent suppression. Once the enemy is acquired, visual contact must be maintained throughout the operation.

Air Defense Suppression

The primary mission of the JAAT is to destroy enemy forces. If the enemy ADA or air threat preclude the JAAT from doing its mission, then an intense effort will be made to suppress the specific threat to the team. Enemy ADA must be suppressed by any asset which is available and suited for the purpose. Once enemy ADA has been suppressed, the JAAT can concentrate on destroying the enemy forces. The JAAT can cause the enemy to button up and slow down, allowing all available friendly assets to complete the destruction.

If no other assets are available, the JAAT may have to perform its own suppression of enemy air defenses (SEAD). This is the least desirable method because some attack helicopters will have to be configured for and dedicated to the SEAD role. This will detract from the effort of the JAAT and reduce its armor-killing capability.

Throughout the attack, attack helicopters are employed against armored targets, command and control systems, and enemy air defense systems. Fire support should be integrated as much as possible with ATKH and CAS aircraft attacks.

CAS Flights

Upon arrival in the battle area, CAS pilots contact the FAC for attack control. The battlefield environment may not permit direct control by the FAC. Therefore, his role may be limited to passing the initial target briefing and coordinating with the ground maneuver commander and the ABC. As a minimum, the CAS flight leader will provide —

- Callsign/mission number.
- Ordnance available.
- Loiter time.

The FAC or ABC will pass the following target information either directly or through the FAC-A:

- Target location (coordinates or geographic reference).
- Initial point (IP).
- Heading and distance from contact point and IP to target.
- Target description.
- ADA or air threat.
- Position and activities of attack helicopters.
- Friendly locations.
- Restrictions (such as artillery firings).
- Additional information as necessary (such as required inbound calls).

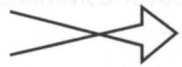
CAS aircraft usually enter the target area in a two-ship flight, the basic fighting element. Terrain and weather will influence how many flights can operate in the area at one time. The first CAS flight leader to arrive in the target area coordinates the operation with subsequent CAS flight leaders and FACs. Flights depart the holding area or contact point using low-altitude tactical navigation, which maximizes terrain masking to avoid detection. During ingress, communication is established between the CAS flight leader and the FAC or ABC. This is to update threat, friendly, and target information as necessary, and give final attack clearance.

When the engagement is ended, CAS aircraft egress, rejoin, and return to base. Mutual support must be maintained to the maximum extent feasible. Egress is normally at low altitude, using terrain masking for minimum exposure to enemy air defenses.

Sustained combat requires continuous pressure in the target area. When possible, the ABC or a scout remains in the target area to hand over targets to inbound flights and teams.

OPERATIONAL TERMS AND GRAPHICS

Air axis of advance — for aviation elements, a general air route from an assembly area or forward assembly area to a holding area or battle position. The air axis of advance may lead into the attack route for an attack element.



Air battle captain — An Army officer designated by the attack helicopter company commander. The ABC normally directs and orchestrates the battle from a scout helicopter. He is the ground commander's subordinate for directing the attack helicopter team supporting fires.

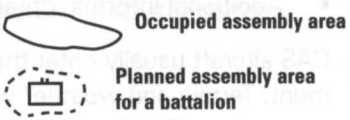
Air control point — An easily identifiable point on the terrain or an electronic navigation aid used to provide necessary control during air movement. ACPs are generally designated at each point where the flight route makes a definite change in direction. [Also known in *Longbow 2* as a waypoint.]

Air corridor — A prescribed air route for aircraft established to prevent friendly aircraft from being fired upon by friendly forces.

Air interdiction — Air operations conducted to destroy, neutralize or delay the enemy's military potential before it can be brought to bear effectively against friendly forces.

Air maneuver forces — Air cavalry and attack helicopter units that operate in the ground environment. They engage targets by fire from covered and concealed positions. Their operations are similar to ground combat operations in that they tailor their movement to the terrain and use suppressive fires. These units are integrated into the tactical plan of the ground force commander. They can dominate terrain by denying the enemy its use by direct aerial fire for limited periods of time.

Assembly area — An area in which a force prepares or regroups for further action.



Attack route — Route used by attack helicopter teams to move from a holding area, forward arming and refueling point (FARP), or assembly area to battle positions.

Battlefield air interdiction (BAI) — Air action against hostile ground targets which are positioned to directly affect forces and which require joint allocation, planning and coordination.

Checkpoint — A predetermined point on the ground used as a means of controlling friendly movement. Checkpoints are not used as reference points in reporting enemy locations. Checkpoints may be identified by number, letter, or code word.

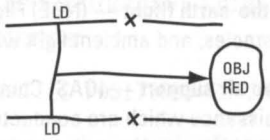
Close air support — (CAS) Air attacks against hostile targets close to friendly forces. These required detailed integration of each air mission with the fire and maneuver of those forces.

Contact point — 1: A designated, easily identifiable point on the terrain where two or more units are required to make physical contact. 2: In CAS and JAAT operations, the time and place where the USAF CAS flight makes radio contact with the forward attack coordinator-airborne.

Contour flight — Flight at low altitude conforming generally to the contours of the terrain. It is characterized by varying airspeed and altitude as dictated by vegetation, obstacles, and ambient light.

Counterair — Operations conducted to gain and maintain air superiority, thereby preventing enemy forces from effectively interfering with friendly surface and air operations. Counterair operations are generally classified as offensive or defensive. Offensive actions range throughout enemy territory and are generally conducted at the initiative of friendly forces. Defensive actions are conducted near or over friendly territory and are generally reactive to the initiative of the enemy.

Direction of attack — A specific direction or route that the main attack or the main body of the force will follow. If used, it is normally at battalion and lower levels. Direction of attack is a more restrictive control measure than axis of advance, and units are not free to maneuver off the assigned route.



Direction of attack arrow

Engagement area — (EA) An area in which a commander concentrates fire on an enemy force; may also be called the killing area, killing ground, or kill zone.

Flight route — A predetermined plotted route between points. Crew members use ground reference points or pilotage navigation techniques to identify and follow a flight route.

Forward assembly area — Area where attack helicopters may move forward and shut down for extended periods while awaiting orders to go into battle.

Forward line of own troops — (FLOT) A line which indicates the most forward positions of friendly forces in any kind of military operation at a specific time.

Handoff — 1: The passing of responsibility for the battle from one commander to another. 2: The handoff of the battle that occurs between units at all echelons of command during passage of lines and relief operations. 3: The handover of targets between individual weapon systems.

Holding area — 1: Nearest covered and concealed position to the pickup zone (PZ) or crossing site where troops are held until the time for them to move forward. 2: In attack helicopter operations, a covered and concealed position between assembly area and battle positions that helicopters may occupy while aeroscouts coordinate movement into battle positions.

Inbound call — Communications initiated by the CAS flight to the tactical air coordinator airborne to begin the exchange of battle information before engagement.

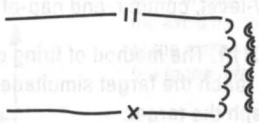
Interdiction — Isolating or sealing off an area by any means to deny use of a route or approach.

Joint air attack team — (JAAT) Combination of US Army helicopters and USAF CAS aircraft operating together to destroy enemy armored and mechanized forces.

Joint suppression of enemy air defenses — (JSEAD) That portion of suppression of enemy air defenses (SEAD) which required join interaction to suppress enemy surface-to-air defenses having an influence on the tactical air-land battle area.

Line of contact — (LC) A general trace delineating the location where two opposing forces are engaged.

Low-level flight — Flight generally carried out above obstacles but at an altitude where detection by an enemy force is avoided or minimized. It is performed at a constant indicated altitude and airspeed.



General LC symbol
Enemy symbols are depicted with double lines when not in color

Multiple employment —The concept whereby an attack helicopter unit, because of its mobility, can be assigned more than one mission during a single operation. For example, when employed in reserve, an attack helicopter battalion can simultaneously reinforce ground units with some or all of its companies in one or more locations for a limited time for specific missions. It can be quickly reconstituted to execute a contingency mission elsewhere on the battlefield.

Nap-of-the-earth flight — (NOE) Flight at varying airspeeds as close to the earth's surface as vegetation, obstacles, and ambient light will permit, while generally following contours of the earth.

Offensive air support — (OAS) Combat air support and those parts of air interdiction and tactical air reconnaissance which are conducted in direct support of land operations.

Pathfinders — 1:Experienced aircraft crews who lead a formation to the drop zone, release point, or target. 2:Teams dropped or airlanded at an objective to establish and operate navigational aids for the purpose of guiding aircraft to drop or landing zones. 3:Teams air-delivered into enemy territory for the purpose of determining the best approach and withdrawal lanes, landing zones, and sites for heliborne forces.

Phased employment — Method by which an attack helicopter unit commander may commit a portion of his assets into the battle for the most effective use of combat power. It involves commitment of task-organized elements at planned times, often expressed in terms of predictable events or circumstances.

Pop-up point — (POP) The location at which CAS fighter aircraft quickly gain altitude for target acquisition and engagement. This point occurs at the end of the low-level terrain flight to avoid detection or prevent effective engagement by the enemy.

Rear area security — (RAS) Measures taken to minimize the effects before, during, and after an enemy attack, sabotage, infiltration, guerrilla action, or the initiation of psychological warfare.

Suppression — Direct and indirect fires, electronic countermeasures, or smoke brought to bear on enemy personnel, weapons, or equipment to prevent effective fire on friendly forces.

Suppression of enemy air defenses — (SEAD) Any action which destroys, degrades, or obscures enemy surface air defenses for a period of time to enhance the effectiveness of friendly air operation.

Tactical air support — Air operations which directly support the land battle. These operations include CAS, tactical air reconnaissance, BAI (NATO), and tactical airlift.

Target box — Area designated on identifiable terrain in which enemy targets are expected to appear and against which air support will be employed.

Terrain flight — Tactic of employing helicopters in such a manner as to utilize the terrain, vegetation, and man-made objects to degrade the enemy's ability to visually, optically, or electronically detect or locate the helicopter. Terrain flying involves flight close to the earth's surface and includes the tactical application of low-level, contour, and nap-of-the-earth flight techniques.

Time on target — (TOT) 1. The method of firing on a target in which various weapons time their fire to assure all projectiles reach the target simultaneously. 2: The time at which aircraft (or are scheduled to) attack or photograph the target.

FIRE DISTRIBUTION

GENERAL

In combat, there is little time for planning fire control and distribution. Often, the attack mission is quickly assigned to a unit in general terms:

ATTACK ENEMY FORCES IN ENGAGEMENT AREA BRAVO FROM BATTLE POSITIONS 23 AND 24.

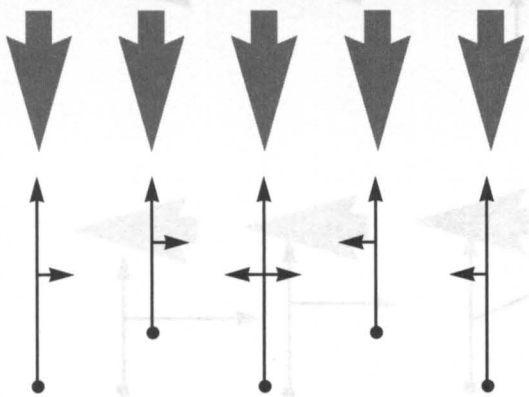
To enable an orderly and coordinated attack on the enemy, the attack platoon leader makes sure that the attack element is briefed. Section leaders brief attack helicopter crews on the azimuth, range, and description of the enemy in the engagement area.

- Scout helicopters search terrain to find concealed firing positions for attack helicopters.
- Attack helicopters are widely dispersed, but they all orient on the enemy.
- Attack helicopters use stand-off firing positions and stealth to defeat enemy.
- The attack element leader is responsible for fire distribution.
- The attack element leader is responsible for monitoring the surrounding area for enemy aircraft.

Guidelines for fire distribution are established for efficient target engagement and destruction. Distribution of fire depends on the shape of the engagement area and target dispersion. Sample SOP guidelines are:

The attack element on the left fires at targets in the left part of the engagement area. The extreme left aircraft fires at the extreme left target and shifts fire to the right. The attack element on the right fires at targets in the right part of the engagement area. The extreme right aircraft fires at the extreme right target and shifts fire to the left.

ON LINE AND IN DEPTH



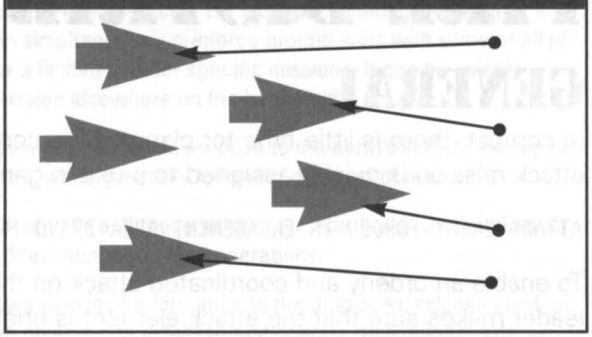
Thick gray arrows indicate targets. Thin black arrows indicate aircraft.

Aircraft at the extreme left fires on target at the extreme left and shifts fire to the right. Aircraft at the extreme right fires on target at the extreme right, then shifts fire to the left.

DEPTH FIRE

When targets present themselves in depth, one section or team can engage the close targets while another engages deep targets.

TARGETS IN COLUMN OR IN DEPTH



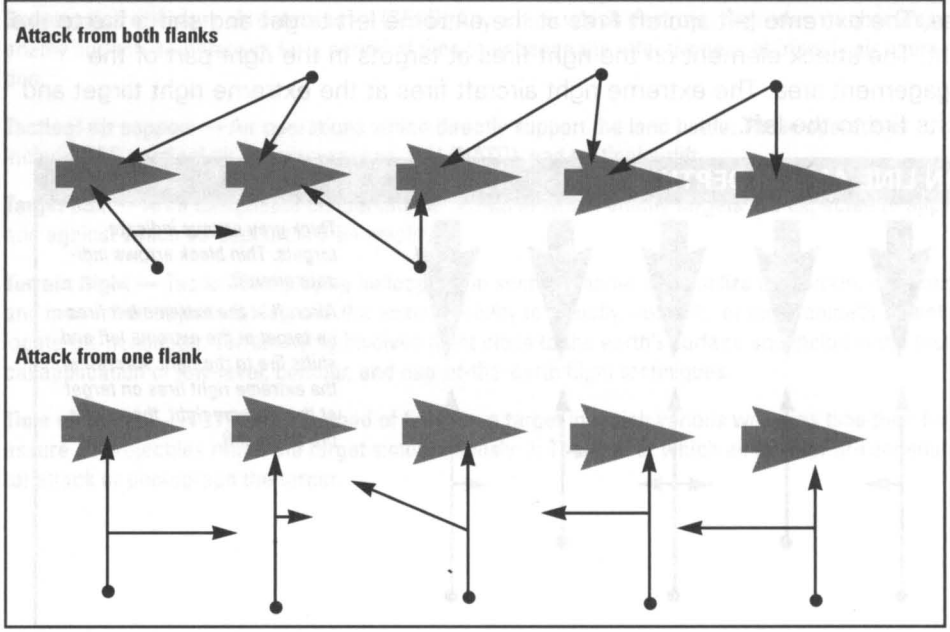
Attack From One Flank

Left side elements engage enemy targets to their front and shift fire toward the column front. Right side elements engage the enemy to their front and shift fire toward the column rear.

Attack From Both Flanks

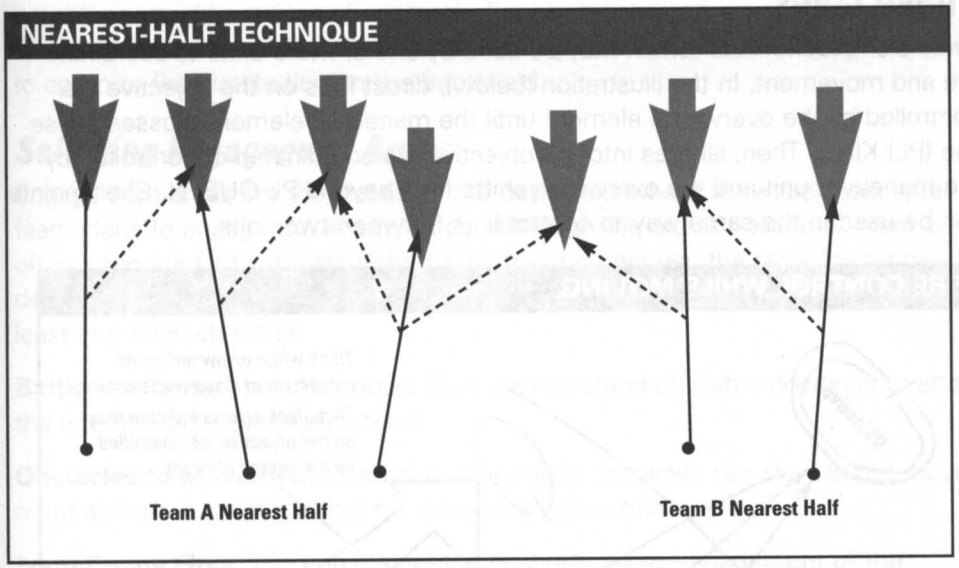
Elements on the right flank of the target column engage the last enemy elements or as far to the rear as possible with the weapons employed. Elements on the target's left flank engage the front of the column. During subsequent engagements, left flank elements and right flank elements shift their fires to the center of the column for maximum coverage of the target.

COLUMN TARGETS



NEAREST-HALF TECHNIQUE

This is a method of rapid distribution of initial fire. Each element leader estimates how much of a target area can be seen, then directs his fires into the "half" of the target area nearest his element. The nearest half technique will not prevent an overkill on "borderline" targets that appear to be in each element's half, but it does coordinate the initial volley. Within his "half" of the target area, the element leader distributes his fires using variations of other engagement patterns.



FRONTAL FIRE

This technique can be used when targets are arranged laterally and all attack helicopters can fire to the front. Each gunner engages targets directly to his front, then shifts toward the center of the target area. The center attack helicopter engages the center target and shifts to either side as appropriate.

FIRE CONTROL WHILE MOVING

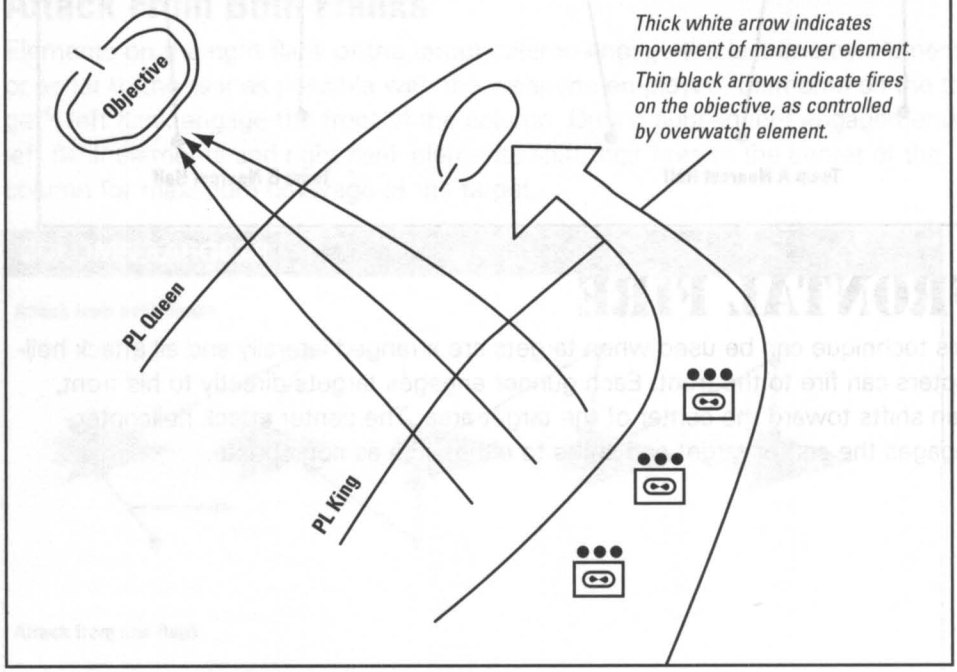
Checkpoints

During mobile operations, company commanders should designate a series of checkpoints throughout the area of operations. Located on readily identifiable terrain features, checkpoints help control maneuver and overwatch.

Phase Lines

Lines along identifiable terrain may be used by one or more units to coordinate fire and movement. In the illustration [below], direct fires on the objective are controlled by the overwatch element until the maneuver element crosses phase line (PL) KING. Then, all fires into the objective are coordinated or controlled by the maneuver unit and the overwatch shifts fires beyond PL QUEEN. Checkpoints can be used in the same way to control fires between two units.

FIRE CONTROL WHILE MOVING



Engagement Areas

Engagement areas or "kill zones" may be designated by battalion, squadron, or company/troop commanders. An engagement area is one in which the commander intends to attack an enemy force with the massed fires of all available weapons.

Engagement areas may also be divided into sectors. However, it is important to understand that defensive systems are not designed around engagement areas, but rather around avenues of approach. Engagement areas are not intended to restrict fires within an area. They are used only as a tool to concentrate fires and to optimize fire distribution on the battlefield.

Selecting Engagement Areas

Engagement areas are the places on the battlefield where the attack helicopter team plans to engage the enemy force. Although the attack helicopter team is often integrated into an established scheme of maneuver, the team leader can decide how and where he engages the enemy. A good engagement area has at least four characteristics.

Battle Positions. The area should have several stand-off battle positions to attack the enemy from several directions.

Obstacles to Movement. Natural or man-made obstacles can slow target movement and allow greater effect for direct and indirect fires.

Long-Range Fires. The engagement area should allow engagement of the enemy force from positions at ranges of 3,000 meters or more.

Continuous Target Visibility. Long-range engagements require the target to be in view during missile flight. As a general rule, engagement areas should provide unobstructed views of the target from firing positions.

ENGAGEMENT PRIORITIES

In combat, targets will seldom appear as stark silhouettes obligingly waiting to be fired upon and hit. Crews will rarely see neat columns or formations. The enemy will be fast-moving and evasive, and will present only fleeting targets for attack helicopter crews. The ability to see and hit these targets on the battlefield will be further degraded by smoke, chemicals, fires, and explosions. Also adding to the confusion will be varying types of vehicles and weapon systems — tanks, BMPs, BRDMs, and air defense. To prepare for the confusion of combat, crews should consider the following methods when planning and conducting combat mission training.

Two prioritization methods are used when engaging targets in combat: target priority and engagement priority.

Target priority refers to the type of target that is to receive first priority for destruction on the battlefield. Target priorities for attack helicopters are:

- Air defense artillery
- Attack helicopters (only if they pose a direct threat to mission success)
- Command tanks
- Other tanks
- Command and control
- Antitank vehicles
- Direct fire artillery
- Mechanized troop carriers
- Troops in the open

The order of target priorities may vary according to mission and situation. For example, in one situation, the importance of command and control vehicles may dictate they become second only to air defense artillery; in the deep battle, command and control vehicles may become primary targets for attack helicopters.

Enemy attack helicopters are considered targets only when they threaten mission accomplishment through direct attack on friendly helicopters or units.

The second method of prioritization, *engagement priority,* has to do with crew and team actions during the conduct of a firing mission. Engagement priorities refer to immediate action required for self-preservation and mission accomplishment The general rule is to engage the nearest target which can acquire and engage you.

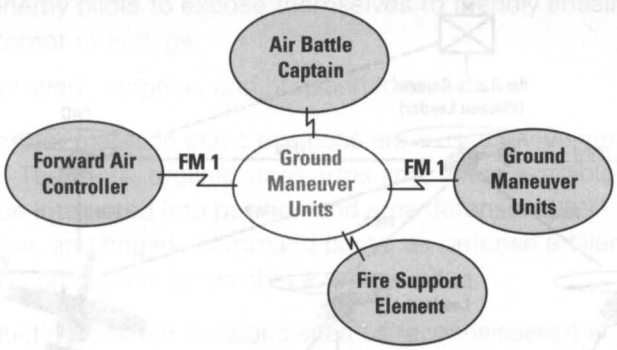
COMMUNICATIONS

The ground maneuver unit commander is responsible for conducting the battle in his operational area. His primary means of communication for controlling aircraft in the air battle is by three radio nets — ground unit command net (FM), joint air attack team (JAAT)/close air support (CAS) command net (FM, UHF, VHF) and attack helicopter team net (UHF, VHF).

GROUND UNIT COMMAND NET

This is the ground commander's primary command and operations net. Stations include major subordinate maneuver units, the attack team leader, the forward air controller (FAC), and fire support elements. This net may operate in a secure mode.

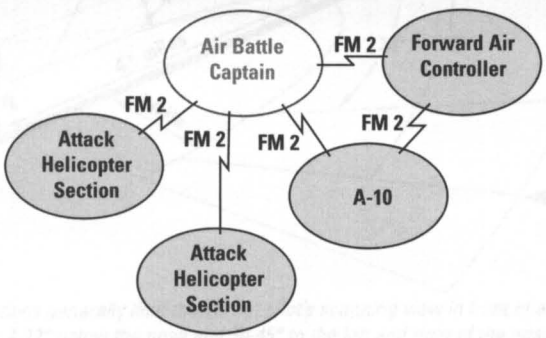
GROUND UNIT COMMAND NET



JAAT/CAS COMMAND NET

The FAC uses the FM net to coordinate close air support requests with the FAC-A. The FAC also uses FM to coordinate fire support requirements when necessary. All elements of the JAAT should be in a common net in the target area. Army VHF is preferred, but any Army frequency band can be used.

JAAT/CAS COMMAND NET



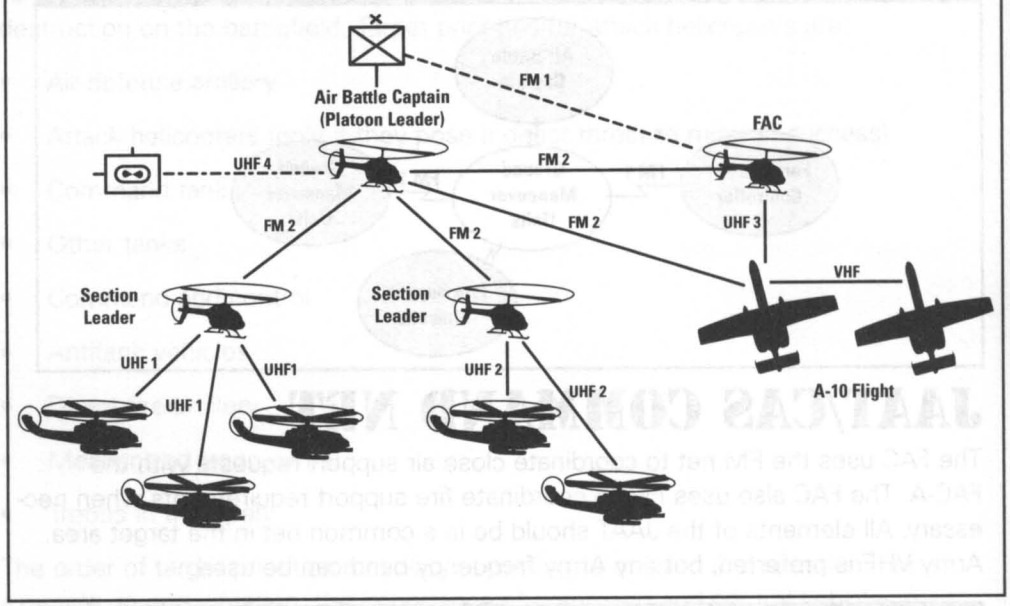
Radios shown are primary. UHF, VHF, and FM radios can be used as necessary for backup communications.

ATTACK HELICOPTER TEAM NET

The UHF portion of this net is the attack helicopter team leader's primary link to the attack helicopter company commander. It is used to keep him informed on the progress of the battle, and on ammunition and fuel status.

The VHF portion of this net is used by the attack helicopter team leader to communicate with observation helicopters, attack helicopters, and the forward-forward air controller (FFAC).

ATTACK HELICOPTER TEAM NET



COUNTERING ENEMY AIRCRAFT

ACTIVE COUNTERMEASURES VS. JETS

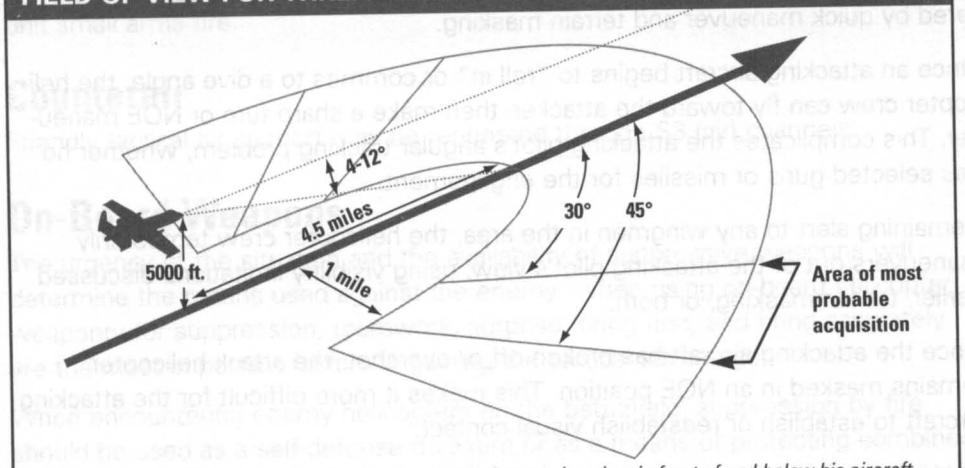
To defeat enemy high performance aircraft, US aviators deny them their advantages and exploit their limitations. To do this, helicopter crews –

- Make enemy pilots fight in the terrain flight environment, not their own.
- Keep moving and use the terrain to prevent enemy pilots from acquiring and engaging.
- Force enemy pilots to expose themselves to friendly antiaircraft fires when they attempt to engage.
- Use teamwork, surprise, and preplanned tactics.

Attack helicopter teams in static positions are extremely vulnerable to hostile tactical aircraft. Therefore, organic small arms and, when available, MANPAD missiles must be integrated into position and area defense. When satelliting near corps, division, and brigade command posts, air defense artillery coverage may provide some protection for combat aviation units.

When conducting isolated missions such as reconnaissance and surveillance, attack helicopter units may have to rely only upon their on-board weapons for suppression of the tactical air threat. This should not, however, be done routinely.

FIELD OF VIEW FOR THREAT HIGH PERFORMANCE AIRCRAFT



Cockpit configurations generally limit the Threat pilot's scanning view in front of and below his aircraft. He might see only 4-12° below the nose and 30-45° to the left and right of the nose.

PASSIVE COUNTERMEASURES VS. JETS

Nap-of-the-Earth Flight

NOE flight techniques exploit design and flight limitations of supersonic tactical aircraft and equipment. The speed, altitude, and cockpit visual limitations of high performance aircraft make it difficult for pilots to see aircraft that are camouflaged or operating NOE. The faster the speed and lower the altitude of tactical aircraft, the smaller their chance of seeing NOE helicopters.

Aircraft operating in open terrain, when paint color contrasts with terrain background, are easily acquired and engaged by high-performance aircraft. Even when paint blends with terrain, the aircraft shadow can be easily detected. Crews must avoid extended flight in open areas, if possible.

Threat tactical aircraft radar and infrared systems are, for the most part, designed for high-altitude, long-range target acquisition and interdiction. They have difficulty acquiring and locking on to helicopters flying NOE amid ground clutter. The maximum firing range for Threat radar-guided missiles varies considerably, depending on the system.

A key passive defense against enemy aircraft is early warning by the scout. If not detected early, enemy aircraft will gain the advantage.

Evasive Maneuvers Before Engagement

Once seen by hostile aircraft, the helicopter crew uses teamwork and NOE flight techniques to avoid engagement parameters.

The speed and maneuver limitations of high-performance aircraft can be countered by quick maneuver and terrain masking.

Once an attacking aircraft begins to "roll in" or commits to a dive angle, the helicopter crew can fly toward the attacker, then make a sharp turn or NOE maneuver. This complicates the attacking pilot's angular tracking problem, whether he has selected guns or missiles for the engagement.

Remaining alert to any wingmen in the area, the helicopter crew temporarily maneuvers out of the attacking pilot's view, using visibility limitations discussed earlier, terrain masking, or both.

Once the attacking aircraft has broken off or overshot, the attack helicopter remains masked in an NOE position. This makes it more difficult for the attacking aircraft to establish or reestablish visual contact.

Evasive Maneuvers During Engagement by Missiles

Once engaged by an air-to-air missile, survival will depend on the evasive maneuvers and actions taken during the next few critical seconds. The first thing to do is get to NOE terrain flight levels as quickly as possible, if not already NOE. Terrain or obstacle masking or a sharp turning maneuver (90° or more to missile flight) may cause the missile to break lock.

ACTIVE COUNTERMEASURES VS. HELICOPTERS

Due to the mobility and maneuverability of helicopters, and their ability to operate under the air defense artillery (ADA) envelope, suppression by artillery or ADA may not be practical or feasible. However, both artillery and ADA can be effective against helicopters if surprise is achieved.

Artillery

Threat helicopters lying in ambush in static NOE firing positions are vulnerable to first-round fire-for-effect suppression on planned targets using VT fuze action, or dual purpose improved conventional munitions (DPICM).

Air Defense

Enemy helicopters attacking US helicopters may be lured into friendly air defense fire envelopes. Locations and engagement sectors of friendly air defense artillery and MANPAD teams can be determined through coordination with the supported combined arms maneuver unit S3 or G3. This should be part of premission planning.

Enemy helicopters may also be lured into position for suppression by maneuver unit small arms fire.

Counterair

Friendly tactical air support may be requested through S3 (air) channels.

On-Board Weapons

The urgency of the situation and the availability of suppressive weapons will determine the means used against the enemy. When using on-board helicopter weaponry for suppression, teamwork, surprise, firing first, and firing accurately are the most important factors in gaining the tactical advantage.

When encountering enemy helicopters on the battlefield, suppression by fire should be used as a self-defense measure or as a means of protecting combined arms assets. It is not currently compatible with the missions of attack helicopter units for them to attack enemy helicopters for the sake of attack alone.

PASSIVE COUNTERMEASURES VS. HELICOPTERS

Fight as part of the combined arms team to destroy the enemy. Avoid one-on-one battles if possible. At times, attack will be the best defense. If the need arises, attack and destroy the enemy before he can maneuver.

Passive countermeasures against enemy helicopters are much the same as those employed against maneuver units.

Terrain Flight Techniques

Avoid detection and gain surprise. Stand-off helicopter firing techniques may not work against enemy attack helicopters, as they may have superior range. NOE flight techniques — overwatch, masking, and pop-up — help prevent detection. Crews can gain position for suppression by —

- Seeing the enemy first.
- Maneuvering on his "blind" side (flanks and rear).
- Firing first, with all available means.
- Firing accurately.

Teamwork

Observe, fire, and maneuver against enemy helicopters as a team. Countering enemy helicopters is everyone's responsibility. While attack helicopters are firing at ground targets, scouts must provide early warning of approaching enemy helicopters.

Deception

Using overwatch and decoy techniques, crews may be able to lure enemy helicopters into ambush by deceiving them as to our true intentions. Air-to-air "dog fights" should be avoided.

Enemy attack helicopters can penetrate to US attack helicopter battle positions. The scout, performing his all important security mission, must acquire enemy helicopters early and warn the force. The size of the enemy force will influence what tactics and techniques to use, from evasive maneuver to all-out attack.

SUPPRESSION OF ENEMY AIR DEFENSES

GENERAL

Modern air defense systems, deployed in mass and mix, require aviation elements to apply a set of concepts and procedures for effective suppression. Within the context of AirLand Battle doctrine, joint suppression of enemy air defense (J-SEAD) integrates the capabilities of Army and USAF systems and tactics.

Whether fighting the air-land battle with Army assets only or fighting jointly with USAF elements, attack helicopter units perform suppression as set forth here and in TRADOC TT 100-44-1. In all cases, suppression is not an end unto itself. It is a means to enable air elements to conduct their tactical missions.

Suppression of enemy air defense (SEAD) is any activity that neutralizes, destroys, or temporarily degrades enemy air defense systems in a specific area to enable air operations to be conducted successfully.

J-SEAD is that portion of SEAD which requires joint interaction to suppress enemy surface-to-air defense systems influencing the tactical air-land battle area.

DEFINITIONS

Army participants in J-SEAD planning and execution must be mindful of the special meanings of three terms related to target effects.

Suppression

Suppression limits the ability of enemy personnel and equipment to acquire and engage. In this sense, the effects of suppressive fires are temporary, lasting as long as suppressive fires continue or for a short time after they are lifted or shifted.

Neutralization

Neutralization removes a target or a unit from the battle temporarily. It may mean that a target's mobility or firepower is gone, but that it may be repairable. A maneuver unit is considered neutralized if more than 10 percent of its personnel or equipment is destroyed.

Destruction

Destruction of a target is permanent or not repairable. A unit is considered destroyed if casualties or material damage is more than 30% in a short time period.

RULES OF ENGAGEMENT

Rules of engagement are organized in relation to battlefield boundaries, primarily the FLOT and the FSCL. Elements may attack without additional coordination only if four criteria are met. It should be remembered that the right of self-defense prevails. The criteria for engaging targets of opportunity are:

- Target acquisition is confirmed visually or by sensors.
- Ordnance and its effects are confined to the immediate vicinity of the target.
- The target is not in a no-fire area.
- There are no current prohibitions in the air tasking order (ATO) or instructions issued by air or ground commanders or any controlling agency.

Beyond the FSCL, elements may conduct suppression attacks unless they are specifically prohibited in the ATO or by the controlling agency.

EXECUTION RESPONSIBILITIES

The Army has primary execution responsibility for J-SEAD from the FLOT to the limits of observed fire. In this area, the USAF has secondary responsibility.

The USAF has primary responsibility for J-SEAD execution from the limits of observed fire to the limits of Army unobserved indirect fires (cannons and rockets). In this area, the Army has secondary responsibility.

Beyond the limits of Army unobserved indirect fire, the USAF has primary responsibility. But Army surface-to-surface systems may be used to complement USAF suppression in these deep areas.

MEANS OF SUPPRESSION

If the air defense threat's objective is to prevent our air power from attacking ground forces, successful J-SEAD has a high payoff. Working together, Army and USAF elements each complement the limitations of the other. Their joint effect becomes greater than the total effects of each operating independently. The various Army and USAF means of suppression are employed selectively. The selection of specific means is based on —

- Capabilities of available suppression systems.
- Complexity of the suppression requirement.
- Mission objectives.

Selective employment avoids overkill and preserves unity of effort. The joint suppression effort may involve destructive means, disruptive means, or both.

Destructive Means

These weapons are used to destroy, neutralize, or suppress air defense systems, including equipment and personnel. The effects of destructive means may accumulate over time, until destroyed targets are replaced or neutralized units are reconstituted.

Suppression with destructive means may only be temporary, until suppressive fires are lifted or shifted. But reliance on destructive means alone places large demands on firepower. To preserve firepower for the main objective, destructive one-time weapons must be integrated with reusable resources, the disruptive means of J-SEAD.

Disruptive Means

The effects of these assets are temporary. Applied against Threat air defense equipment and personnel, they may be used to —

- Degrade.
- Delay.
- Deceive.
- Neutralize.

Within the array of disruptive means, systems and measure may be passive or active.

Passive Disruptive Means — include countermeasures that can degrade, delay, or disrupt through deception the enemy's ability to acquire, track, or fire. These means include —

- Camouflage.
- Radar Warning receivers.
- Infrared shielding.
- Material design features.

Active Disruptive Means — include equipment and procedures related to —

- Jamming.
- Flares.
- Chaff.
- Planned deception and avoidance.

Whatever combination is feasible and effective, destructive and disruptive means complement each other. Both must be planned for and used during training and operations to conduct an effective J-SEAD program. In concert, active and passive means are used to —

- Degrade jammable threats.
- Temporarily degrade, suppress, or neutralize targets when destruction is not feasible or possible.
- Temporarily degrade or neutralize targets to make destruction feasible.
- Sustain the effects of destructive neutralization by slowing enemy attempts to restore effective air defense.

WHAT THE ATTACK HELICOPTER PLATOON DOES

GENERAL

Platoon, section, and attack element leaders perform specific responsibilities before, during, and after the mission. This appendix outlines the responsibilities performed by each leader.

BEFORE THE MISSION

Platoon Leader Responsibilities

Provide detailed planning guidance to the scouts and to attack helicopter crews. This guidance includes —

- Mission.
- Current radio frequencies and call signs for air traffic control (ATC), air and ground units, forward air controller (FAC) and artillery, transponder codes, and anti-jamming procedures.
- Current enemy and friendly situation.
- Inadvertent instrument meteorological conditions (IIMC) procedures.
- Evasive maneuvers to be used if attacked by enemy air or ground forces.
- Fuel requirements.
- Ammunition requirements.
- Illumination support.
- Escape and evasion routes.
- Mission rally points.
- Forward arming and refueling points (FARP).
- Chain of command for attack platoon.
- Plan security for attack helicopters.
- Plan routes to holding areas and attack positions.
- Conduct limited reconnaissance and security ops.
- Locate and secure attack helicopter holding areas.
- Identify target engagement areas and priority.
- Conduct liaison with ground units.
- Coordinate indirect fire and close air support.
- As required, assume the role and responsibilities of the air battle captain (ABC).

Section Leader Responsibilities

- Receive mission briefing from platoon leader.
- Conduct detailed map reconnaissance.
- Prepare aircraft for mission.
- Perform other tasks as directed by the platoon leader.

Attack Element Leader Responsibilities

- Receive mission briefing.
- Conduct detailed map reconnaissance.
- Select armament required for mission.
- Prepare aircraft for mission.

DURING THE MISSION

Platoon Leader Responsibilities

- Provide security for attack helicopters.
- Coordinate indirect fire missions and USAF CAS.
- Conduct limited reconnaissance and security ops.
- Locate holding areas for attack helicopters.
- Establish target engagement areas. Locate primary and supplemental attack helicopter battle positions.
- Continue liaison with ground units.
- Establish and maintain enemy contact.
- Provide fire control for attack helicopters.
- Keep commanders informed of current situation.
- Brief incoming platoon leader.
- Maintain contact with all aircraft at all times.
- Conduct deception operations to divert Threat radar.
- Initiate downed helicopter procedures.
- Function as a communications relay.
- Be prepared to assume the mission of other scouts.
- As required, assume role and responsibilities of ABC.

Section Leader Responsibilities

- Provide security.
- Conduct reconnaissance.
- Establish and maintain enemy contact.
- Maneuver attack elements into battle positions.
- Acquire and designate targets.
- Designate firing sectors.
- Determine range to targets.
- Hand over targets to attack helicopters.
- Distribute attack helicopter fires.
- Conduct deception operations to divert Threat radar.
- Reconnoiter routes to and from holding areas.
- Select tentative attack helicopter firing positions.
- Assume any or all of platoon leader functions on order.

Attack Element Leader Responsibilities

- Move element to the holding area.
- Coordinate with scout.
- Move element to battle positions.
- Receive target handover.
- Select firing positions and alternates.
- Acquire targets.
- Engage targets.
- Distribute fires.
- Prioritize targets.
- Move element to and from alternate firing positions.

AFTER THE MISSION

Platoon Leader Responsibilities

- Maneuver platoon into FARP.
- Direct refueling and rearming.
- Reconstitute platoon to replace losses.
- Conduct detailed debriefings.
- Provide detailed intelligence as required.
- Prepare for next mission.

Section Leader Responsibilities

- Provide security for platoon enroute.
- As directed, assist platoon leader to —
  - Provide security for FARP.
  - Refuel.
  - Debrief.
  - Conduct mission planning.

Attack Element Leader Responsibilities

- Rearm and refuel.
- Debrief.
- Conduct mission planning.

GENERAL MISSION INFORMATION

GENERAL MISSION INFORMATION

MISSION TYPES

One of the biggest differences between *AH-64D Longbow* and *Longbow 2* is the choice of missions you have. Instead of flying pre-planned missions with a singular objective, you can now select between four different flights in each mission.

In the grand scheme of things, each mission has one overall objective — such as supporting a friendly advance. However, each flight has its own primary and secondary objectives, although sometimes two flights may share the same goals and primary targets. These specific objectives, when accomplished by their respective flights, help accomplish the overall objective of the mission.

When selecting and flying missions of different types, you should keep several things in mind.

- **Keep your lines even.** Units in adjacent sectors are able to support each other. If you concentrate all of your fire support on making advances in a single sector of the map, your forces elsewhere will lag behind. As a general rule, you want to coordinate your advances so that your ground forces don't become too vulnerable to flank attacks by the enemy.

- **Know where you want to go.** In campaign missions, support friendly offensives whenever you can. The continuing objective of both the NTC and Iranian campaigns is to push back the enemy on all fronts and gain a certain territorial advantage, so you want to move forward whenever the opportunity arises. Since campaign missions are generated on the fly, we can't tell you exactly when or where advance missions will occur. But if you see a blue arrow on your Mission Planner map, it is often in your best interest to choose that mission.

- **Keep tabs on your resources.** You're only allowed so many helicopters and so much ordnance — what you start with has to last until the next supply convoy can make its way to your front-line FARPs. When you start running low on helos and/or weapons, take a more conservative approach to your missions.

  The ATO orders in the Mission Planner Briefing window let you know when the next supply convoy is scheduled. Each day is roughly equivalent to a mission — if it says two days, you'll fly two more missions before supplies arrive.

- **Meet Your Objectives.** A mission is a delicate thing, and if any one flight doesn't accomplish its specific objectives, the operation can fail entirely. Read your ATOs carefully. If you're assigned to escort something, make sure you stay with it until it reaches its final destination. If you're inserting troops, make sure you stick around for extraction, if that's part of the objective. Other flights are counting on you.

  This one's important — make sure you receive *your* "Mission Accomplished" message before you head for home plate (base). There are almost always three other flights out there with their own objectives. Don't get their completion messages confused with yours.

- **Listen.** Radio speech is one of your most valuable tools. While it's often difficult to figure out who's who, it's worth the time to figure out which flights have which callsigns. Pay attention to what's going on around you. If you've already completed your portion of the mission and have leftover ordnance, help out another flight that's in trouble. Don't wander off to the north and blow up bunkers with your extra ordnance — you may need it for the next mission.

- **Stay Low!** This is a consideration for any mission. If you fly above 200 feet of altitude for longer than a couple of seconds in the presence of enemy forces, an air strike (a single MiG-29 or Su-25) will show up several minutes later. This applies to all mission types.

- **Take Briefing Notes.** Know what you're supposed to do, when and where. The game briefings can be complicated, especially if you're trying to keep up with all of the other flights. At the least, make sure you memorize everyone's callsigns.

- **Use ABCCC to your advantage.** This system, described on p. 150 at the end of this section, is a tool you need to rely on. It allows you to target threats you haven't yet detected.

The following sections are brief synopses of different mission types you'll fly in the game. See **Attack Helicopter Operations**, p. 72, for additional information on flight tactics.

Note: *Longbow in the following sections can refer to both the radar-equipped and non-radar-equipped models.*

FLIGHT INTERACTION

The notes below are from designer Michael Francis. Throughout this chapter, his comments will appear in italics.

An important part of the dynamic campaign is that within each campaign mission, there are four separate flights. For instance, some missions require a team of Longbows to go in and clear the way for the insertion of a long-range surveillance unit. They interact with a flight of Kiowa Warriors, which will go in and look at an area and actually put eyeballs on a target.

A lot of commanders and pilots inherently like to see things. Their radar will tell them that something is out there, and they semi-trust that, but radar and machinery are faulty. They like the Kiowa Warrior because it can actually put an eyeball on something and tell them that's a real, moving tank, and not a decoy tank placed somewhere to fool our radars. That's indicative of the current fog of war.

A lot of the joint flights in the game missions are interdependent. There will be a Kiowa Warrior that goes through and says, "Okay, I see this thing here." Then, the Longbows will come up behind it with enough punch to take it out. A Kiowa Warrior is able to get into an area and detect what targets it needs to see, and give the Longbows a recommended avenue of approach.

COMBAT AIR PATROL (CAP)

Kiowa, Longbow

Combat Air Patrol (CAP) missions typically don't have specific primary targets. You're simply assigned to fly a certain route — usually in friendly or neutral territory — and keep your eyes peeled for unusual movements or enemy units. If you uncover a group of SAMs or a wayward unit of tanks, you can call in an air strike or two.

Kiowas can carry a sizable load of ATA Stingers, so they're not a bad choice for CAPs. In comparison, Longbows boast a greater range of ordnance and can probably pull off a higher mission score. The main thing to keep in mind, however, is that you should reserve your Longbows for those missions that call for heavy firepower.

This is a protection-based mission. Basically, when you fly a combat air patrol, you're supporting a ground attack. Chances are the enemy is preparing to attack your unit. So you go to that unit's position and stand by, watching for trouble. Range forward a few kilometers and see if you can detect any enemy movement.

The best thing to take on this mission type is a Longbow without radar. It's highly versatile and can carry a varied ordnance load. The weapons you take depends on the mission, but I usually carry eight Hellfires and take along MPSM rockets — the rockets can do a spread attack, and you can knock off light armor and infantry with them. A couple of Stingers never hurts, either.

COMBAT AIR SUPPORT (CAS)

Longbow

Combat Air Support (CAS) missions are similar in nature to Escort missions, except that you're supporting ground forces instead of another aircraft. Your objective is to fly lead for advancing friendly forces, usually in the form of columns. Your threat priorities are T-72M and T-80U tanks.

The Longbow is the obvious choice for CAS missions, given its firepower potential. You'll probably want to carry as many radar Hellfires as your stores allow. These can be fired in Lock-On-After-Launch (LOAL) mode, which allows you to attack multiple targets without having to maintain a lock on a single target from missile launch to missile impact.

When flying CAS, your goal is not to fly directly above your assigned friendlies. Instead, fly 4km to 8km ahead of them along their pre-planned route (usually along a road) and take out any threats that await in ambush positions.

One tactic especially useful in CAS missions is a draw maneuver that can help distract fire away from your friendlies. When you've spotted enemy threats from a masked position (preferably away from the units you're escorting), try this. Bob up momentarily, let them gain a lock and loose a missile, then descend to safety. If you can pull this off, you'll waste their missiles and draw the attention away from friendly positions.

A CAS flight usually works in conjunction with a SEAD flight. While your primary goal is to take out tanks, the SEAD flight concentrates on SAMs and AAA. But, if your units fall under attack, your priority is *always* to protect ground units against the most immediate threats.

Combat air support occurs when your units are attacking and on the offensive. My suggestion to anyone flying this type of mission would be to use the Longbows with radar — although sparingly, because you'll need them for nearly all of your combat support missions. For the other mission types, you should just gut it out with your Kiowas and your Longbows without radar. Use the Longbow only to influence the battle.

A Longbow is a high priority asset, and when you're flying the campaign with limited resources, you get so few of them — they're very expensive. When you assign a Longbow to a flight, you are influencing the battle through a major strike effort. Most of what you're there to do is to ensure that your side wins that battle.

CAS DEFENSIVE

Longbow, Kiowa

Defensive Combat Air Support (CAS) missions operate almost identically to CAS missions. However, in this case, your friendly units have adopted a defensive stance instead of an aggressive advance. They're relying on you to protect their front, rear and both flanks.

You'll still want to stay anywhere from 4km to 8km out from the perimeter of the established territory. However, you'll have to constantly scan in all directions to ensure that you ID and either hand off or destroy any approaching threats — especially enemy helicopters.

Again, radar Hellfires are your saviors. Keep them armed, and don't forget to keep cycling back and forth between your air and ground FCR modes to catch whatever might be coming your way. Also, remember to use the bob-up technique — it can be very effective in CAS Defensives as well.

A combat air support defensive mission is the same type of mission as CAS, but it's more defensive. That doesn't refer to the ground forces — they're still pushing forward — it just refers to the disposition of the helicopter. The helicopter is in a defensive posture instead of an offensive one.

For instance, a helicopter on CAS defensive won't go out and actively look for an enemy — but if one comes within range, it will shoot at it. Most of the AI pilots fly CAS defensives. If you're flying one, you'll tend to fly a normal CAS.

ESCORT

Longbow

An escort mission is one of the most critical roles you can play in *Longbow 2*. Although not quite as exciting as a CAS or CAP mission, escorting can pose its own challenges. You must constantly scan in all directions for approaching threats of any kind, flying a couple of kilometers ahead of whatever you're escorting.

Make sure that the helicopter you're escorting lags behind you a bit. This can sometimes be difficult if you're delayed at all on your trip to the link up point (the waypoint where you're to meet whatever you're escorting). If you're late, you'll arrive there at the same time as the Black Hawk (or other escorted aircraft). It will fall in right behind you, making it difficult to fly far enough ahead of it.

To alleviate this problem, go into the Mission Planner screen before you take off and adjust the wait time for the aircraft you're escorting. (Do this by right-clicking on the linkup waypoint, then selecting "+" to increase the loitering time by about 5 minutes.) This will keep the aircraft there while you forge ahead by 4km or so.

Once you've linked up, you should constantly track the aircraft you're escorting. To do so, use the Longbow's Head-Down Display in the front-seat (CP/G) cockpit. Switch to air radar mode, then target whatever you're escorting. Back in the main cockpit view ([F1]), you can then see the range-to-target, listed on the upper left corner of the High-Action Display. (That's the rectangular box that appears at the bottom of the bright green IHADSS display.)

As an escort, you aren't obligated to take out any threat that isn't specifically attacking your target. You should have accompanying CAS and SEAD flights that will handle any SAMs and AAAs in your path. You'll also usually have access to at least one air strike. If you can call in two or more, it's often best to use your first air strike early during a mission. That way, if you expend one, the second one will be active and ready by the time you need it later in the mission.

If you're escorting an aircraft back to a point behind friendly lines, you the mission is a success as soon as the escorted party crosses into friendly territory. However, you should lead it to the LZ and wait for it to land before you land. This will ensure that you get full credit for the mission.

Remember, the object of an escort mission is not to destroy everything in your path. Take the Longbow, but be cautious with your ordnance.

For escort missions, I would recommend a Longbow without radar. The Longbow without radar's job is to basically clear out the area before the Black Hawk arrives, all without raising too much ruckus. You don't want to just go in and blow things up, because then you'll attract attention.

When flying escort, you should keep whatever you're escorting within sensor range so that you can monitor what's going on. The unit will report that there's trouble if anything happens along the way, but still, I wouldn't get too far away from them. Keeping them safe and arriving alive is your mission objective.

INSERTION/EXTRACTION

Black Hawk

This is the least complicated mission type, but perhaps the most dangerous. Usually, it involves landing in enemy territory to drop off or pick up troops, or both. Dropping off troops into a battle area is referred to as "insertion," and airlifting them out of the area is called an "extraction."

As a Black Hawk pilot, you'll need to pay *close* attention to your ATO. Make sure you know whether the mission is an insertion, extraction or both. In all three cases, you'll have an escort that you meet at one of your waypoints, and usually a SEAD or CAS flight that flies ahead of you. Follow your escorts' paths as closely as possible to avoid trouble.

One general note — if you're flying night missions in a Black Hawk, you'll need to resort to visual means of identifying friendly and enemy units. You're essentially flying blind, since this aircraft isn't equipped with radar. The best tactic is to carefully watch where tracers originate. Red tracers indicate friendly units, while green ones indicate enemy units.

Insertion. With an insertion, all you need to do is follow your escorts to the preselected dropoff point and listen for your wingman's radio message that says you're approaching the LZ. Land, wait until you receive a radio message saying that the troops have been dropped off, then take off. At this point, the escort's job is finished, and he may not stick around to see you back to base.

Run for home as quickly as your rotor blades will carry you. The best route out of the area is more often than not the same route through which you arrived.

Extraction. Now, you're picking up troops from a battle area rather than dropping them off. Again, listen for the *Approaching LZ* radio message — this will usually include the name of the unit you're to pick up. Land, then wait.

To occupy yourself until they clamber aboard, test out your F6 view (it only works in daytime missions). While an entertaining part of the game, the Object view can also help you monitor an extraction mission by allowing you to watch your soldiers from an exterior viewpoint.

You can also use your doorguns while you're waiting. If you're flying a daytime mission and you hear gunfire or detect enemy soldiers in the F6 view, use your guns to cover the movement of soldiers on the ground. Friendly soldiers are your primaries in every insertion/extraction mission, and if they die, you fail.

Once everyone's on the aircraft and you've received takeoff clearance, lift off and head for home. You'll have escorts along the way, so hang back at least 4km or so and let them discover what lies ahead. With any luck, you won't have to fire a shot.

Insertion/Extraction. The same rules apply here, except the you both deliver and pick up the ground soldiers. Land, then wait for them to accomplish their mission. Cover them with you doorguns on an as-needed basis. Once they've boarded, take off and head home.

This type of mission might seem really boring and not important, but if you don't pull out your soldiers, you lose them and can't deploy them again. You'll lose 72 hours or so of intelligence that you should have received, but missed because you didn't complete that mission.

When you get within a certain distance from the landing zone, look over at the LZ. Usually, there will be a lot of threats in that area. Wait for the Longbow without radar to go in and clear out the landing zone so that you can do your insertion or extraction and get out of there. That way, you don't risk any more than you have to in order to get the job done.

STRIKE

Longbow

The flaming arrow of any well-designed offensive mission is a quick strike into an area heavily populated with enemy units, or against a tactical structure. This can disrupt the organization of enemy troops, as well as communications between enemy units.

Strikes are fairly cut-and-dry. You can apply all the tactics you've learned from other mission types here. Most strike units are designed with one specific tactical target in mind — a weapons munitions factory or power plant, for instance. The idea is to get in as sneakily as possible, strike full force with heavy ordnance, and get out as quickly as possible.

Air strikes can figure heavily into strike missions and help you get the job done. Once you ID and target a site for destruction, try calling in a team of A-10s or F-16Cs.

Most of the strike missions you receive will be based on what is strategically important to the commander. Something will pop up on the battlefield and immediately become the most important target — something that can deliver nukes and Scuds will be strict priority.

Front-line forces are not a priority. You can see them, and you've got forces that can deal with them. For helicopters, priority strike targets are reserve forces, artillery and things that are beyond the reach of the forces up front, but within striking range of a helicopter. That is the purpose of strike missions.

SUPPRESSION OF ENEMY AIR DEFENSES (SEAD)

Longbow

SEAD flights are high-stress, no doubt about it. You are solely responsible for taking out SAMs and AAA, the most dangerous threats in a mission. Frequently, an escort or CAS flight will already be well on its way to your current position. This means you won't have much time to clear the flight path before they arrive — speed is of utmost importance. If you're scheduled to converge with other flights at a certain waypoint, make a beeline for it at top speed and accomplish what you can before they arrive.

You should rely heavily on your UPFRONT display and switch into target ID mode (press [U]) — this lets you know exactly what you're targeting. Target the most imminent threats first, such as ZSU-23-4s and SAM sites with large threat radii. Utilize your Hellfires against them, then use your mounted M230 cannon to take out smaller SAMs, M109 AAA, and Rapiers and Blindfire radars you might have missed in your first pass.

An interesting note here is that using guns raises your weapons efficiency rating much more quickly than using guided weapons.

Finally, if you receive your *Mission Accomplished* message, seek out any Escort or CAS flights that haven't yet accomplished their missions. You may still want to exercise weapons conservation, but your gun can do a lot to assist them in a pinch.

What type of helicopter you use is mostly an opinion thing. I prefer to fly a Longbow without radar because it can do the job and get where it needs to go without the radar emitting a bunch of radio waves that identify its position.

A SEAD mission means that enemy gunships and forces are in the area. Almost all missions require some type of suppression defense. In a Black Hawk insertion, one flight will usually escort, another will transport the troops, and another will be a dedicated SEAD team and make sure that the area along the way and at the LZ is clear of dangerous AAA and SAMs. Your job in a SEAD mission is to make sure they all go down so that when the mission takes place, it will succeed.

RECONNAISSANCE

Kiowa, Longbow

Flying a recon mission is much like throwing pebbles at a hornet's nest — you're taunting danger, and you never know whether or not you're going to face a swarm shortly. The purpose of reconnaissance is to gather intelligence on enemy positions and pass this information on to ground units and other flights.

When flying recon, stay low and maximize your MMS range to pick up as many targets as you can. Expose your position only if you need to, and don't stay unmasked for long. The terrain is your best weapon, so use it to your advantage.

Both the Kiowa and Longbow have advanced targeting capabilities that allow target handoffs to other aircraft. However, you don't have to expend much ordnance during recon, so you probably don't want to risk losing a Longbow. Take a Kiowa if you can. It can handle surprise air targets, and you can call in air and/or artillery strikes to do a number on anything you stumble across.

The Longbow without radar is very good in reconnaissance and deep strike roles — use either that or a Kiowa for your recon missions. You'll need to be patient and take your time, but they're the platform to get the job done. The Kiowa Warrior has the ability to look around without exposing itself and can set up the strike. The Longbow can then take advantage of the strike. The Kiowa Warrior can see all the targets in a given valley and then tell the Longbow without radar to hit those targets. You can pass the targets back and forth. The Kiowa Warrior can see four to seven kilometers, depending on visibility, and the Longbow can see about 8 kilometers.

Some people will ask why we don't use the Comanche to fulfill this role. The Comanche does a lot of things, but still suffers from some of the problems of other helicopters. The detection optics are in the nose of the helicopter, so you still have to expose the helicopter. It doesn't need stealth technology as much as the ability to slowly get to the next hill and see what's over the top of it. And right now, the Kiowa Warrior does an excellent job of that. Even the Longbow, with all that it can do, still has to pop up to expose the optics in the nose, so the whole helicopter has to be up. Once you open the gates to fire at something, you've lost all stealth ability, and the enemy's radar is bouncing off of you. If you shoot at anything there, someone is going to see you.

USING ABCCC TARGETING

It's nearly impossible for one helicopter to find, store and track all targets in an area at once. For that reason, you should make full use of the Airborne Battle Command and Control Center (ABCCC). The ABCCC, usually based on a C-130 or other airborne platform, collects targets from individual units. This information is collectively placed on the battle map, and any combination of that information can be passed back down to individual units that call for it.

ABCCC is both an indispensable and realistic tool. If you utilize it, you can save a lot of time and effort, especially during a strike, insertion/extraction or CAS mission. As you move within 5 kilometers of an area, you can call for ABCCC targets (press Ctrl ~). They will be downloaded into the Tactical Situation Display in your Kiowa or Longbow, and you can then target those threats — all without ever having seen them.

What is ABCCC?

ABCCC (Airborne Battle Command and Control Center) is a clearing-house for information. In a close battle, things get confusing really fast. You have issues of fratricide (friendly fire casualties). With the advent of global positioning and data linking and things of that nature, ABCCC is like a coach. If you've ever watched football and seen the guys up in the glass booth making the plays and relaying them down to the field, that's similar to how the ABCCC operates.

What happens is that the Kiowa uplinks the data to the ABCCC. Inside the Kiowa, there's GPS equipment that says "I'm here." And if the Kiowa is there, and its target is at a range of 400 meters at 270, then it's at a certain place on the map. The ABCCC can instantly generate an icon on the TSD for whatever that threat is. Pilots like this type of information better because they know that another pilot is actually seeing the threat. If a tank icon is there, the tank is there in reality.

Through gathering information from different sources, they know that these threats over here are performing certain actions. ABCCC constantly reports down to units via datalink or voice during a close-in battle to let them know what's in their neighborhood. If you're looking at a battle zone hundreds of miles long, ABCCC might have 50 kilometers of that, and it's their job to watch over it. If you see something and report it up to ABCCC, then they'll roger it and mark it, and report down to all units that might need to know that information.

USING THE MISSION PLANNER

In some ways, *Longbow 2* is almost two sims in one. The first game is, of course, the flight sim where you make the helicopter go places and blow things up. The second game is the Mission Planner, a tactical simulation where you decide where to go and what to blow up.

This chapter is devoted to some of the finer points of Mission Planning.

THE DEFAULT IS ALWAYS THERE FOR YOU

While effective mission planning can escalate the game to a whole new level, poor planning can kill even the sharpest squadrons in no time flat. If you're a pilot, not a tactician, and you know it, don't hesitate to fly your missions according to the default plan already in the game.

The default is always very by-the-book and SOP, with no room for brilliant moves or master strokes. However, it's also a solid, workable plan that covers all the bases without becoming overly complex. You could definitely do a whole lot worse. In fact, it's entirely possible to fly a brilliantly successful campaign without ever once deviating from the default mission plans.

And even if you are a tactical genius — the Napoleon of Azerbakota — you'll still probably have a reason to use the default button eventually (even often) even if you never actually fly a default mission. This is because the Mission Planner might not be *quite* as smart as you are. There are certain conditions that have to be met before the Mission Planner will even let you exit, much less fly. (Exact conditions can vary from mission to mission.) If you're working on some grand master plan, and the planner refuses to let you fly it, and you can't figure out where you went wrong, then the default button is your fail-safe. It'll take you back to square one, and you can start over on assembling your masterpiece.

BRIEFINGS: HEAR THEIR TEETH RATTLE

We know, you bought this sim because you want to fly. If you wanted to read about combat, you'd buy a Tom Clancy novel. On the other hand, if you're willing to read this book to enhance your performance, you should definitely be reading those text mission briefings at the start of every mission. Just click on the **BRIEFING** function button to find out everything you really need to know to complete your mission (or anyway, everything your side's intelligence knows).

The briefing isn't just textual window dressing — it offers real, mission-essential information. The most important part of this is your actual mission objective. In many games it is sufficient to assume that, while you may have a specific mission objective, if you go to every location on your route and kill or destroy every enemy object you encounter, you'll probably end up accomplishing your mission somewhere along the way. This is not true in *Longbow 2* (and in fact is often not even possible most of the time, due to the realities of limited weapons resources). In fact, there are scouting missions where avoiding combat is a major priority, and actually getting in a fight can lose you the mission. Some other missions have time limits, and if you take too long to succeed, you fail. If you want to win the mission, you'll have to know your objective and focus on it.

Flights (Tasking)

The first and most important choice you have to make from the briefing is choosing (in the **TASKING** window) which of the four flights you personally will lead, and which of the various assigned tasks available to you you'll take on personally. In *Longbow 2*, you have the freedom to completely blow off assigned tasks, if you think the resources to carry out that assignment are needed more elsewhere. Of course, the more assigned tasks you complete, the more successful you'll be in the long run, but in the short run it can be preferable to fail a mission by not attempting it, than to fail a mission and lose two helicopters and four pilots because you didn't allocate sufficient force. All tasks are important, and there's no convenient rule of thumb to tell you which can be best ignored. This is an option available to you, and a decision you have to make personally. That's the burden of command.

To truly understand what you're supposed to be doing in any given mission type, you'll probably want to check out **Mission Types**, p. 140. It gives details and designer notes on all types of missions you'll take on during the game.

Weather

An important and easily-overlooked component of the briefing is the weather report. Weather is real in *Longbow 2*, and can have a serious impact on your visibility, targeting and flight performance. So can the fact of whether the mission takes place during the day or at night.

Threat Report

Of course, the usefulness of the threat report section of the briefing should be obvious. You can get a lot of information about the enemy from the map (if you're good at reading the map), but a thoughtful comparison of both the text threat reports and the map is the best way to get a real complete understanding of the tactical situation.

The best way to beef up your threat reports is to personally take on all the reconnaissance missions you run across. Almost unequivocally, you'll do a better job than the AI pilots. And whatever you discover in one mission will help tell you what you'll be up against next in the campaign.

UPS AND DOWNS OF THE PROFILER

The profiler is a rather odd utility that's easy to overlook. While it may be nice to know whether you'll be flying over rough or flat terrain, it hardly seems like essential info when the important thing is just to get from *here* to *there*. If used with some imagination, however, the Profiler can become much more useful.

It's an easy tool to use. Select the **PROFILER** option, then left-click and drag between any two points on the map. A straight line will appear between those points, and an inset window will open showing you the vertical terrain contour along your line.

The most significant example of profiler utility comes to mind when you recall that the Longbow (and, to a somewhat lesser extent, the Kiowa) is designed for maximum lethality in situations where it can pop up over a ridge line and take the enemy in ambush. One thing about ambushes, they seldom just happen — they have to be planned.

This is where the profiler comes in. It's the best tool you have for finding the ridge lines you need to plan a really devastating ambush. If you want to engage a stationary enemy, a good place to start is the contour map on the pull-out poster. Once you have a general idea of the terrain, trace several approach routes with the profiler, and find the one that gives you the best pop-up potential. Not only does this give you the best offensive edge, but if your target is a SAM site, the advantages of approaching under cover should be obvious.

If the enemy is on the move, try to trace out his most probable route, and look for the points where he's crossing high ground. Those are the places where you can lie in wait below his elevation.

Intelligent planning while using your profiler can make the difference between reacting to the battlefield situation, and controlling it.

WAYPOINTS: GETTING IT ALL TOGETHER

Obviously, waypoint assignment is the meat and bones of mission planning. This is where the work gets done — everything else is just hints. It's easy to create, move or delete waypoints by clicking on the map, but it's trickier to do so intelligently.

While the Mission Planner gives you tremendous control over your squadron, remember that you are not absolute Lord of the Battlefield. Sometimes you get to pick the time and place for an operation, and sometimes it gets picked for you. This is particularly true in troop insertions. In these missions, you are told when and where the troops need to be dropped, and it is your responsibility to see that they are in that exact place at that exact time. In short, don't mess around with the timing or location of troop insertion waypoints. Doing so will probably result in a mission failure.

The terrain profile you choose to fly represents a simple choice. With a lower profile, the flight is safer and more accurate against ground targets (but more exposed to armor and infantry). With a higher profile the flight is faster, but far more exposed to SAMs. It doesn't really matter if they're flying over rough or smooth terrain, they'll do their best to maintain a consistent altitude either way. Actually, over rough terrain is the best place for a low profile, because you get the benefit of blocking terrain. If the ground is completely smooth and open, you might be better off making a high, fast dash.

One way to maximize the usefulness of recon flights is to have them fly to their objective as fast as possible, then on the way back divert them to potential enemy hotspots. This allows you to get some benefit out of all that ordnance your recon flight is carrying. Concentrate on clearing the way home for any combat flights that may be coming back wounded and low on ammo.

If you're going to customize your missions, one of the coolest things you can do is have two flights converge on a major target at the same time, from different directions. While such coordinated attacks can be devastating, they're not for casual use. First of all, if you combine flights on a single waypoint, you're probably diverting at least one of them away from another valid mission objective. Also, such coordinated attacks are not easy to set up, especially if one or more of the flights is AI-controlled.

The tools that make coordinated attacks possible are the Loiter function, the Rehearse utility, and the Time on Target readout. Time on Target and Rehearse tell you when a flight is going to be at a certain point. Loiter allows you to time their arrival. Be careful using Loiter, however — a Loitering helicopter hovers stationary above a waypoint. If you have a flight Loiter over a hot spot, it's a pair of sitting (hovering?) ducks.

Speaking of hot spots, when setting up mission routes, try to avoid having flights in transit pass anywhere near any area where another flight is in combat (unless the second flight is supposed to join the fray). This is because enemy units in combat are in a heightened state of readiness. They're much more likely to observe helicopters flying nearby, and pass their locations and courses on to other hostile units.

A couple reminders of the basics. When setting up two waypoints, remember to check the terrain between them. Whenever possible try to let a flight follow a valley or other natural cover. Also, for AI flights, try to keep the attack waypoints as close as possible to the actual target. An AI will search only so far for a target.

When you're working with the map, use your overlay buttons. Don't just pick one particular combination of overlays that you like and stick with it constantly — view each mission with several overlay combinations. Toggling the overlays on and off allows you to get a full picture of the combat situation without getting overwhelmed by map clutter. The Air Threats overlay is, of course, particularly crucial. You probably don't want to leave it on all the time, because of map clutter, but you definitely want to check out those SAM threat ranges before flying.

And just in case you were wondering, you can have up to 16 distinct waypoints per flight in a given mission, but of course it's best to use the absolute minimum number of distinct waypoints necessary to get the mission done. KISS (Keep It Simple, Stupid) applies just as much in combat as anywhere else. Probably more.

LOADOUTS AND INVENTORY

If you're playing in a campaign with realistic supply, you need to always be aware of your inventory. Let your inventory guide your assignments. If you have few or no radar Hellfires, don't risk an expensive and hard-to-replace Longbow with radar. (To see what inventory you start with in the NTC campaign, see **Azure Rune Orders of Battle** p.166. For the Azerbaijan campaign, see **Operation Fallen Crescent** p. 162).

From a loadout perspective, Stingers on a Longbow are "free." That is, there's nothing else that can go in their space. There's almost never a reason not to take a full rack of Stingers.

On the opposite end of the spectrum, there's the Kiowa. Longbows are designed to carry a broad assortment of weapons to meet virtually any threat that pops up. The Kiowa, while capable of mounting a respectable offensive punch, has to have its much more limited loadout keyed to the mission at hand. A quick review of the basics: Hellfires are best against armor, not great at all against troops or tents. Rockets are good against light armor, and the MPSM is best against troops.

COMBINED FORCES

It's good to mix and match helicopter types for your missions. If you only need one Kiowa for a scouting mission, team him up with a Longbow without radar. The Longbow can hang back and provide cover if the Kiowa gets into trouble, just like in the intro movie.

Remember that you can make on-the-fly changes to your helicopter type and pilot assignments by clicking on the Mission Summary Bar to the left of the map. This shortcut can make your mission planning time much shorter and smoother, allowing you to get into the air faster.

Longbows with radar are very expensive and considerably more rare than Longbows without. Because of this, don't use two Longbows with radar when you can accomplish the mission with one radar Longbow and one without. This is true in most missions. Longbows are an expensive asset, so don't waste them unnecessarily.

Because of the Longbow's target swapping capability, it is entirely possible to load up a Longbow without radar with RF Hellfires. This is a viable tactic, particularly when massive overkill is called for, but use it with caution. If your Longbow with radar goes down and all your second helicopter has is radar Hellfires, then he is seriously out on a limb right when he most needs every edge he has. Anyway, varying the loadout between your primary and wing increases your options in combat. So keep the radar Hellfire overload option for situations when it's really needed — it has serious drawbacks as an SOP.

One word about Black Hawks — take care of them. In a pinch, a Longbow can pinch-hit for a Kiowa on a scouting mission, and a Kiowa can even back up a Longbow on a strike mission, but only a Black Hawk can do what a Black Hawk does. If you are careless with your Black Hawks, there may come a time when you have no more Black Hawks, and that means that it's going to be flat-out impossible for you to even try to accomplish a major percentage of your missions. This does not do wonders for your efficiency rating (see **Pilot Ratings**, p. 66).

Finally, when setting up missions, pay attention to the AI pilot ratings. Of course you want to put the best pilots on the most important missions, but also remember that the only way to raise pilot ratings is by putting that pilot in the air. If you fly every mission with your very best pilots, eventually somebody's going to get shot down, and his replacement is going to be as green as grass. Like any commander, you want to rotate your squadron's air time so all your pilots are ready for whatever you may have to throw them into.

DYNAMIC CAMPAIGNS

This "section" gives an overview of the dynamic campaigns, along with design notes, equipment and starting inventory listings. For basic information about how dynamic campaigns work, see **Chapter 6: Campaigns** in the game's *Reference Manual*.)

OVERVIEW

Longbow 2 has a completely dynamic campaign system that generates missions as you play. What direction a campaign takes depends on several factors — how well you manage your equipment and weapons inventory, how well you follow the mission objectives, and how well you can assess the battlefield. Only a few of the campaign missions are static, and therefore, most can't be written up into neat, step-by-step solutions. Instead, we can only provide operational information and some standard guidelines to help you advance your efforts on the front lines.

There's no clean-cut, easy way to describe a dynamic campaign, other than stating its general objective. In a nutshell, you're flying varied helicopter missions to support ground advances to take over territory from the enemy. The key to winning any of these campaigns is to advance across a series of phase lines and push the enemy off his side of the map.

Phase lines are arbitrary lines that are used to divide the battlefield into manageable chunks. You'll find the Fallen Crescent phase lines marked on the color pullout in this book. The Azure Runes phase lines are marked on the map on page 165. Phase lines run vertically, while sectors run horizontally.

On the mission maps you see in the game, sectors are further divided into an alphanumeric grid. Locations of key objectives are often marked in the briefings as "C2," "A13," and so on. The same grid is customized to each mission map, meaning that A2 on one map doesn't mark the same location as A2 on a different mission map. The phase lines, however, are constant.

CAMPAIGN DESIGN NOTES

From campaign designer Mike Francis

The Dynamic Battlefield

People keep trying to define a "dynamic campaign" as it relates to flight sims. Some people will say that it means that if you go and blow up a bridge, and you go back to that spot, that bridge is still destroyed — that's dynamic. Other people will say it means that the situation is fluid and different every time you fly it.

The whole point, when we first thought about it, was to make the entire *battlefield* dynamic. The AI that you're up against is out there to kick your butt. The enemy will move troops, and he will move supplies, and he will do what he has to do — not just wait for you to do something and react to it. He's doing his own thing, and it's your job to stop him. What we tried to do was give the opposition mission-based flights, and they don't care what you do. If you blow up something, the enemy will try to replace it, while also trying to sort out your strategic hotspots and destroy something that helps you.

In military intelligence, you have to go out and collect priority targets. You have to figure out what's most important to the battle at hand. You — as the player — are the attack helicopter's task force for that division commander. He decides where he wants you to affect the battlefield. In our campaign, intelligence collection is basically determined by what you do. You don't see everything immediately. That's the reason for having reconnaissance missions.

Ground Advances

An important aspect of the dynamic campaign is the enemy is thinking and doing the same things you are. Each unit on each side wants to reach a certain level of readiness. No one ever brings everything they have to the battlefield immediately. Initially, you'll be bringing stuff in — getting supplies to a certain level, equipment to a certain level, and front lines to a certain level. Then, the attack commences.

That's the approach we took with both the enemy and friendly AI in the game. Units on both sides — friendly and enemy — are waiting to get to a certain readiness level, with a hundred percent of reserves and supplies in place. They won't move until they're ready. Your next job, once your forces are ready to attack, is to find your opponent's reserve forces and communications or ammunition depots and take them out to stop him from ever being ready to attack.

What the Longbow does, and what the Kiowa Warrior does, is that they have the potential to do a pre-strike. They won't target front-line forces — they'll target battle forces and second echelon forces because of the way that the aerial battle is designed. If you blow up the enemy's reserve forces, he will never have

enough force on the battlefield to ever influence the battle. If you destroy his assets, he'll spend more time trying to get to that point and won't attack you. In the meantime, you're building up your assets so that you can attack him.

In our game, we have the Iranians (assisted by Russian advisors) deciding that if they're at 70 percent of all available assets, they'll attack, because their requirements are lower than ours and they know that with the Americans blowing things up, that they'll never reach full readiness. So, when they get to 70 percent or so, they will attack, and you'll get reports that armor is moving forward in certain regions of the map, and you try to blunt the attack if you can.

Bear in mind that the opponent has committed the same massive helicopter assets to support that attack. While you're setting up your beautiful shot against all these and are watching APCs coming across a hill, you can get ambushed by a Hokum that was looking for you in the first place. His mission is to find helicopters. Once he finds the helicopters he's looking for, the armor below can deal with the opposing armor on its own. But, it can't deal with American helicopters. So the enemy helicopter's job is to go out and find your helicopters and shoot them down, and then to shoot up any enemy force threatening his attacking force.

Phase Lines

Phase lines have to do with the movement of armor force on the ground, which is not as easy as it seems. When you're moving a lot of armor, you need to know exactly where everyone is. During battle planning, most analysts will draw what we call phase lines onto a map, or geographic markers. The phase lines will extend forward into enemy territory and backwards into your own territory. It's just a good way for everyone to know where they are on a given map. It's good to have those because if it's your job to achieve Phase Line Green, once you reach the objective, the commander can know at a glance where your unit is.

Phase lines do several things. First of all, they help organize the attack or a defensive, and the commander can keep up with everyone. In a confusing battle with hundreds of tanks along a wide front, if you say you're going to attack to Phase Line Mango, then everyone knows that if you reach your objective, you're physically at Phase Line Mango. What was really confusing before, in World War II, and precipitated the use of phase lines, was that units often found themselves way out in front of other units without knowing they were so exposed. Phase lines help organize the battlefield.

The same thing occurs with sectors. Each unit is given an area of operation — an area they work in and influence, basically corresponding to how far their weapons can shoot. You need to know what's in your area of operations. That's how sectors are divided. In the game, they encompass about 10 kilometers each in breadth.

Dynamic Mission Generator

The missions that are created don't have anything to do with what the commander of the helicopter unit wants. They have more to do with the priorities as the division commander sees them. And he bases his priorities on what the biggest threat is to his units' survival, and what the best targets are for your platform to deal with. He bases it on whatever intelligence has been collected, and that's why your recon missions are important.

One of the missions you get might be to go and reconnoiter this convoy. Somebody might ask "Well, why don't we just blow this convoy up?" The reason you won't do that is because a lot of times, you need to watch an area of interest to see if he's actually using this as a convoy route. If you blow it up now, he won't use it again — he'll just use another one, and you'll have to go out and find that one. A lot of times, your mission will be to confirm that he's actually using that road as a convoy route. When the time comes where he's bringing in something of importance, then you go blow it up.

Priority Targets

The most dangerous targets are those that can deliver nukes and chemical weapons like SCUDs, because they have the greatest damage potential. In the dynamic battlefield, your target priority changes, based on your tactical situation. If you're winning the battle, your target priority is different than if you're losing. If you're losing the battle, all of the sudden, you're really concerned about forces that are being brought to bear against you from another side of the map. You're concerned with tactical air support and artillery and things like that, so that then changes your priority from reserve forces to strategic forces that influence the battle through other means. So, you might be sent way across to the other side of the map to hit an airfield that's sending Su-25 Sukhois at your forces.

The campaign is dynamic in a couple of ways — dynamic in that the targets change based on what's seen on the map, and dynamic in that these priorities change based on the tactical situation.

Campaign Success

The overall goal of the campaign is to win territory and push the enemy backward to his last phase line. You'll usually know how you're doing by where you are on the map. You can also get a sense of how you're doing in the Azerbaijan campaign by what movies you see. As far as the missions go, you'll get an idea from that as well. But, the phase lines tell the story more than anything else. You'll know that yesterday you were here, and today you've pushed to here or dropped back. That's the thing about battle that we try to convey in the campaign. You'll get really happy because you're winning, then all of a sudden the enemy will throw everything at you, and your priorities will change. You'll have to go out and eliminate strategic targets again. It might be frustrating at times, but it makes you realize that every mission does count.

If you're being pushed back, depending on how you're playing, your assets will be dwindling. The only good thing about being pushed back is that it doesn't take supplies long to get to you. When the enemy is attacking you and you're losing, you will be trying to hit his supply lines. What has happened is that the enemy has pushed you back, and his supply lines are longer and more vulnerable. Keeping him from moving beans and bolts to his front lines becomes your priority — if you can stop that, he'll never work up enough momentum, and his attack will stall right there. If you don't stop his supplies, he'll continue the attack until he gains enough momentum to push you off of the map.

If you're winning, your priority becomes his strategic targets. He's going to try to do the same thing to you. You're not looking for his FARPs, but you know he's launching helicopters to hit you and cut you off. You can't attack him until your supplies make it forward. So, you'll get a lot of convoy support and coverage missions. You'll also be looking for his deep-strike assets. At the time at which he's losing, he might decide to influence the battle through other means, with chemical or nuclear weapons. When that happens, you'll start seeing things on the map when you fly reconnaissance missions that indicate that perhaps he wants to take the battle in another direction. If you hit the things you're supposed to hit, you won't ever see the really bad things.

If the player never chooses to fly recon flights, the AI will fly them. As with most other aspects, the AI is good at this, but not perfect. As the air battle captain, you can change the waypoints of the reconnaissance flight, but you can't change the objective. The AI pilot might accomplish his objective, or he might be shot down. If you're playing with no limitation on the number of helicopters in the campaign, that's not a big problem. The game will just generate another one. If you're playing with limitations on helicopters, though, every one of them is valuable, and every mission is valuable. You'll need to think long and hard about which routes you want them to take. The routes that we've designed are generally the most tactically efficient way to get there. But sometimes, unfortunately, the enemy is using those routes too.

OPERATION FALLEN CRESCENT

The Orders of Battle for the U.S. and Iranian forces fighting in Operation Fallen Crescent are listed below. In some cases there are variables that keep us from specifying the exact O.B. Where there are variations, the variable units are listed in *italics*.

US Order of Battle

5/8 CAVALRY

HQ
1 Avenger SAM
1 Bradley IFV
3 Soldiers, two with Stingers
1 Tent

HELICOPTERS AT EACH FARP
4 AH-64D Longbow
(1 with radar at FARP 2 and 4)
2 OH-58D Kiowa Warriors
2 UH-60L Black Hawks

A TROOP
1-3 Platoons
Three platoons, each with:
4 M1 Abrams tanks
1 M163 Vulcan AAA (1 Platoon)
1 Avenger SAM (2 Platoon)

Reserve
6 M1 Abrams tanks
2 M2 Bradley IFVs
1 Avenger SAM
1 M163 Vulcan AAA

B TROOP
1-3 Platoons
Three platoons, each with:
4 M1 Abrams tanks
1 Avenger SAM (1 Platoon)
1 M163 Vulcan AAA (3 Platoon)

Reserve
6 M1 Abrams tanks
2 M2 Bradley IFVs
1 Avenger SAM
1 M163 Vulcan AAA

C TROOP
2, 3 Platoons
Two platoons, each with:
4 M1 Abrams tanks

Reserve
6 M1 Abrams tanks
2 M2 Bradley IFVs
1 Avenger SAM

4/5TH AIR DEFENSE ARTILLERY
A, B Companies
Two companies, each with:
1 Patriot radar
1 Avenger SAM
4 MIM-104 Patriot SAMs

D TROOP
1-3 Platoons
Three platoons, each with:
4 M1 Abrams tanks
1 M163 Vulcan AAA (1 Platoon)
1 Avenger SAM (2 Platoon)

Reserve
6 M1 Abrams tanks
2 M2 Bradley IFVs
1 Avenger SAM

3/16TH AIR DEFENSE ARTILLERY
A - D Companies
Four companies, each with:
2 Avenger SAMs
1 M163 Vulcan AAA *
* *D Company does not have a Vulcan.*

51ST INFANTRY (LONG RANGE SURVEILLANCE UNIT)
F Company, Teams 1-4
Four teams, each with:
4 Soldiers, one with a Stinger

2/28 ARTILLERY
A - D Companies
Four companies, each with:
4 M109 artillery
2 Soldiers, one with a Stinger

342ND TACTICAL FIGHTER WING
2 A-10 Thunderbolt IIs

MATERIEL FOR FOUR FARPS
each with:
2 Tents
1 M939 fuel truck
1 M35 truck
1 Avenger SAM
2 Soldiers, one with a Stinger

Iranian Order of Battle

88TH ARMORED DIVISION

HQ
1 SA-13 Gopher SAM
1 ZU-23 AAA
1 URAL-375 fuel truck
2 URAL-377 trucks

HELOS AT EACH FARP
4 MI-28 Havocs
4 MI-24 Hinds
4 AH-1J Sea Cobras
4 MI-8 Hips

12TH ARMORED BRIGADE
1 Battalion
4 T-72M tanks
1 ZSU-23-4 Shilka AAA

2, 3 Battalions
Two battalions, each with:
4 Zulfiqar tanks
1 ZSU-23-4 Shilka AAA

Reserve
6 T-72M tanks
2 BMP-2 IFVs
1 ZSU-23-4 Shilka AAA
1 SA-8 Gecko SAM

6TH MECHANIZED BRIGADE
1, 3 Battalions
Two battalions, each with:
4 Zulfiqar tanks
1 ZSU-23-4 Shilka AAA

2 Battalion
2 Zulfiqar tanks
2 BMP-2 IFVs
1 ZSU-23-4 Shilka AAA

Reserve
6 T-72M tanks
2 BMP-2 IFVs
1 ZSU-23-4 Shilka AAA
1 SA-8 Gecko SAM

67TH MECHANIZED BRIGADE
1 - 3 Battalions
Three battalions, each with:
4 Zulfiqar tanks
1 ZSU-23-4 Shilka AAA

Reserve
6 T-72M tanks
2 BMP-2 IFVs
1 ZSU-23-4 Shilka AAA
1 SA-8 Gecko SAM

402ND AIR DEFENSE GROUP
Variable composition, but might include:
2 ZSU-23-4 Shilka AAA
2 SA-9 Gaskins SAM
2 SA-13 Gopher SAM
1 RBS-70/M113 SAM
1 Blindfire radar
4 Rapier SAMs
1 URAL-377 truck

27th SAM Battalion
Variable composition, but might include:
1 Flap Lid radar
1 Clam Shell radar
1 SA-8 Gecko SAM
1 SA-9 Gaskin SAM
4 SA-10 Grumble SAMs
1 SA-13 Gopher SAM
1 ZSU-23-4 Shilka AAA

103rd SAM Brigade
4 SA-8 Gecko SAM
1 ZU-23 AAA

107th SAM Brigade
4 SA-8 Gecko SAM

125th SAM Brigade
4 SA-8 Gecko SAM

66TH ARTILLERY BATTALION
4 M109 artillery
1 ZU-23 AAA
1 Soldier with an SA-14
1 RBS-70/M113 SAM

3RD ARMORED BRIGADE
1 - 3 Battalions
Three battalions, each with:
4 T-72M tanks
1 ZSU-23-4 Shilka AAA

Reserve
3 Zulfiqar tanks
2 BMP-2 IFVs
1 ZSU-23-4 Shilka AAA
3 T-72M tanks
1 SA-8 Gecko SAM

12TH COMMUNICATIONS BATTALION
Variable composition, but might include:
1 BMP-2 IFV
1 SA-9 Gaskin SAM
1 SA-13 Gopher SAM
1 ZSU-23-4 Shilka AAA
1 Tent
1 URAL-377 truck
1 URAL-375 fuel truck

74TH SPECIAL FORCES BRIGADE (RECON)
Teams 1-4
4 Soldiers, one with an SA-14

17TH AVIATION REGIMENT
2 Su-25 Frogfoots

MATERIEL FOR FOUR FARPS
Variable composition, but each FARP might include:
1 SA-9 Gaskin SAM
1 ZSU-23-4 Shilka AAA
1 Tent
2 URAL-375 fuel trucks
1 URAL-377 truck

NATIONAL TRAINING CENTER CAMPAIGN (AZURE RUNE)

The National Training Center (NTC) campaign follows the same design principles as the Fallen Crescent campaign. Designed primarily for multi-player play, the NTC campaign lets you pursue two scenarios — U.S. vs. Soviet Equipment, or U.S. vs. U.S. Equipment.

You can play the NTC campaign either with American equipment on both sides, or with former-Soviet weapons and vehicles on the Red side. This campaign was mostly designed to enhance the multi-player experience and allow from two to four players to fly a limited campaign battle either cooperatively or head-to-head. (See **Multi-Player Games**, p. 39, for more information.)

If you play the American vs. Soviet campaign, the Americans definitely have a strong advantage. The equipment is just superior. (The only way to play the Soviet side is to participate in a multi-player campaign.)

In either campaign, however, the helicopters are American Longbows, Kiowas and Black Hawks. From the outside, "red" copters in the U.S./Soviet campaign will look like Soviet equipment, but they'll fly (whether piloted by a human or by the computer) like American helicopters. This is realistic, by the way. The U.S. Army routinely outfits its helicopters with artificial shells resembling potential threat helicopters during training exercises. This allows the pilots to get valuable experience at visual identification of threats.

In the NTC campaign, Soviet Longbows appear as Havocs (Longbows without radar appear as MI-28s; with radar as MI-28Ns), Kiowas are disguised as KA-50 Hokums, and Black Hawks appear as MI-8 Hips.

The NTC campaign is set in an area about 1/3 the size of the Azerbaijan campaign area. The terrain itself is flat, hard-packed desert. It's easy to move across the terrain, but hard to find cover or concealment. This poses a particular challenge to the Longbow and Kiowa, with their reliance on pop-up tactics.

Which is not to say that it's impossible to find cover. There are plenty of bluffs and ridge lines. The tricky part is making sure that the cover is there when you need it. If you spot an enemy unit, the first thing to check is whether there's some kind of hill or valley close enough to dart behind before he sees you. Watch out for dry lake beds. These featureless expanses go on sometimes literally for miles, and if you're caught out over one the enemy is going to have himself a skeet-shoot.

When you review your squadron's assignments in the mission planner, definitely take the time to review their routes with an eye towards the terrain. The default assigned routes tend towards low terrain. This is great if you're following a river

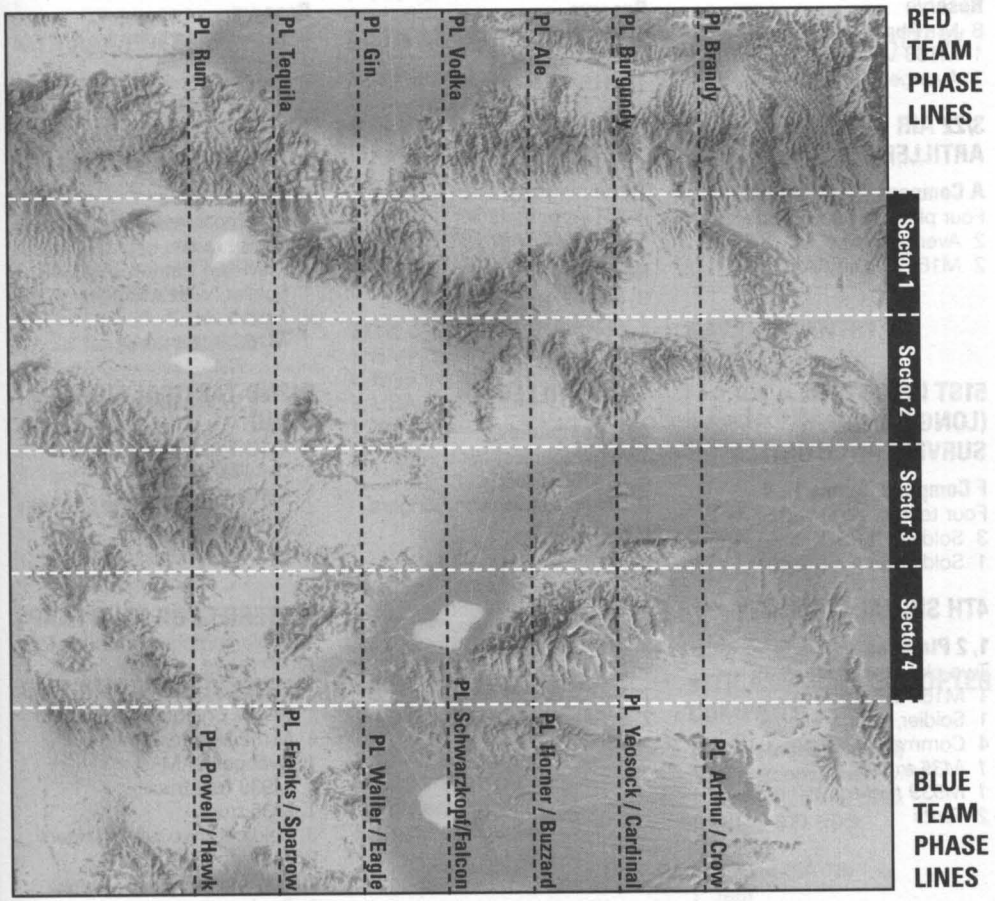
valley, not so great if it takes you across the middle of a dry lake bed. If you can move or add a waypoint to put a convenient bluff between you and the enemy, it's probably worth while to do so.

In the absence of geographical cover, you can always route your flights over your own forward SAM sites, providing significant protection against would-be enemy dogfighters.

The dry, level terrain of the NTC is absolutely ideal for armor, and the scenario takes that into consideration. The phase lines shift back and forth largely on the basis of which side's armor is taking more of a beating. Therefore, anti-armor missions should usually receive your top tasking priority, closely followed by anti-helicopter missions (to minimize the toll the enemy's taking on your own armor).

NTC Map

Like the map for Operation Fallen Crescent, the NTC map has its own sequence of phase lines and sectors.



Azure Rune Orders of Battle

As in Operation Fallen Crescent, there are some cases where variables keep us from specifying the exact O.B. Where there are variations, the variable units are listed in *italics*.

U.S. vs. Soviet — Blue Team (US) Order of Battle

5/8TH CAVALRY

HQ
1 UH-60 Black Hawk
1 M163 Vulcan AAA
1 M2 Bradley IFV
3 Soldiers, two with Stingers
2 Tents

HELICOPTERS AT EACH FARP
4 AH-64D Longbows
(1 with radar at FARP 1 and 3)
2 OH-58D Kiowa Warriors
3 UH-60L Black Hawks

A TROOP
2, 3 Platoons
Two platoons, each with:
4 M1 Abrams tanks
1 Avenger SAM (3 Platoon)

Reserve
8 M1 Abrams tanks
1 M163 Vulcan AAA
1 Avenger SAM

B TROOP
1 - 3 Platoons
Three platoons, each with:
4 M1 Abrams tanks
1 Avenger SAM (3 Platoon)

Reserve
8 M1 Abrams tanks
1 Avenger SAM
1 M163 Vulcan AAA

C TROOP
1 - 3 Platoons
Three platoons, each with:
4 M1 Abrams tanks
1 Avenger SAM (2 Platoon)

Reserve
8 M1 Abrams tanks
1 Avenger SAM

3/22 AIR DEFENSE ARTILLERY
A Company, 1 - 4 Platoons
Four platoons, each with:
2 Avenger SAM
2 M163 Vulcan AAA

D TROOP
1 - 3 Platoons
Three platoons, each with:
4 M1 Abrams tanks
1 Avenger SAM (1, 3 Platoons)

Reserve
8 M1 Abrams tanks
1 Avenger SAM
1 M163 Vulcan AAA

1/17 AIR DEFENSE ARTILLERY
A, B Companies
Two companies, each with:
1 Patriot radar
4 MIM-104 Patriot SAMs
1 Soldier, with a Stinger
1 M35 truck
1 M163 Vulcan AAA

51ST INFANTRY (LONG RANGE SURVEILLANCE UNIT)
F Company, Teams 1 - 4
Four teams, each with:
3 Soldiers (LRSU)
1 Soldier with a Stinger

1/20 ARTILLERY
A, C Companies
Two companies, each with:
4 M109 artillery
3 Soldiers, two with Stingers

B Company
4 M109 artillery
1 M163 Vulcan AAA

D Company
3 M270 MLRS
1 M109 artillery
1 M163 Vulcan AAA
2 Soldiers, one with a Stinger

342ND TACTICAL FIGHTER WING
4 A-10 Thunderbolt IIs
1 CH-47 Chinook
1 M163 Vulcan AAA
2 Bunkers

4TH SIGNAL COMPANY
1, 2 Platoons
Two platoons, each with:
1 M163 Vulcan AAA
1 Soldier, with a Stinger
4 Command bunkers
1 M35 truck
1 M939 fuel truck
2 Tents

MATERIEL FOR FOUR FARPS
Variable composition, but each FARP might include:
1 UH-60 Black Hawk
1 CH-47 Chinook
1 M163 Vulcan AAA
1 Avenger SAM
1 M939 fuel truck
1 M35 truck
3 Soldiers, two with Stingers
2 Tents
1 Command bunker
1 Bunker

U.S. vs. Soviet — Red Team (Soviet) Order of Battle

47 GUARDS TANK DIVISION

HQ
1 BMP-3 IFV
1 URAL-377 truck
1 Soldier
1 Soldier (SA-18)
1 Tent
1 Bunker
1 2S6 Tunguska SAM/AAA

HELICOPTERS AT EACH FARP
4 Mi-28 "Havocs" (Longbows)
(1 with radar at FARP 1 and 3)
3 Ka-50 "Hokums" (Kiowa Warriors)
4 Mi-8 "Hips"

52ND TANK REGIMENT

1-3 Platoons
Three platoons, each with:
4 T-80U tanks
1 2S6 Tunguska SAM/AAA

Reserve
8 T-80U tanks
2 2S6 Tunguska SAM/AAA

177TH TANK REGIMENT

1 - 3 Platoons
Three platoons, each with:
4 T-80U tanks
1 2S6 Tunguska SAM/AAA (Platoon 1)
1 ZSU-23-4 Shilka AAA (Platoons 2, 3)

Reserve
8 T-80U tanks
2 2S6 Tunguska SAM/AAA

34TH MOTOR RIFLE REGIMENT

1 - 3 Platoons
Three platoons, each with:
2 BMP-3 IFVs
2 T-80U tanks
1 2S6 Tunguska SAM/AAA

Reserve
8 T-80U tanks
2 2S6 Tunguska SAM/AAA

45TH AAA BATTERY

1 - 4 Platoons
Four platoons, each with:
4 2S6 Tunguska SAM/AAA

12th SAM Regiment
4 SA-8 Gecko SAMS

35th SAM Regiment
(Usually divided into three units.)
1 SA-11 command post
1 Snow Drift radar
4 SA-11 Gadfly SAM
4 2S6 Tunguska SAMs/AAA
4 SA-15 Gauntlet SAMs

106th SSM Regiment
4 Scud-B SSMs
1 SA-15 Gauntlet SAM
1 Tent

173rd SAM Regiment
1 SA-11 Command Post
1 Snow Drift radar
4 SA-11 Gadfly SAM

267TH TANK REGIMENT

1 - 3 Platoons
Three platoons, each with:
4 T-80U tanks
1 2S6 Tunguska SAM/AAA

Reserve
8 T-80U tanks
2 2S6 Tunguska SAM/AAA

89TH ARTILLERY BATTERY

1 Platoon
4 SO-122 artillery

2, 3 Platoons
Two platoons, each with:
4 BM-25 MRS

11TH SIGNAL REGIMENT
1 BMP-3 IFV
1 M35 truck
2 URAL-377 trucks
1 Soldier with an SA-18
1 Tent

NAVAL INFANTRY

Teams 1, 2, 3, 4
Four teams, each with:
3 Soldiers (LRSU)
1 Soldier with an SA-18

17TH AVIATION REGIMENT
4 SU-25 Frogfoots

33RD SIGNAL REGIMENT
1 BMP-3 IFV
1 M35 truck
1 URAL-377 truck
1 URAL-377 truck
1 Soldier with an SA-18
1 Command bunker

97TH ASSAULT HELICOPTER COMPANY

1 - 4 Platoons (FARPS)
Four platoons, each with:
1 URAL-375 fuel truck
1 URAL-377 truck
1 Soldier
1 Soldier (SA-18)
1 Tent

U.S. vs. US — Blue Team (US) Order of Battle

1/66TH ARMOR BATTALION

HQ
1 UH-60 Black Hawk
2 M2 Bradley IFVs
1 M163 Vulcan AAA
2 Soldiers (Stinger)
2 Tents

HELICOPTERS AT EACH FARP
4 AH-64D Longbows
(1 with radar at FARP 1 and 3)
3 OH-58D Kiowa Warriors
2 UH-60L Black Hawks

A COMPANY
1 - 3 Platoons
Three platoons, each with:
4 M1 Abrams tanks
1 Avenger SAM (2 Platoon)

Reserve
8 M1 Abrams tanks
1 Avenger SAM
1 M163 Vulcan AAA

B COMPANY
1 - 3 Platoons
Three platoons, each with:
4 M1 Abrams tanks
1 M163 Vulcan AAA (1 Platoon)
1 Avenger SAM (3 Platoon)

Reserve
8 M1 Abrams tanks
1 Avenger SAM
1 M163 Vulcan AAA

C COMPANY
1 - 3 Platoons
Three platoons, each with:
4 M1 Abrams tanks
1 M163 Vulcan AAA (1 Platoon)
1 Avenger SAM (2 Platoon)

Reserve
8 M1 Abrams tanks
1 Avenger SAM
1 M163 Vulcan AAA

3/22ND AIR DEFENSE ARTILLERY
A Company, 1 - 4 Platoons
Four platoons, each with:
2 Avenger SAM
1 M163 Vulcan AAA *
** 3 Platoon does not have a Vulcan.*
4 Platoon has two Vulcans.

D COMPANY
1 - 3 Platoons
Three platoons, each with:
4 M1 Abrams tanks
1 Avenger SAM (1, 3 Platoons)
1 M163 Vulcan AAA (2 Platoons)

Reserve
8 M1 Abrams tanks
1 Avenger SAM
1 M163 Vulcan AAA

1/17TH AIR DEFENSE ARTILLERY
A, B Companies
Two companies, each with:
1 Patriot radar
4 MIM-104 Patriot SAMs
1 M35 truck
1 Soldier, with a Stinger

51ST INFANTRY (LONG RANGE SURVEILLANCE UNIT)
F Company, Teams 1-4
Four teams, each with:
3 Soldiers (LRSU)
1 Soldier with a Stinger

1/20TH ARTILLERY
A - D Companies
Four companies, each with:
4 M109 artillery
3 Soldiers, two with Stingers

342ND TACTICAL FIGHTER WING
2 A-10 Thunderbolt IIs

304TH SIGNAL BATTALION
A Company
3 M35 trucks
1 Avenger SAM
1 M939 fuel truck
3 Soldiers, two with Stingers

4TH SIGNAL COMPANY
1, 2 Platoons
Two platoons, each with:
3 M35 trucks
1 Avenger SAM
1 M939 fuel truck
3 Soldiers, two with Stingers

MATERIEL FOR FOUR FARPS
each with:
1 Avenger SAM
1 M35 truck
1 M939 fuel truck
2 Soldiers, one with a Stinger
2 Tents

U.S. vs. US — Red Team Order of Battle (Soviet Org. / US Equip.)

47 GUARDS TANK DIVISION

HQ
1 UH-60 Black Hawk
1 M163 Vulcan AAA
1 M2 Bradley IFV
3 Soldiers, two with Stingers
2 Tents

HELICOPTERS AT EACH FARP
4 AH-64D Longbows
(1 with radar at FARP 1 and 3)
3 OH-58D Kiowa Warriors
2 UH-60L Black Hawks

52ND TANK REGIMENT

1 - 3 Platoons
Three platoons, each with:
4 M1 Abrams tanks
1 Avenger SAM (2 Platoon)

Reserve
8 M1 Abrams tanks
1 Avenger SAM
1 M163 Vulcan AAA

177TH TANK REGIMENT

1 - 3 Platoons
Three platoons, each with:
4 M1 Abrams tanks
1 Avenger SAM (3 Platoon)

Reserve
8 M1 Abrams tanks
1 Avenger SAM
1 M163 Vulcan AAA

34TH MOTOR RIFLE REGIMENT

1 Platoon
2 M1 Abrams tanks
2 M2 Bradley IFVs

2 Platoon
3 M1 Abrams tanks
1 M2 Bradley IFV
1 Avenger SAM

3 Platoon
3 M1 Abrams tanks
1 M2 Bradley IFV

Reserve
4 M1 Abrams tanks
4 M2 Bradley IFVs
1 Avenger SAM
1 M163 Vulcan AAA

45TH SAM REGIMENT

1 - 4 Platoons
Four platoons, each with:
2 Avenger SAMs
1 M163 Vulcan AAA

267TH TANK REGIMENT

1 - 3 Platoons
Three platoons, each with:
4 M1 Abrams tanks
1 M163 Vulcan AAA (1 Platoon)
1 Avenger SAM (3 Platoon)

Reserve
8 M1 Abrams tanks
1 Avenger SAM
1 M163 Vulcan AAA

52ND ARTILLERY

A, B Companies
Two companies, each with:
4 M270 MLRS
1 Avenger SAM
2 Soldiers, one with a Stinger

52nd Artillery Battalion
4 M270 MLRS
1 Avenger SAM
2 Soldiers, one with a Stinger

35th SAM Battalion
4 MIM-104 Patriot SAMs
1 M35 truck
1 Soldier, with a Stinger

35th SAM Battalion
1 Patriot radar
4 MIM-104 Patriot SAMs
2 Soldiers, one with a Stinger

89TH ARTILLERY REGIMENT
4 M109 artillery
3 Soldiers, two with Stingers

3/45TH ARTILLERY

C, D Companies
Two companies, each with:
4 M109 artillery
3 Soldiers, two with Stingers

33RD SIGNAL REGIMENT
1 Avenger SAM
3 M35 trucks
1 M939 fuel truck
3 Soldiers, two with Stingers

91ST SPECIAL FORCES GROUP (RECON)
3 Soldiers (LRSU)
1 Soldier with an SA-18

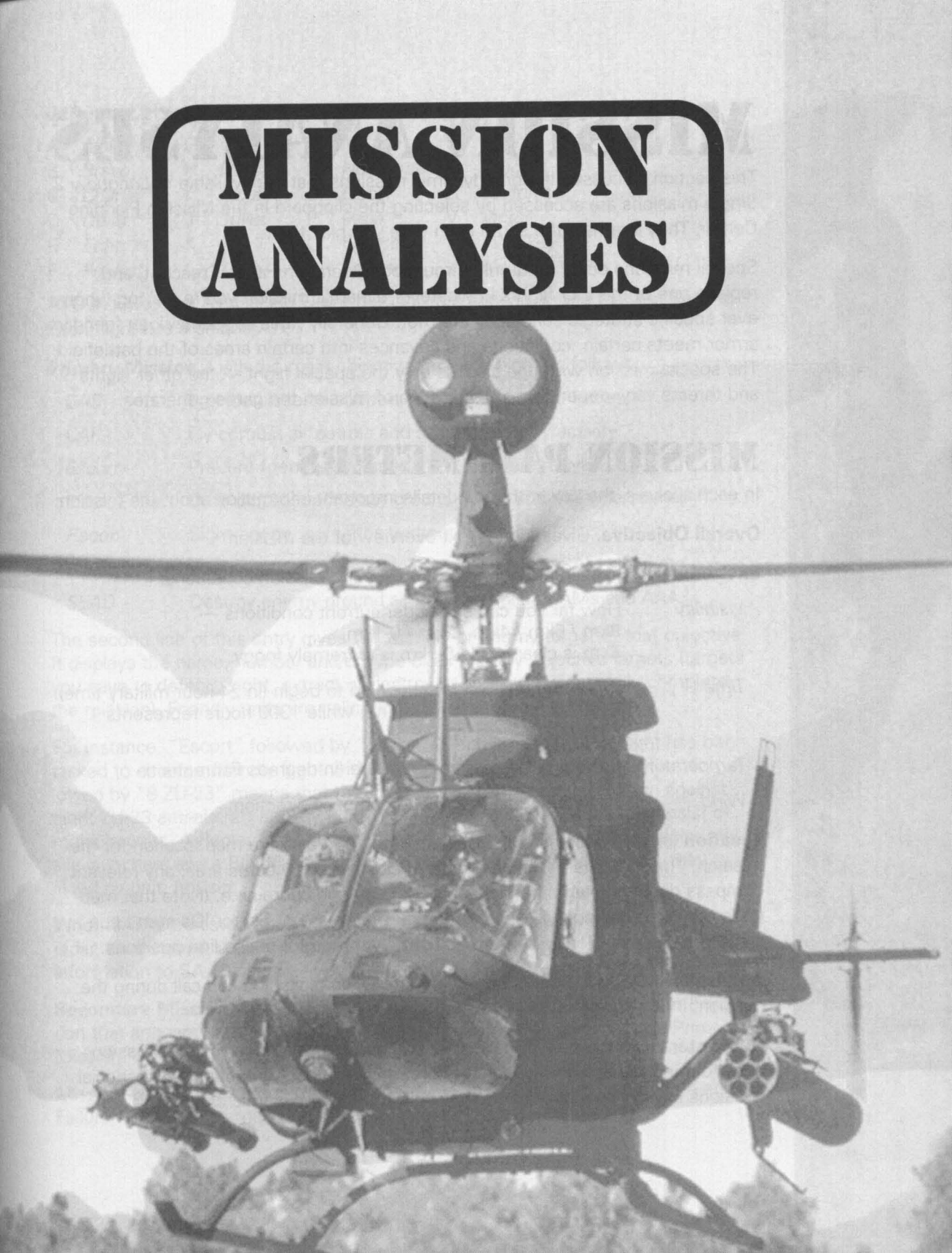
17TH AVIATION REGIMENT
2 A-10 Thunderbolt IIs

304TH SIGNAL BATTALION
B Company
1 Avenger SAM
3 M35 trucks
1 M939 fuel truck
3 Soldiers, two with Stingers

25TH COMBAT AVIATION BATTALION

A - D Companies (FARPS)
Four companies, each with:
1 Avenger SAM
1 M35 truck
1 M939 fuel truck
2 Soldiers, one with a Stinger
2 Tents

MISSION ANALYSES



MISSION ANALYSES

This section discusses the non-dynamic missions that are available in *Longbow 2*. Single missions are accessed by selecting the clipboard in the Mission Planning Center. They'll remain the same each time you play them.

Special missions occur randomly throughout Operation Fallen Crescent, and replace one of the four flights in whatever dynamic mission you're playing whenever specific strategic conditions are met. Generally , this happens when friendly armor meets certain conditions and advances into certain areas of the battlefield. The special mission writeups discuss only the special flight — the other flights and threats vary, depending on what type of mission the game generates.

MISSION PARAMETERS

In each analysis, the box at the top details important information about the mission:

Overall Objective. Gives a brief text overview of the mission.

Environment. Gives information on the following mission conditions:

Visibility	How far you can see under current conditions — 8km / 6km / 4km / 2km / 0-1km. 8km is clear, while 0-1km is extremely foggy.
Time	When the mission is scheduled to begin (in 24-hour military time). 0100 hours represents 1 a.m., while 1300 hours represents 1 p.m.
Temperature	Current outside air temperature (in degrees Fahrenheit)
Wind	Wind speed (in knots) and compass direction.

Location (single missions only). Describes the approximate map location for the mission. This line lists the phase line (PL) closest to the battle area, any relevant compass directions, and the alphanumeric map grid coordinate. (Note that map grids are reference points based on the current mission. Sector IDs aren't constant between missions.) See the pull-out color map for phase line positions.

Air/Artillery Strikes. Shows how many friendly attacks you can call during the mission.

Helicopter. Lists the default helicopter for that particular flight. Single missions have four individual flights (labeled 1 through 4 in these writeups), while special missions have one or two flights that replace regular dynamic campaign flights.

Callsign. Lists the radio callsign for friendly flights or ground forces.

A	*Alpha*	G	*Gulf*	M	*Mike*	S	*Sierra*	Y	*Yankee*
B	*Bravo*	H	*Hotel*	N	*November*	T	*Tango*	Z	*Zulu*
C	*Charlie*	I	*India*	O	*Oscar*	U	*Uniform*		
D	*Delta*	J	*Juliet*	P	*Papa*	V	*Victor*		
E	*Echo*	K	*Kilo*	Q	*Quebec*	W	*Whiskey*		
F	*Foxtrot*	L	*Lima*	R	*Romeo*	X	*X-ray*		

ATO #. Gives the Air Tasking Order number that appears in the mission briefing. Each flight has a unique ATO.

Primary Mission. Lists the main objective for each flight as follows:

CAS	Provide close-air support for friendly ground forces.
CAP	Fly combat air patrols and scan for enemy activity.
Escort	Prevent friendly primaries from being destroyed.
Insert/Extract	Drop off/pick up friendly ground troops and other personnel.
Recon	Sight enemy primaries without firing.
Strike	Destroy specific enemy targets : HQ, tanks, SAM sites, etc.
SEAD	Destroy enemy ground air defense units : SAMs and AAA.

The second line of this entry gives the friendly or enemy target of that objective. It displays the name, number and/or type of all primary objective targets (targets you have to defend, sight, extract or destroy in order to successfully complete the mission). Friendly units are italicized, while enemy units are not.

For instance, "Escort" followed by "*Tango 33*" indicates that the flight has been tasked to escort a friendly flight with the radio callsign Tango 33. "Strike" followed by "8 ZU-23" means that the flight is to fly an air strike mission against eight ZU-23 anti-aircraft artillery units. A single SAM or AAA site can consist of multiple units. A Rapier SAM site, for instance, usually contains four Rapier missile launchers and a Blindfire radar. When primary objectives are listed, they're listed by unit, not site.

When SAMs are listed, their associated radars are listed as well. The Blindfire radar, for instance, assists Rapier SAMs, and Clam Shell and Flap Lid radars feed information to SA-10 sites.

Secondary Mission. Lists the secondary objective for each flight. The information that appears here is identical in format to information given for the Primary Mission.

Mission Rating. Describes measurements for Success+, Success, Failure and Failure ratings in the mission.

SUCCESS/FAILURE

In order to successfully complete a mission, you must fulfill certain objectives. This section of each analysis describes how many friendly targets must be protected, or how many enemy targets must be identified or destroyed.

Your overall mission score depends on your active OPTION menu settings. Any mention of scoring is made with the assumption that you are flying with REALISTIC game options.(See the GAMEPLAY screen in the OPTION menu — press Alt O to activate.) Default realism settings are generally easier, but reduce your score. (See **Scoring**, p. 62, for more information.)

MAPS

The first map in each mission analysis shows all objects in the mission area and the flight paths of all four flights. The start/finish points for the flights are marked by the flight's number in a box. (In Special Missions, the box marks Waypoint 2, since the starting point is determined by the underlying mission.) Enemy flight paths are marked in white if they are primary targets for a particular flight.

Flight 1 1

Flight 2 2

Flight 3 3

Flight 4 4

Where flight paths coincide, they are marked by a single, heavier line. Arrows indicate direction of flight, as necessary.

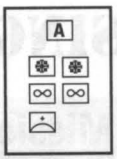
The rest of the maps in the analysis each focus on one of the four flights. All of the icons in the mission area are given on the map, but only one flight path is marked, and primary and secondary targets for this flight are designated by triangles:

Primary mission target **Secondary mission target**

Map Icons. NATO icons mark the locations of objects on the maps. **Black** icons denote friendlies, **white icons** denote enemies.

Air Defense	Headquarters
Armor	Infantry
Artillery	SAM
Fighter	Transport/Structure
Helicopter	

Sometimes, many threats and/or friendly forces may be concentrated in a tight battle zone. When this happens, a box with a single letter marks the group's location. Individual elements of the group are listed in a white box on the edge of the map.



MISSION NOTES

The mission notes describe each of the four flights separately. Although one overall objective exists for the mission, each flight fulfills certain, specific objectives that help the mission succeed.

MISSION THUMBNAILS

Single Mission		Location	Overall Objective	Page
1	*Wolf's Den*	PL Orange	Destroy Stepanakert airfield	176
2	*Hornet's Nest*	PL Orange	Destroy tactical bridge	182
3	*Voodoo Hunter*	PL Orange	Inspect/destroy SCUD launchers	188
4	*Hot Potato*	PL Orange	Locate/destroy ammo & logistics depot	194
5	*Smooth Ride*	PL Apple	Transport XXVIII Airborne Commander	200
6	*Stomper*	PL Apple	Destroy advancing enemy armor	206
7	*Sweeper*	PL Apple	Inspect selected buildings near Sisian	212
8	*Helping Hand*	PL Apple	Support advance of friendly armor	218
9	*Breakout*	PL Apple	Support breakthrough of friendly armor	224
10	*Umbrella*	PL Apple	Support tactical retreat of friendly armor	230

Special Mission		Location	Overall Objective	Page
1	Special Order	PL Cherry	Extract downed friendly air crew	236
2	Special Order	PL Pear	Extract Special Forces, attack enemy general	238
3	Special Order	PL Cherry	Inspect enemy convoy on Highway 4	240
4	Special Order	PL Banana	Support extraction of Allied prisoners	242
5	Special Order	PL Lemon	Insert Special Forces for rebel meeting	244
6	Special Order	PL Mango	Capture downed enemy pilot	246
7	Special Order	PL Orange	Defend airfield against enemy helo attack	248
8	Special Order	PL Pineapple	Rescue BSN news crew	250
9	Special Order	PL Orange	Extract Marine Force recon unit	252
10	Special Order	PL Pineapple	Defend Allied command post	254
11	Special Order	PL Papaya	Destroy Stepankert power plant	256
12	Special Order	PL Peach	Extract compromised SEAL team	258
13	Special Order	PL Melon	Laser-designate Stepankert munitions factory	260
14	Special Order	PL Coconut	Support raid on enemy command post	262
15	Special Order	PL Melon	Laser-designate bridge	264

SINGLE 1: WOLF'S DEN

Mission Parameters

OVERALL OBJECTIVE

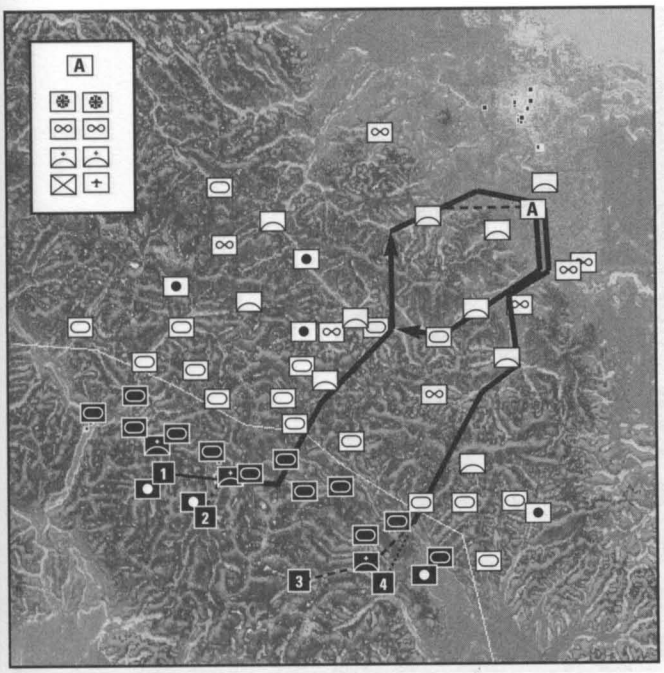
GROUND TROOPS (SPECIAL FORCES A-TEAM) ARE TO BE DROPPED INTO MAP GRID D-8. THEIR MISSION IS TO INSPECT AND DESTROY TACTICAL AIRFIELD BUILDINGS. ACCOMPANYING FLIGHTS EITHER FLY BLACK HAWKS TO THE TARGET LOCATION AND INSERT/EXTRACT TROOPS, OR ESCORT THE BLACK HAWKS. ABCCC CALLSIGN IS PAPA 73; A-TEAM CALLSIGN IS MIKE 83.

ENVIRONMENT	8KM / 0700 HOURS / 71° F / 3 KNOTS N
LOCATION	3KM SW OF PL ORANGE / D-8
AIR STRIKES	1
ARTILLERY STRIKES	2

	FLIGHT 1	FLIGHT 2	FLIGHT 3	FLIGHT 4
HELICOPTER	LONGBOW	BLACK HAWK	LONGBOW	BLACK HAWK
CALLSIGN	*TANGO 29*	*TANGO 30*	*TANGO 31*	*TANGO 32*
ATO #	16731	16732	16733	16734
PRIMARY	ESCORT	INSERT/EXTRACT	ESCORT	INSRT/EXTRCT.
	TANGO 30	*MIKE 83*	*TANGO 32*	*MIKE 83*
		(1/2 OF TEAM)		*(1/2 OF TEAM)*
SECONDARY	CAS	—	CAS	—
	MIKE 83	—	*MIKE 83*	—

Success/Failure

	FLIGHT 1	FLIGHT 2	FLIGHT 3	FLIGHT 4
PRIMARIES	*2 UH-60L*	*5 SOLDIER*	*2 UH-60L*	*5 SOLDIER*
(CALLSIGN)	*(TANGO 30)*	*(1/2 MIKE 83)*	*(TANGO 30)*	*(1/2 MIKE 83)*
SUCCESS+	2 LIVE	5 LIVE	2 LIVE	5 LIVE
SUCCESS	1 LIVES	3-4 LIVE	1 LIVES	3-4 LIVE
FAIL	0 LIVE	2 LIVE	0 LIVE	2 LIVE
FAIL –	—	0-1 LIVE	—	0-1 LIVE
SECONDARIES	*5 SOLDIER*	—	*5 SOLDIER*	—
(CALLSIGN)	*(1/2 MIKE 83)*	—	*(1/2 MIKE 83)*	—
SUCCESS+	5 LIVE	—	5 LIVE	—
SUCCESS	3-4 LIVE	—	3-4 LIVE	—
FAIL	2 LIVE	—	2 LIVE	—
FAIL –	0-1 LIVE	—	0-1 LIVE	—



FLIGHT 1 (ATO: 16731) Time On Target: 0718L Time From Target: 0724L

Objective: Provide escort for TANGO 30. TANGO 30 will insert MIKE 83 (Special Forces A-Team) 1km northwest of the Stepanakert airfield at map grid D-8. Cover the insertion and extraction of MIKE 83 as they inspect and destroy the selected buildings at the airfield.

FLIGHT 2 (ATO: 16732) Time On Target: 0718L Time From Target: 0724L

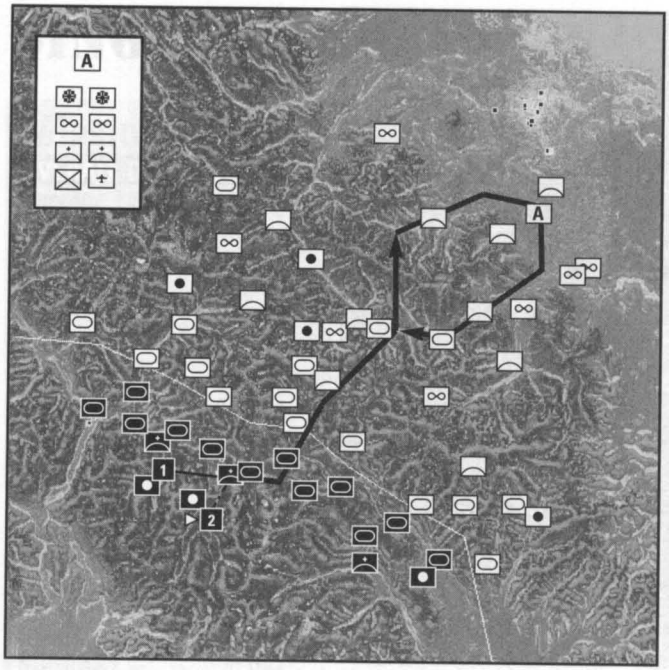
Objective: Insertion and extraction of MIKE 83 (Special Forces A-Team) 1km northwest of the Stepanakert airfield at map grid D-8 (see map). MIKE 83 will inspect and destroy selected buildings at the airfield. Escort will be provided by TANGO 29.

FLIGHT 3 (ATO: 16733) Time On Target: 0718L Time From Target: 0723L

Objective: Provide escort for TANGO 32. TANGO 32 will insert MIKE 83 (Special Forces A-Team) 1km east of the Stepanakert airfield at map grid D-8 (see map). Cover the insertion and extraction of MIKE 83 as they inspect and destroy the selected buildings at the airfield.

FLIGHT 4 (ATO: 16734) Time On Target: 0718L Time From Target: 0723L

Objective: Insertion and extraction of MIKE 83 (Special Forces A-Team) 1km east of the Stepanakert airfield at map grid D-8 (see map). MIKE 83 will inspect and destroy selected buildings at the airfield. Escort will be provided by TANGO 31.

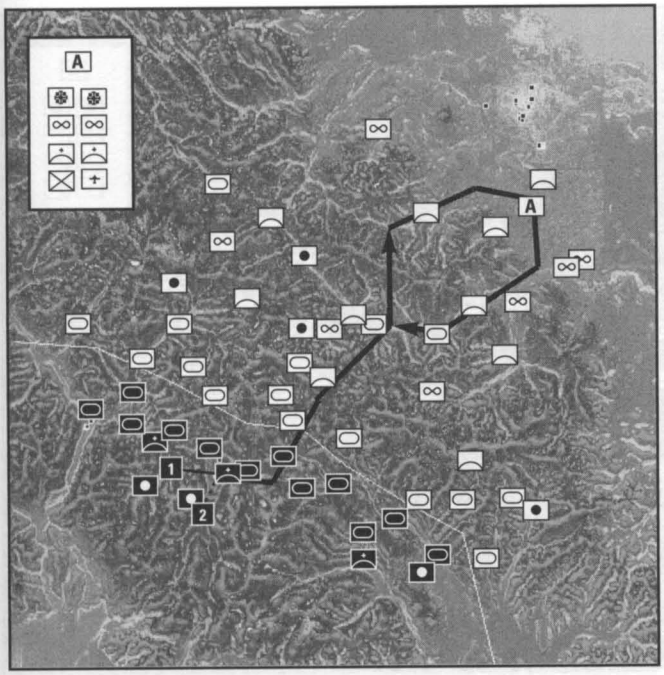


Flight 1 — Tango 29

Your objective in this mission is to escort a Black Hawk flight that is inserting a team of Special Forces soldiers into an enemy airfield to inspect and detonation key structures. You link up with the Black Hawks at Waypoint 2 (represented by a black circle on the flight path), then basically fly through the center of the map up to the enemy airfield. Use your wingman's weapons along the way, and keep your Black Hawks a solid couple of kilometers behind you until you near Waypoint 6. Then, lay on the cyclic and start distancing yourself as you forge ahead to the airfield at Waypoint 9.

The other escort-Black Hawk pairing reaches the LZ about a minute or so before you do. Since you don't have any SEAD flights to accompany you on this mission, you'll have to take responsibility for clearing the landing area. Find a protected spot in which to hover — about 5 or 6km away from the airfield works — and engage the Rapier and ZU-23 sites and any airborne enemy helicopters flying CAPs in that area.

After the Black Hawks arrive, switch to TADS so that you can pick up any enemy troops that might be there to hassle the A-Team (US Special Forces — your secondary objective). Support the friendly ground troops as they walk up to the hangars and wire them for detonation. The buildings blow as the Special Forces team return to their transports. When they re-board, the Black Hawks take off — escort them back to Waypoint 15.



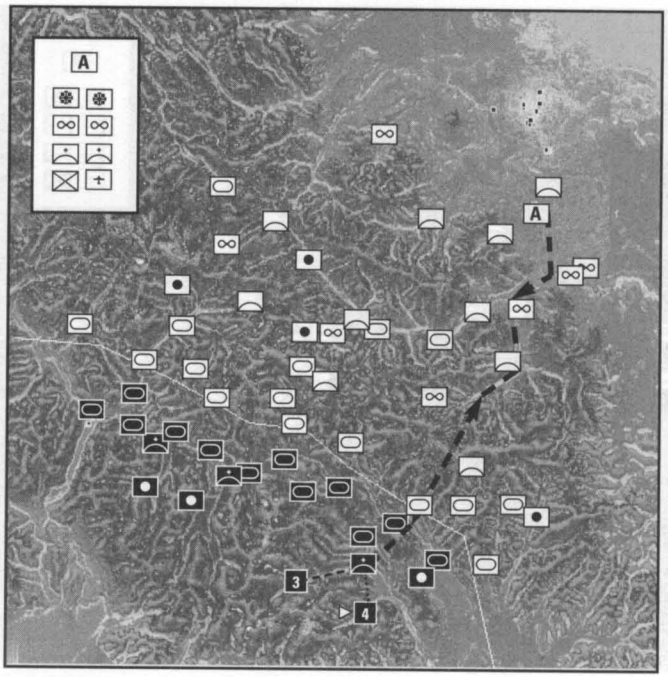
Flight 2 — Tango 30

You've been assigned to insert Special Forces into an enemy airfield, and then extract them. You'll probably want to take along the M60D door gun — it's got a bit less clout than the M134 minigun, but more rounds. And considering the number of ground targets at the airfield, you might as well use them.

Meet up with your escorts at Waypoint 2, then follow them all the way to Waypoint 9. By virtue of flying a Black Hawk, you really don't have to do much. Just drop back at least 1.5km behind *Tango 29*. As you arrive at the insertion site, your escorts will take up a position about 1.5km away in order to clean out a safe landing area.

The absence of a SEAD flight makes your escorts' job harder, and it may take them a few minutes to dispose of the most dangerous threats. Kill a few minutes by hovering behind one of the hills surrounding the battle area. If you go in too soon, you may fall under attack. Once you feel it's safe, land at Waypoint 9, toward the northern end of the runway near the hangars. As you drop collective to land, angle your helicopter so that you can aim directly for the trucks and grounded aircraft.

Your A-Team troops will disembark and start inspecting the hangars. While you're waiting for them, pick off a few parked aircraft and fuel trucks. Once your troops are safely onboard, take off and enjoy a close-up view of the destroyed hangars. The route home should be fairly safe, assuming your escorts saved a couple of Hellfire rounds for the Rapier you'll pass on the way back.



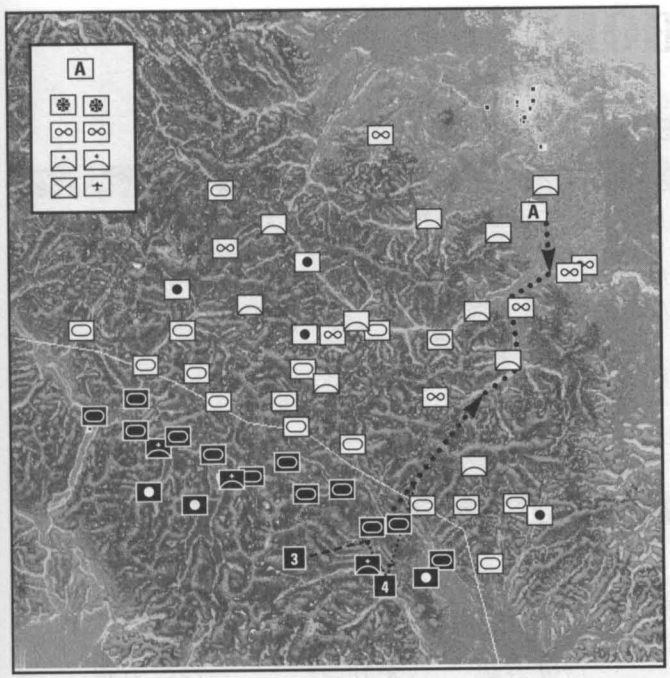
Flight 3 — Tango 31

You've drawn an escort mission in which you protect a flight of Black Hawks (*Tango 32*). You're performing basically the same mission as the *Tango 29-30* escort-Black Hawk team, but along a different ingress route. You'll be coming from the south, while they approach from the west. During your trip to the target area, assign any attacking ground threats to your wingman. You'll want to save your weapons for other threats at the airfield.

As you approach Waypoint 6, pull away from the flight you're escorting. You're about a minute ahead of the other team. As you approach Waypoint 9, take up a concealed attack position several kilometers away (5 or 6) from the airfield. As quickly as you can acquire them, take out any AAA sites you see.

If the other Longbow flight hasn't taken out the Rapier and ZU-23s yet, help get rid of them. Leave the buildings alone, however — they're primaries for your ground troops. Momentarily, your Black Hawk flight will arrive and head for the southwest section of the airfield. Switch into TADS target acquisition mode and put your TADS to use against any enemy troops that move in on the A-Team forces.

Once the ground troops finish inspecting the hangars and other support buildings, they'll re-board the Black Hawks and lift off. The buildings they wired will blow up as you exit the area. Lead the Black Hawk back to Waypoint 13. Use whatever ordnance you have left to wipe out anything that threatens your trip back home.



Flight 4 — Tango 32

Your mission mimics that of Flight 2 (*Tango 30*), except that you're approaching and exiting from a different direction. As you lift off, head northwest and join your escort group (*Tango 31*) at Waypoint 2. Stick close to them — there are a couple of enemy helicopters along the way that could cut your trip short. Whatever you do, don't stray west as you approach Waypoint 4. An enemy FARP is set up in that direction, and if you move too close to it, you'll trigger ZSU-23-4 fire.

Around Waypoint 7 or so, fall back and make a nice, slow approach to the LZ. You'll be arriving after the Longbows, who are busy clearing out the airfield of any clear-cut threats. Since you enter the arena slightly before the other Black Hawks, you're at a bit more risk than the other Black Hawks. (Keep that in mind if you're trying to decide which Black Hawk flight to take.)

Loiter about 5 or 6km away until the area is clear in order to give escorts time to attack the ADA at the airfield. Don't rush in, or you'll get jumped by ground troops and whatever AAA hasn't been incapacitated.

Touch down on the southern part of airfield (the other half of *Mike 83* is on the northern side). Your troops are going to disembark and then inspect and blow the Control tower and its supporting buildings. Once your troops are safely onboard, take off and enjoy a close-up view of the destroyed hangars, then head for home.

SINGLE 2: HORNET'S NEST

Mission Parameters

OVERALL OBJECTIVE

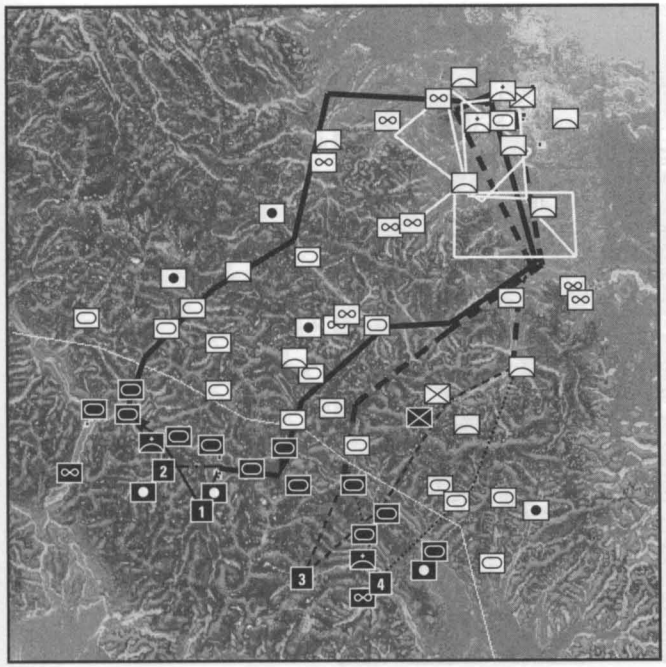
GROUND TROOPS (C COMPANY 73RD INFANTRY LRSU) ARE TO BE DROPPED INTO MAP GRID D-8 TO DETONATE A BRIDGE. ACCOMPANYING FLIGHTS EITHER FLY BLACK HAWKS TO THE TARGET LOCATION AND INSERT/EXTRACT TROOPS, ESCORT THE BLACK HAWKS, OR PROVIDE SEAD AND CAP. ABCCC CALLSIGN IS PAPA 73; LRSU CALLSIGN IS KILO 52.

ENVIRONMENT	8KM /2300 HOURS / 66° F / 0 KNOTS
LOCATION	3 KM SW OF PL ORANGE / D-8
AIR STRIKES	1
ARTILLERY STRIKES	1

	FLIGHT 1	FLIGHT 2	FLIGHT 3	FLIGHT 4
HELICOPTER	LONGBOW	BLACK HAWK	LONGBOW	LONGBOW
CALLSIGN	*GULF 31*	*GULF 32*	*GULF 33*	*GULF 34*
ATO #	2161	2162	2163	2164
PRIMARY	ESCORT	INSERT/EXTRACT	SEAD	CAP
	GULF 32	*LRSU TEAM*	8 ZU-23	*LRSU TEAM*
		(KILO 52)	1 CLAM SHELL	*(KILO 52)*
			1 FLAP LID	
			4 SA-10	
			2 BLINDFIRE	
			8 RAPIER SAM	
SECONDARY	*LRSU TEAM*	–	–	ENEMY AIR
	(KILO 52)	–	–	2 MI-28
				4 AH-1J

Success/Failure

	FLIGHT 1	FLIGHT 2	FLIGHT 3	FLIGHT 4
PRIMARIES	*2 UH-60L*	*LRSU TEAM*	ENEMY ADA	*LRSU TEAM*
(CALLSIGN)	*(GULF 32)*	*(KILO 52)*	–	*(KILO 52)*
SUCCESS+	2 LIVE	4 LIVE	24 KILLED	4 LIVE
SUCCESS	1 LIVES	3 LIVE	19-23 KILLED	3 LIVE
FAIL	0 LIVE	2 LIVE	10-18 KILLED	2 LIVE
FAIL –	–	0-1 LIVE	0-9 KILLED	0-1 LIVE
SECONDARIES	*LRSU TEAM*	–	–	ENEMY AIR
(CALLSIGN)	*(KILO 52)*	–	–	–
SUCCESS+	4 LIVE	–	–	6 KILLED
SUCCESS	3 LIVE	–	–	4-5 KILLED
FAIL	2 LIVE	–	–	2-3 KILLED
FAIL –	0-1 LIVE	–	–	0-1 KILLED



FLIGHT 1 (Air Tasking Order: 2161) Time On Target: 2323L Time From Target: 2328L

Objective: Provide escort for GULF 32. GULF 32 will insert KILO 52 (LRSU Team) 1km west of the Highway 8 bridge at map grid B-8. Cover the insertion and extraction as KILO 52 inspects and destroys the bridge. Be advised that KILO 52 will set the bridge to detonate by 2330L. Suppression of Enemy Air Defenses (SEAD) will be provided by GULF 33 and Combat Air Patrol (CAP) will be provided by GULF 34.

FLIGHT 2 (Air Tasking Order: 2162) Time On Target: 2329L Time From Target: 2334L

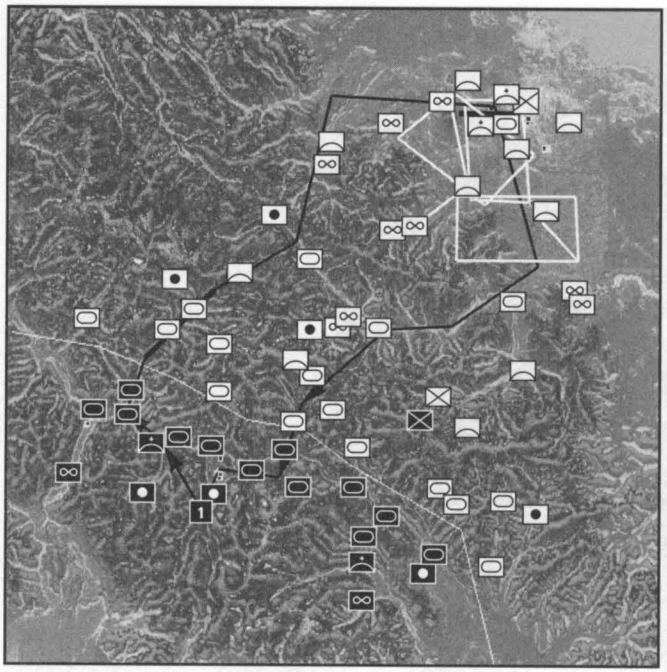
Objective: Insertion and extraction of KILO 52 (LRSU Team) 1km west of the Highway 8 bridge at map grid B-8. KILO 52 will inspect and destroy the Highway 8 bridge. Be advised that KILO 52 will set the bridge to detonate by 2330L. Escort will be provided by GULF 31. Suppression of Enemy Air Defenses (SEAD) will be provided by GULF 33 and Combat Air Patrol (CAP) will be provided by GULF 34.

FLIGHT 3 (Air Tasking Order: 2163) Time On Target: 2315L Time From Target: 2322L

Objective: Provide Suppression of Enemy Air Defenses (SEAD) in and around the area of the Highway 8 bridge at map grid B-8, in preparation for covert operations being conducted by KILO 52 (LRSU Team). Be advised that KILO 52 will set the bridge to detonate by 2330L. Be on station by 2320L. Combat Air Patrol (CAP) will be provided by GULF 34.

FLIGHT 4 (Air Tasking Order: 2164) Time On Target: 2313L Time From Target: 2321L

Objective: Provide Combat Air Patrol (CAP) in and around the area of the Highway 8 bridge at map grid B-8, in preparation for covert operations being conducted by KILO 52 (LRSU Team). Be advised that KILO 52 will set the bridge to detonate by 2330L. Be on station by 2320L. Suppression of Enemy Air Defenses (SEAD) will be provided by GULF 33.



Flight 1 — Gulf 31

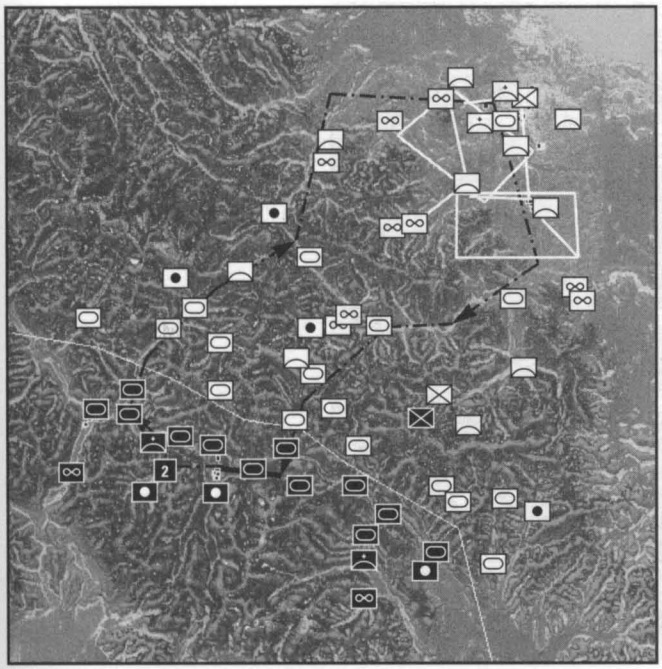
In this mission, you're to escort *Gulf 32*, a flight of Black Hawks. Pick them up at Waypoint 2, then head north. On the path from Waypoint 4 to Waypoint 6, you'll encounter several enemy armor platoons.

Allocate a sizable mixture of rockets and Hellfires between you and your wingman. Early on in the mission, use whatever Hellfires you feel like expending, but not too many — you've got a lot of threats to take out in the target area. Carry a couple of Stingers with you as well.

On your approach to the battle zone, you're likely to encounter a couple of Havocs and Sea Cobras flying square patterns around the bridge that is Kilo 52's objective. Approach the bridge from the west (you're more likely to avoid the Sea Cobras) and find a good hangout about 5km or so west of the bridge area.

Take your time setting up — Flights 3 and 4 will arrive ahead of you, and their firepower can go a long way toward cleaning out the area. You, on the other hand, can concentrate on hitting small air defense targets surrounding the bridge, and SAMs north and south of the bridge. If you make your entrance before they've done their job, you'll probably be overpowered.

Save a few Hellfires for the trip home. There are a few tanks right in your return flight path. You can miss them by simply retracing your inbound path, or by steering just east of your assigned return path. Just make sure you add a new waypoint the the Black Hawks' flight path so that they'll follow you. (If they don't, you'll fail.)



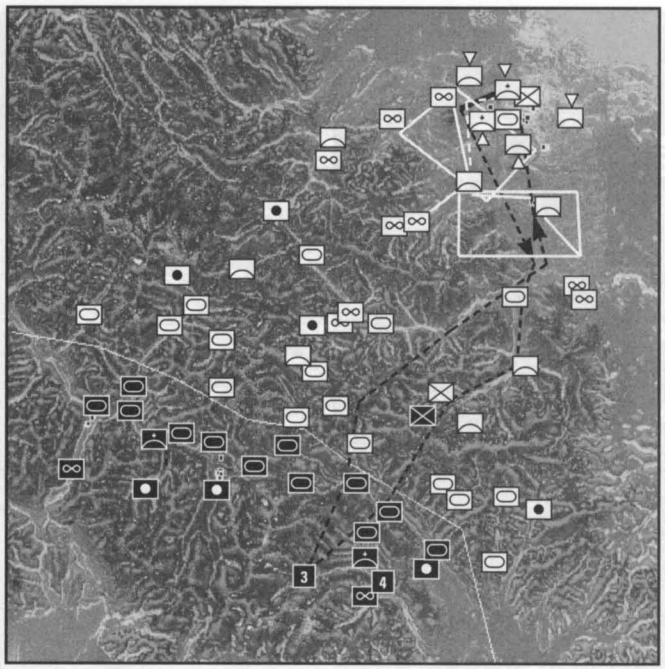
Flight 2 — Gulf 32

As the lone Black Hawk flight of the group, you've got the easiest job of any of the four flights. You'll probably want to load up with the M134 mini-gun for good measure — after all, you must defend your troops against enemy ground forces at the insertion point.

Once you're hooked up with *Gulf 31* (your escort) at Waypoint 2, there's no particular rush. Taking your time is the key in this mission. Take a leisurely trip through the waypoints, and don't worry about being late. The SEAD and CAP flights will arrive ahead of you and your escort flight, and giving them time to infiltrate and dispose of threats in the area is the key to winning the mission.

You don't have to do much at all if your escorts and preparatory flights are fulfilling their objectives. Once you creep up to the battle zone, land just west of the bridge, within 300 meters of the waypoint. (Use the TSD to get your distance from the waypoint.) Your troops will climb out and head for the bridge, where they will proceed to wire it for detonation.

Meanwhile, enemy troops are approaching from east of the town. You'll want to gun them down, or at least keep an eagle's eye watch on them. When *Kilo 52* gets back into your chopper, lift off and take a victory ride back to base.



Flight 3 — Gulf 33

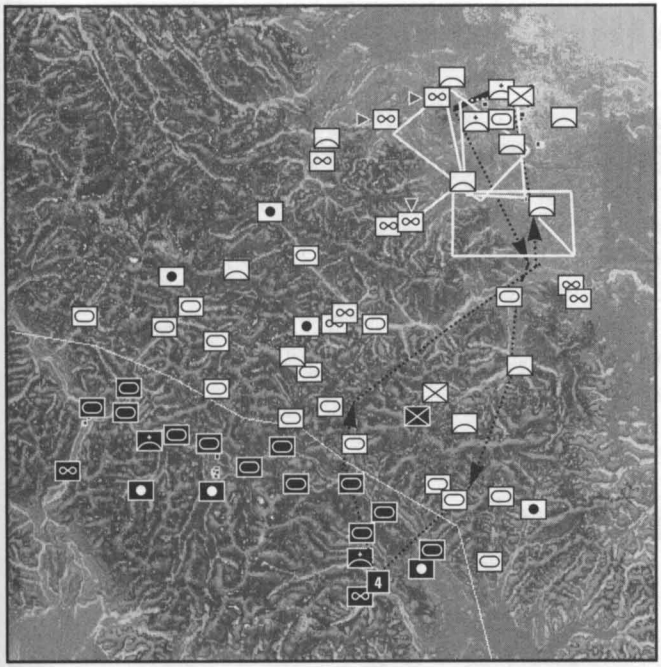
In contrast to Flight 2, you've got the toughest job of all in this mission — the Suppression of Enemy Air Defenses. Your biggest obstacle in clearing out the area around the bridge is going to be time.

Part of accomplishing this mission is tied to lengthening the loiter times for Flights 1 and 2 in the Mission Planner. Doing this before takeoff will slow down the escorted and escort flights. Make sure they're traveling at 50 knots and are flying Nap-of-the-Earth (NOE).

When you arrive at Waypoint 6, you may encounter a few enemy helicopters on CAP just as you come out of the valley at that point. One way to deal with the helicopters is to let Flight 4 (*Gulf 34*) fly slightly ahead of you. With luck, they'll take out one or both of the Sea Cobras and a Havoc or two.

Once the bridge is within 5km of you, start seeking out a covered attack spot somewhere near the airfield. Using a rack of Hellfires, hammer all the AAA and SAM sites clustered around the bridge. Keep good standoff range, however, because some of them are longer-range weapons and can tag you if you're not careful.

Assist Flight 4 (*Gulf 34*) by taking out enemy helicopters if you can, but make sure you've done your job fires — you've got a long list of primaries.



Flight 4 — Gulf 34

Load up with as many Stingers as you can take, and give your wingman a few as well. You'll need to conserve most of yours for the target area (your priority there is defending friendly ground troops against attacking helicopters). Stick with your gun and your wingman's Stingers along your arrival flight path.

As you come out of the hills and start approaching the target area, you may want to utilize Flight 3 by letting those Longbows break through the enemy's fire line of defense. Or, you can use your wingman to assist that flight. In either case, you'll want to get to the LZ as quickly as possible to destroy all the airborne defense before Flights 1 and 2 arrive.

This is a prime opportunity to call in an air strike — the battle area is a target-rich environment. Target a helicopter and call the strike as soon as you have the airfield in sight. The F-16 will come around and hit all the helicopters it can.

While all of this is happening, the *Kilo 52* ground troops are wiring the bridge. As soon as you see the Black Hawks lift off, mop up if you haven't already, then start heading back.

During this mission, you may notice some enemy armor movement. You won't need to worry about it. In fact, part of the beauty of this game is that there are ground battles and movements going on all over the battlefield. Your forces are perfectly capable of offensive and defensive movements without your personal involvement.

SINGLE 3: VOODOO HUNTER

Mission Parameters

OVERALL OBJECTIVE

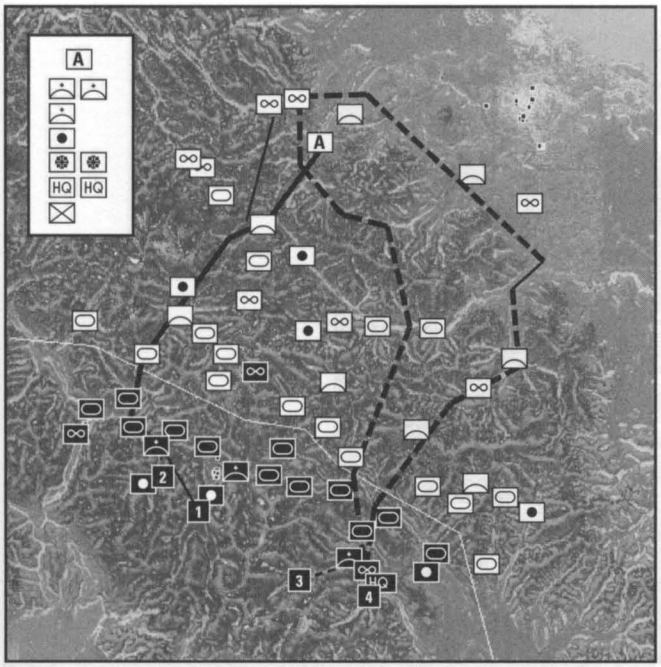
GROUND TROOPS (C COMPANY 73RD INFANTRY LRSU) ARE TO BE INSERTED INTO MAP SECTOR C-5 TO INSPECT AND DESTROY SCUD MISSILE LAUNCH SITES. ACCOMPANYING FLIGHTS EITHER FLY BLACK HAWKS TO THE TARGET LOCATION AND INSERT/EXTRACT TROOPS, ESCORT THE BLACK HAWKS, OR PROVIDE SEAD OR CAP. ABCCC CALLSIGN IS HOTEL 33; LRSU CALLSIGN IS VICTOR 14.

ENVIRONMENT	6KM / 1200 HOURS / 65° F / 10 KNOTS E
LOCATION	3KM SW OF PL ORANGE / C-5
AIR STRIKES	2
ARTILLERY STRIKES	2

	FLIGHT 1	FLIGHT 2	FLIGHT 3	FLIGHT 4
HELICOPTER	LONGBOW	BLACK HAWK	LONGBOW	LONGBOW
CALLSIGN	*NOVEMBER 88*	*NOVEMBER 89*	*NOVEMBER 90*	*NOVEMBER 91*
ATO #	37301	37302	37303	37304
PRIMARY	ESCORT	INSERT/EXTRACT	SEAD	CAP
	NOVEMBER 89	*VICTOR 14*	12 ZU-23	4 MI-24
		LRSU TEAM	4 SA-10	4 AH-1J
		(4 SOLDIER)	1 CLAM SHELL	
			1 FLAP LID	
SECONDARY	CAS	–	–	–
	VICTOR 14	–	–	–

Success/Failure

	FLIGHT 1	FLIGHT 2	FLIGHT 3	FLIGHT 4
PRIMARIES	*2 UH-60LS*	*LRSU TEAM*	ENEMY	ENEMY
(CALLSIGN)	*(NOVEMBER 89)*	*(VICTOR 14)*	–	–
SUCCESS+	2 LIVE	4 LIVE	18 KILLED	8 KILLED
SUCCESS	1 LIVES	3 LIVE	12-17 KILLED	6-7 KILLED
FAIL	0 LIVE	2 LIVE	7-11 KILLED	2-5 KILLED
FAIL –	–	0-1 LIVE	0-6 KILLED	0-1 KILLED
SECONDARIES	*LRSU TEAM*	–	–	–
(CALLSIGN)	*(VICTOR 14)*	–	–	–
SUCCESS+	4 LIVE	–	–	–
SUCCESS	3 LIVE	–	–	–
FAIL	2 LIVE	–	–	–
FAIL –	0-1 LIVE	–	–	–



FLIGHT 1 (ATO: 37301) Time On Target: 1221L Time From Target: 1227L

Objective: Provide escort for NOVEMBER 89. NOVEMBER 89 will insert VICTOR 14 (LRSU Team) 2 km south of suspected enemy SCUD launchers at map grid C-5. Cover the insertion and extraction of VICTOR 14. Be advised due to possible chemical contaminants VICTOR 14 will inspect the SCUD launchers for chemical agents prior to their destruction. VICTOR 14 will then destroy SCUD launchers after they have been inspected. Suppression of Enemy Air Defenses (SEAD) will be provided by NOVEMBER 90 and Combat Air Patrol (CAP) will be provided by NOVEMBER 91.

FLIGHT 2 (ATO: 37302) Time On Target: 1223L Time From Target: 1227L

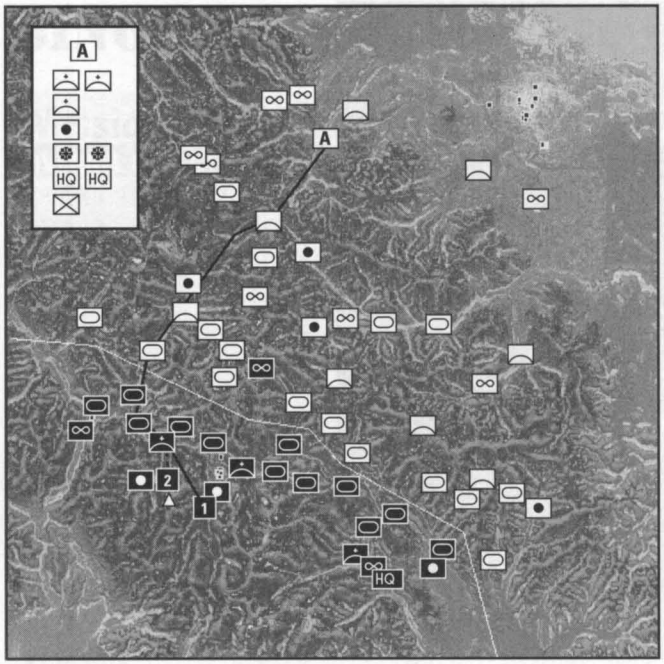
Objective: Insertion and extraction of VICTOR 14 (LRSU Team) 1 km south of suspected enemy SCUD launchers at map grid C-5 (see map). Be advised due to possible chemical contaminants VICTOR 14 will inspect the SCUD launchers for chemical agents prior to their destruction. Escort will be provided by NOVEMBER 88. SEAD will be provided by NOVEMBER 90 and Combat Air Patrol (CAP) will be provided by NOVEMBER 91.

FLIGHT 3 (ATO: 37303) Time On Target: 1215L Time From Target: 1224L

Objective: Provide Suppression of Enemy Air Defenses (SEAD) in and around the area of suspected enemy SCUD launchers at map grid C-5, in preparation for covert operations being conducted by VICTOR 14 (LRSU Team). Be advised due to possible chemical contaminants VICTOR 14 will inspect the SCUD launchers for chemical agents prior to their destruction. Be on station by 1216L. CAP will be provided by NOVEMBER 91.

FLIGHT 4 (ATO: 37304) Time On Target: 1215L Time From Target: 1224L

Objective: Provide Combat Air Patrol (CAP) in and around the area of suspected enemy SCUD launchers at map grid C-5, in preparation for covert operations being conducted by VICTOR 14 (LRSU Team). Be advised due to possible chemical contaminants VICTOR 14 will inspect the SCUD launchers for chemical agents prior to their destruction. Be on station by 1216L. SEAD will be provided by NOVEMBER 90.



Flight 1 – November 88

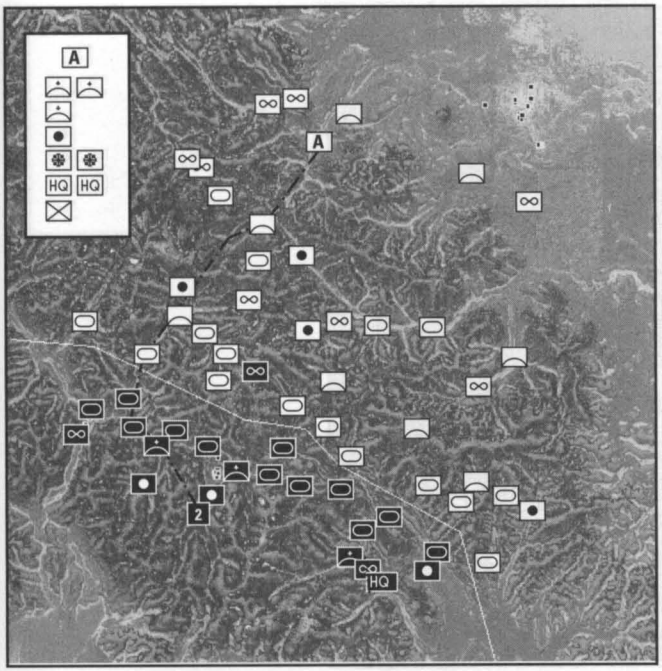
You've been tasked with escorting a flight of Black Hawks carrying LRSU troops who are to recon and destroy enemy Scud launchers at Waypoint 8. Load up on Hellfires and carry Stingers, and do the same for your wingman. You're going to follow the same flight path into and out of the battle zone, so you can afford to clear out a corridor along the way, preferably with your wingman's missiles.

Cleaning up the flight path has a twofold purpose – you want to make the route safe, and you want to take plenty of time getting to the Scud launchers. Flights 3 and 4 (*November 90* and *November 91*) are tasked with SEAD and CAP objectives, and their goal is to eliminate the major threats before you arrive.

About 4km out from Waypoint 7, pull ahead and rush to Waypoint 8 to take out any SAMs that threaten your escorted flight. Keep an eye out for enemy helos – if you see any, hand them off to your wingman.

If the target area is fairly SAM-free, work on eliminating the guard towers. They're assigned to the SEAD flight, but you should remain wary of them. The troops will fire on the inserted team. Do not, under any circumstances, destroy the SCUD launchers. If you kill more than one, the mission fails.

Here's a valuable piece of advice – don't create PFZs or give your wingman the "Weapons Free" order. He'll just go ballistic and attack the Scuds. Instead, send him individual targets to attack. As for you, once the Black Hawks arrive, switch to TADS in order to spot enemy ground troops that are near the launchers to meet your troops. Cover your men as they inspect the launchers and call for extraction.



Flight 2 — November 89

Before you take off, mount the M134 minigun – you're going to be more concerned with the power behind each round than the number of rounds.

Connect with your escorts (*November 88*) at Waypoint 2 and stay well behind them on the journey to the battle zone. In fact, as you approach Waypoint 7, it's a wise idea to hold off on your final movement into the target area. This will allow the other flights to ensure that the area is safe and clear for your arrival.

(As a general note, insertion flights with Escort, SEAD and CAP flights are safer than insertions or extractions with two escort-Black Hawk teams. You've got three flights looking after your troops in that case, whereas in the two-team approach, each team's escort is responsible for clearing the entire area.)

At the target area, land and deploy *Victor 14* in the center of the launcher formation, or slightly south of it. You're not going to want to randomly spray the zone with bullets. In this mission, you've got to be careful not to inadvertently shoot the Scud launchers. This means *no air strikes* on the Scuds! Your troops' main objective is to inspect and destroy the launchers. Although it might seem like you're helping them by having an A-10 take out a few launchers, it's really a terrible idea. You'll cause everyone to fail their mission.

When your LRSU team come back, the Scuds will detonate (they're supposed to), and you can take off. If your escort's been successful, the skies should be clear on the way home.

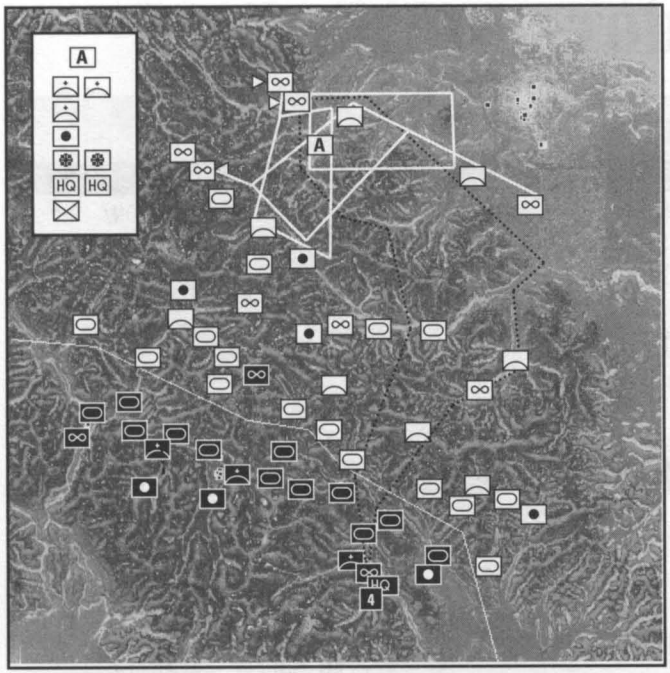
Flight 3 — November 90

SEADs are one of the most stressful mission types in the game. Not only do you face a slew of dangerous ground threats, but you're also usually responsible for clearing out an LZ within a limited time frame. Load up on Hellfires, do the same for your wingman, then make tracks for the target area at Waypoints 7-9.

Make good use of your wingman on the trip north, and save your Hellfires. If you feel particularly threatened, call in an air strike before you get to the insertion zone. You're going to want to use one or both air strikes before you get to the target area, because if you call them in too close to main objective (the Scud launchers), they'll foil the inspection effort and cause you to fail the mission.

Remember, whatever target type you have selected determines what type of air strike comes. Targeting an air object brings in an F-16 air strike, and a ground object calls an A-10 ground strike.

On the way in, you may run across a couple of enemy helos, but they're assigned to Flight 4 (*November 91*) Stay behind that flight and concentrate your efforts on the SAMs that are hiding in the nooks and crannies around the target area. You may want to consider disabling CPG spotting at this point to ensure that you won't hit the Scud launchers. Get the enemy air defenses, including the triangular formation of ZU-23 sites surrounding the Scud launchers. (This is noticeably easier on a lower CAT setting.) Also, engage guard towers or the ground troops around the launchers.



Flight 4 — November 91

Load up on a mixture of rockets and Stingers, plus a rack of Hellfires. You'll be following the same route as Flight 3 (*November 90*), but you should maintain a bit of a lead on the way in order to expend some ground ordnance ahead of them. Your mission is CAP, but anything you can destroy on the ground represents that many more missiles Flight 3 can use within the target area.

You'll probably want to set your rocket salvo to 4 or 8. One rocket won't do a whole lot of damage against these targets, but four will. Don't forget that although you're assisting with ground targets, your main mission is CAP.

One preferred method of firing Stingers is as follows: Acquire an approaching enemy helicopter. Then, press F11 and inspect the terrain around him to make sure he can't suddenly drop behind a hill. (Terrain can block Stinger missiles.). When you have a lock and are ready to fire, nose up high (about 10 to 15 degrees) and unleash your Stinger. A lofting launch can make a huge difference when you're shooting around mountains or hills, and will give you a better hit chance.

On the way to Waypoint 7, you may want to call in an air strike against the enemy helicopters. Once you get to the SCUD park, position yourself in the southeast quadrant of the battle area and focus on enemy helos flying patterns there. Don't take out any Scuds, but pop a few SAMs and AAA if you feel inclined.

SINGLE 4: HOT POTATO

Mission Parameters

OVERALL OBJECTIVE

RECONNAISSANCE FLIGHT (SIERRA 14) IS TO LOCATE AN ENEMY AMMUNITION/ LOGISTICS DEPOT AT MAP SECTOR C-8 AND LASER-DESIGNATE HARDENED SHELTERS FOR DESTRUCTION BY 363RD TFW (A-10S/F-16S). ABCCC CALLSIGN IS CHARLIE 26; 363RD TFW CALLSIGN IS KILO 33.

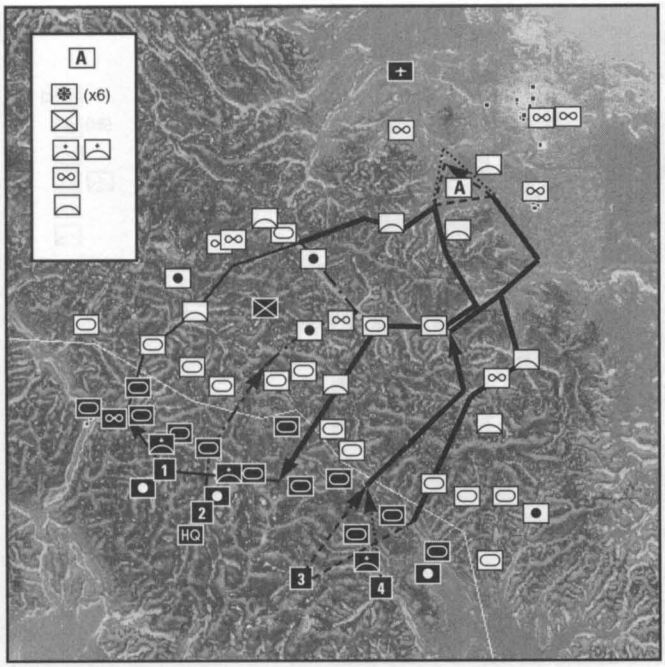
ENVIRONMENT	8KM / 700 HOURS / 72° F / 0 KNOTS
LOCATION	3 KM SW OF PL ORANGE / C-8
AIR STRIKES	0
ARTILLERY STRIKES	1

	FLIGHT 1	FLIGHT 2	FLIGHT 3	FLIGHT 4
HELICOPTER	LONGBOW	KIOWA	LONGBOW	LONGBOW
CALLSIGN	*SIERRA 13*	*SIERRA 14*	*SIERRA 15*	*SIERRA 16*
ATO #	12041	12042	12043	12044
PRIMARY	STRIKE	LAS	SEAD	CAP
	2 COM. BUNKER	2 BUNKER	8 ZU-23	2 MI-28
	6 BUNKER		1 CLAM SHELL	4 AH-1J
			1 FLAP LID	2 MI-24
			4 SA-10	
			2 BLINDFIRE	
			8 RAPIER SAM	
SECONDARY	—	—	—	—
	—	—	—	—

Success/Failure

	FLIGHT 1	FLIGHT 2	FLIGHT 3	FLIGHT 4
PRIMARIES	ENEMY	ENEMY	ENEMY	ENEMY
(CALLSIGN)	—	—	—	—
SUCCESS+	8 KILLED	2 LASED	24 KILLED	8 KILLED
SUCCESS	6-7 KILLED	1 LASED	17-23 KILLED	6-7 KILLED
FAIL	3-5 KILLED	0 LASED	10-16 KILLED	3-5 KILLED
FAIL –	0-2 KILLED	—	0-9 KILLED	0-2 KILLED

SECONDARIES NONE OF THE FLIGHTS HAVE SECONDARY MISSIONS.



FLIGHT 1 (Air Tasking Order: 12041) Time On Target: 0712L Time From Target: 0715L

Objective: Locate and destroy suspected enemy ammunition logistic depot at map grid C-8. Additional hardened shelters will be designated for destruction by SIERRA 14. Suppression of Enemy Air Defenses (SEAD) will be provided by SIERRA 15 and Combat Air Patrol (CAP) will be provided by SIERRA 16.

FLIGHT 2 (Air Tasking Order: 12042) Time On Target: 0712L Time From Target: 0717L

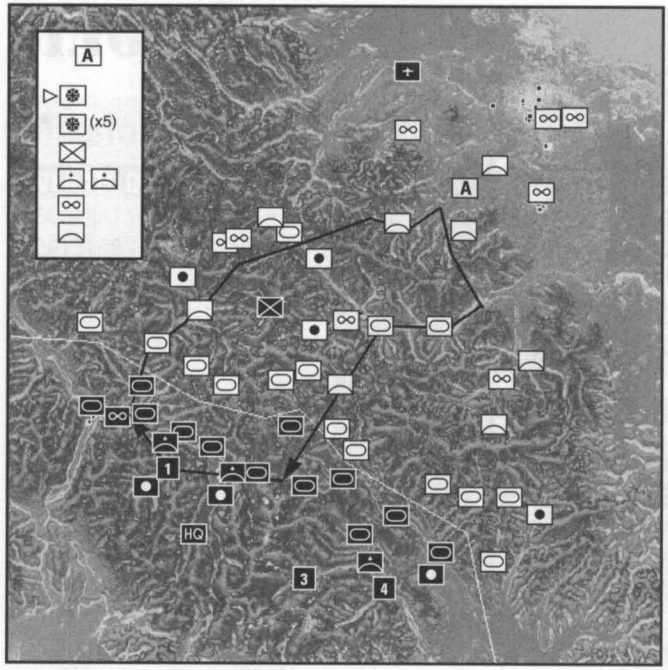
Objective: Locate and designate hardened shelters for destruction in a suspected enemy logistics depot at map grid C-8. Laser Designate the two northern hardened ammo bunkers. Ordnance will be delivered by an F-16 from the 363rd TFS. The F-16 will make several passes over the target area; time on target for the F-16 will be between 0719L and 0722L. Suppression of Enemy Air Defenses (SEAD) will be provided by SIERRA 15 and Combat Air Patrol (CAP) will be provided by SIERRA 16.

FLIGHT 3 (Air Tasking Order: 12043) Time On Target: 0712L Time From Target: 1722L

Objective: Provide Suppression of Enemy Air Defenses (SEAD) in and around the area of suspected enemy logistics depot at map grid C-8. In preparation for additional operations being undertaken by SIERRA 13 and SIERRA 14. Be on station by 0713L. Combat Air Patrol (CAP) will be provided by SIERRA 16.

FLIGHT 4 (Air Tasking Order: 12044) Time On Target: 0712L Time From Target: 0718L

Objective: Provide Combat Air Patrol (CAP) in and around the area of suspected enemy logistics depot at map grid C-8. In preparation for additional operations being undertaken by SIERRA 13 and SIERRA 14. Be on station by 0712L. Suppression of Enemy Air Defenses (SEAD) will be provided by SIERRA 15.



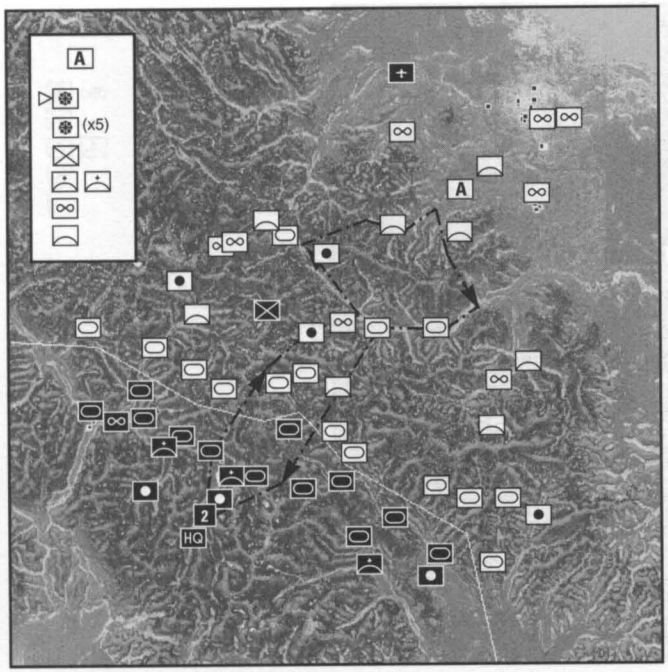
Flight 1 — Sierra 13

Each flight in this mission has a specific role. In fact, this is probably the most JAAT-oriented (Joint Air Assault Team) mission in the game. The overall objective is to raid the enemy's command and control complex. Your particular role in the operation is to take out specific soft bunkers.

All flights have different routes, but if you fly at 60 knots or so, you'll arrive at approximately the same time as the other three flights. This works to the friendly advantage because several attacks from different directions tend to confuse the enemy. Feel free to use your wingman's ordnance on the way to the target area.

After you pass Waypoint 8, start peeling your avionics for eight or so command bunkers at the purported logistics complex, and slow down. By this time, Flights 3 and 4 (*Sierra 15* and *16*) should have cleared your path. Close in to about 3km away from the bunkers, cycle through targets and watch the UPFRONT display in the Longbow's front seat.

Start picking off the bunkers with your cannon. (You'll probably want to rely on your UPFRONT display and the [U] key to avoid hitting the wrong ones.) The sandbag bunkers you have to take out usually fall after about 100 rounds. You can use Hellfires if you want to, but it's an unnecessary expenditure of firepower. As you're firing, make sure you're either hovering or flying very slowly. The less forward speed you have, the less cockpit jitter that occurs, and the better your accuracy. Destroy as many ground targets as you can (taking out the primary bunkers first, of course). Then, follow Flight 2's path home and watch out for enemy helicopters coming in from behind.



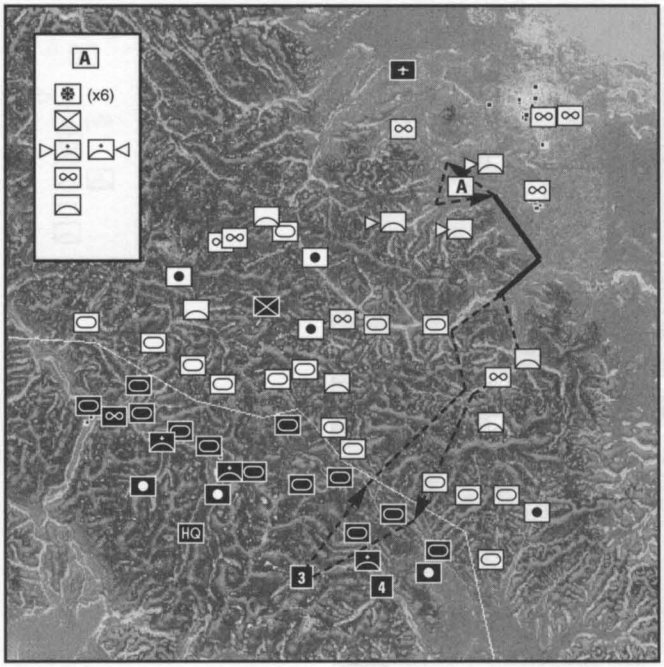
Flight 2 — Sierra 14

If you've been wanting to brush up on your Kiowa stealth skills, this mission affords a prime opportunity. However, you've got a 20-minute time limit, and you've got only one shot at succeeding. Your wingman can't lase on this mission, so give him a Longbow, a rack of Hellfires, and the *Weapons Free* command. Let him handle the AAA threats between Waypoints 4 and 5, while you steer a little west of them. Time is of the essence in this mission.

Once you reach Waypoint 8, slow down and start looking for the bunkers with your MMS MFD and a good hill to lurk behind, about 5km to 7km away and on the southwestern side of the complex. You need to be positioned 15 minutes into the mission.

To lase a target, move within 5 - 7km of it. Then, switch between MMS camera modes (Numpad [1] and [7]) until you can clearly make out target shapes. Use [T] to find your primary bunkers, then press Numpad [Enter] to turn on the laser designator. The range on the VSD turns to a number (rather than XXX) and the asterisk flashes, indicating that the selected target is being lazed.

Now, look for the incoming F-16. It's scheduled to arrive 20 minutes into the mission. You can use the nav map or [F6] view to track the aircraft. As soon as you see the first bunker explode in [F6] view, cycle through to the other bunker. You've got about 60 seconds to find and lase the second target before the F-16 makes its second pass.



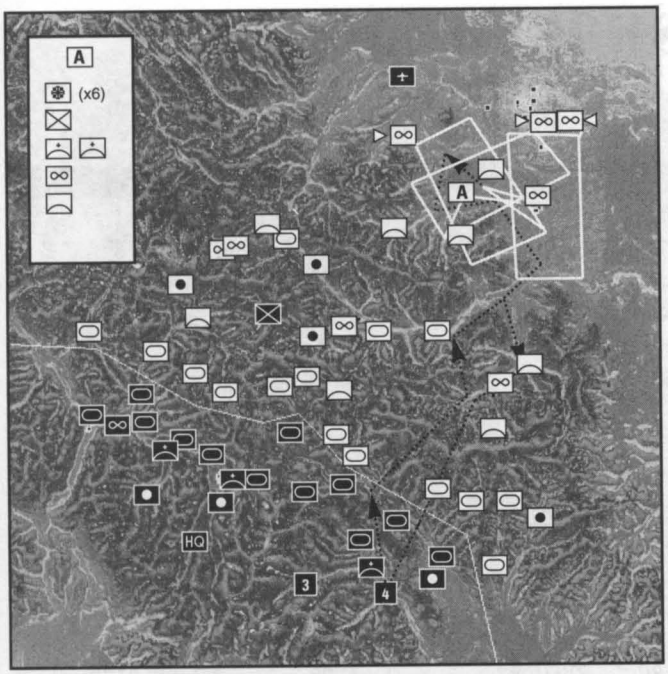
Flight 3 — Sierra 15

You don't directly participate in the laser designation, but as with the other two flights, you've got a time limit. Make sure you arrive at Waypoint 7 at 15 minutes into the mission. You've got a tough job ahead of you – namely, SEAD duty at an enemy-infested logistics complex.

Fly in low and slow, avoiding whatever you can along your flight path and arriving as fast as you can at the target area. One redeeming point about this SEAD mission is that you don't have to get especially close to the target area. Three kilometers away will work just fine, since you're not dealing with troop insertion and deployment. Everyone in the combined attack can stay a fairly safe distance away and accomplish the mission with missiles and guns.

After you've scoped out the area, take out the grounded air threats to prevent them from taking off later. Rapier SAMs, guard towers, ground troops — this mission has it all. Go to the front-seat HDD view and auto-hover about 30 feet off of the ground. Start gunning whatever you can lay your sights on. Look up every once in a while, however, and make sure no enemy helicopters are active.

On the way home, follow Flight 4. There's an enemy FARP along that flight path, so you may want to move your waypoints slightly west to avoid it. Or, if you have plenty of ordnance left, hit it for extra points.



Flight 4 — Sierra 16

No doubt about it, this mission is a tough CAP. You've got several flights of enemy helicopters swarming around Waypoints 6 through 10. Let's just say you're going to be really unhappy to find out that you don't have any air strikes available. You do, however, have the hills just south and east of the target area. Take a load of rockets, Stingers and a bank of Hellfires for both you and your wingman.

The enemy helicopters pose a very real threat to the inbound Kiowa flight that's assigned to lase the command bunkers. In dealing with them, you're going to have to proceed on good faith that the other flights are going to help you out. Take out what you can, one flight at a time, and use your wingman's Stingers liberally.

After the majority of the helicopters have been downed and you achieve your part of the mission, you can assist with the destruction of the complex. You should be able to rack up a few points in this mission just by using your mounted cannon.

After the action dies down, fly home with Flight 3. There's an enemy FARP about halfway back, but you can avoid triggering fire from its ZU-23s and ZSU-23-4 by sliding out west between Waypoints 12 and 13.

SINGLE 5: SMOOTH RIDE

Mission Parameters

OVERALL OBJECTIVE

TRANSPORT FLIGHT (NOVEMBER 89) IS TO TRANSPORT THE GENERAL (XXVIII AIRBORNE COMMANDER) FROM MAP SECTOR C-4 TO H-4. ADDITIONAL FLIGHTS ARE TO PERFORM RECONNAISSANCE, CAP, AND ESCORT NOVEMBER 89. ABCCC CALLSIGN IS KILO 32; XXVIII AIRBORNE COMMANDER CALLSIGN IS ZULU 82.

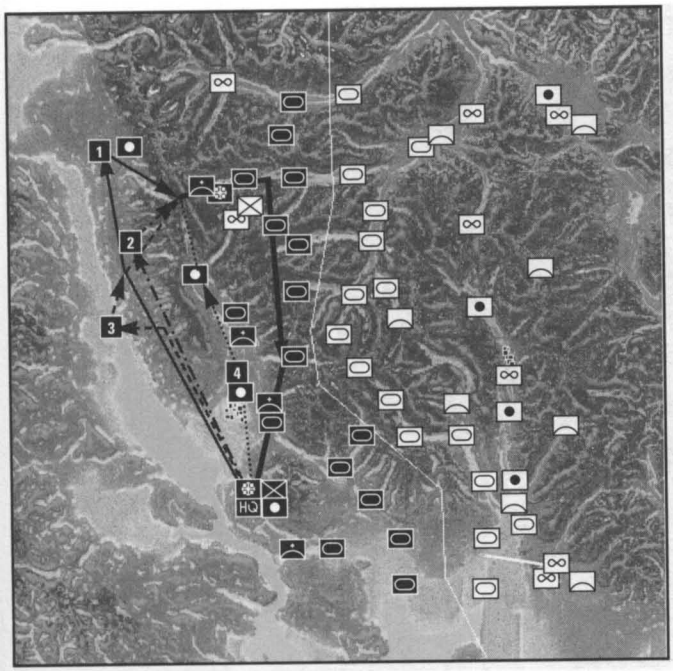
ENVIRONMENT	6KM / 800 HOURS / 81° F / 5 KNOTS NE
LOCATION	4KM W OF PL APPLE / C-4
AIR STRIKES	1
ARTILLERY STRIKES	1

	FLIGHT 1	FLIGHT 2	FLIGHT 3	FLIGHT 4
HELICOPTER	LONGBOW	BLACK HAWK	LONGBOW	KIOWA
CALLSIGN	*NOVEMBER 88*	*NOVEMBER 89*	*NOVEMBER 90*	*NOVEMBER 91*
ATO #	12091	12092	12093	12094
PRIMARY	ESCORT	EXTRACT/INSERT	CAP	RECON
	NOVEMBER 89	*ZULU 82*	2 MI-28	7 SOLDIER
			4 MI-24	
			6 AH-1J	
SECONDARY	–	–	–	–
	–	–	–	–

Success/Failure

	FLIGHT 1	FLIGHT 2	FLIGHT 3	FLIGHT 4
PRIMARIES	*2 UH-60L*	*1 GENERAL 4 SOLDIER*	ENEMY	ENEMY
(CALLSIGN)	*(NOVEMBER 89)*	*(ZULU 82)*	–	–
SUCCESS+	2 LIVE	5 LIVE	11-12 KILLED	7 SPOTTED
SUCCESS	1 LIVES	4 LIVE	7-10 KILLED	5-6 SPOTTED
FAIL	0 LIVE	2-3 LIVE	5-6 KILLED	3-4 SPOTTED
FAIL –	–	0-1 LIVE	0-4 KILLED	0-2 SPOTTED

SECONDARIES NONE OF THE FLIGHTS HAVE SECONDARY MISSIONS.



FLIGHT 1 (Air Tasking Order: 12091) Time On Target: 0804L Time From Target: 0821L

Objective: Provide Escort for NOVEMBER 89. NOVEMBER 89 will be carrying XXVIII Airborne Commander on a very important tour of forward units. The General will be picked up at map grid C-4 and transported to map grid H-4. A Combat Air Patrol sweep (CAP) will provided by NOVEMBER 90 and reconnaissance by NOVEMBER 91.

FLIGHT 2 (Air Tasking Order: 12092) Time On Target: 0805L Time From Target: 0820L

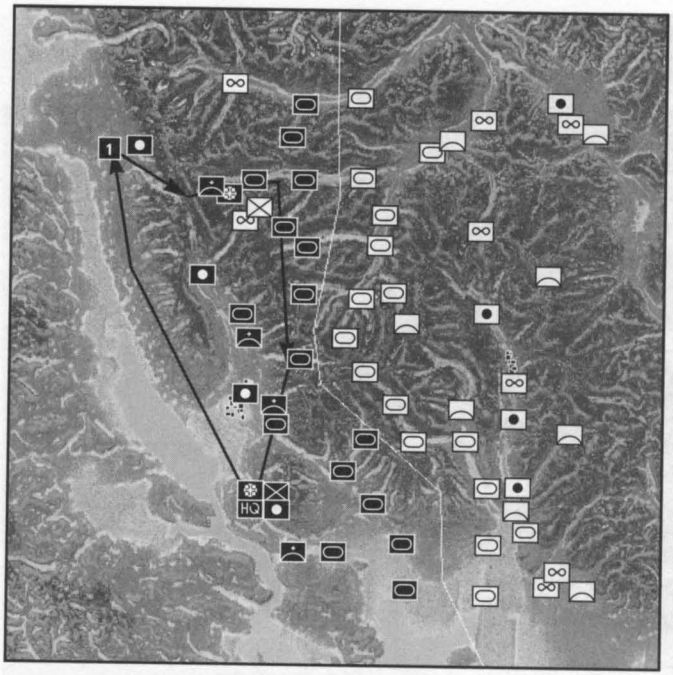
Objective: Transport XXVIII Airborne Commander on a tour of forward units. Pick up the general and his staff at map grid C-4 and transport him to map grid H-4 and allow him to disembark. Escort will be provided by NOVEMBER 88, CAP by NOVEMBER 90 and reconnaissance will be provided by NOVEMBER 91.

FLIGHT 3 (Air Tasking Order: 12093) Time On Target: 0805L Time From Target: 0825L

Objective: Provide Combat Air Patrol (CAP) in and around plotted waypoints. NOVEMBER 89 will be carrying XXVIII Airborne Commander on a very important tour of forward units. The general will be picked up at map grid C-4 and transported to map grid H-4. Escort will be provided by NOVEMBER 88 and reconnaissance by NOVEMBER 91.

FLIGHT 4 (Air Tasking Order: 12094) Time On Target: 0806L Time From Target: 0818L

Objective: Provide reconnaissance in the area of map grid C-4, F-5 and H-4. Iranian special forces units are believed to be operating in the area. Discovery of these units is paramount to the success of the mission. NOVEMBER 89 will be carrying XXVIII Airborne Commander on a very important tour of forward units. Escort for NOVEMBER 89 will be provided by NOVEMBER 88 and CAP by NOVEMBER 90.



Flight 1 — November 88

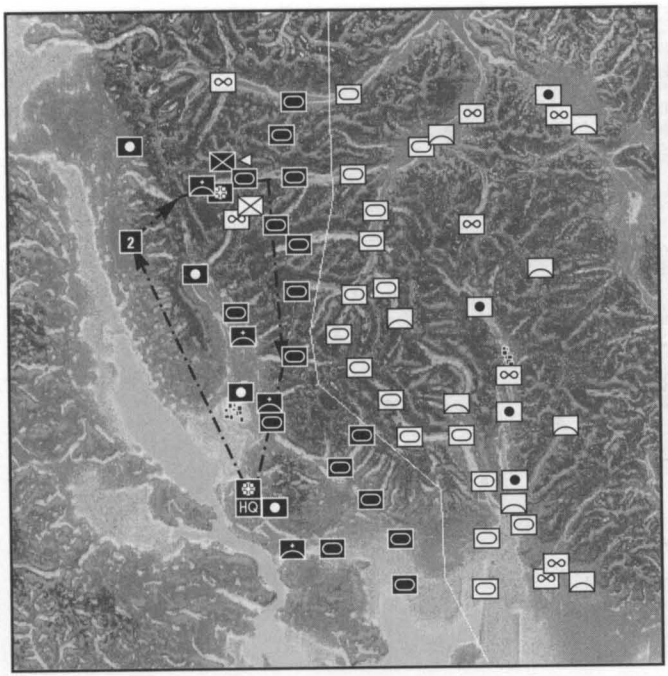
You'll be pulling escort duty, and you've got several stops to make. First, you'll link up with *November 89* at Waypoint 2. Then, you'll escort the Black Hawks to Waypoint 3, where the XXVIII Airborne Commander and his men are awaiting a pick up. Then, you'll lead the Black Hawk flight to a dropoff point at Waypoint 6.

After you link up, fly about .5km to 1km ahead of the Black Hawks. The commander group will probably be out in the open when you arrive at Waypoint 3. Hover over the complex where the 5 men are boarding for approximately 1 minute.

You'll spot a few enemy ground troops with SA-18 shoulder-launched SAMs nearby. You can take out their Mi-8 Hip helicopter, but if you engage them, you'll cause Flight 4 to fail its mission (which is to perform recon on the enemy troops).

The other two friendly flights arrive about the time of the pick up, along with four Sea Cobras from the north. They're likely to ambush whichever helicopter they see first. To evade this ambush, fly up the northern face of the mountain on your flight path (near the friendly artillery) and attack the helos before they move over the top of the ridge. Or, hide in the small crevices on the north side and hit their flank as they pass by. Use your wingman to help you pull this off quickly, before they can spot your escorts.

Between Waypoints 4 and 6, you'll encounter a few aggressive Hinds. Flight 3 (*November 90*) should be available to help you out by that time. Stay close to the Black Hawks and escort them home.



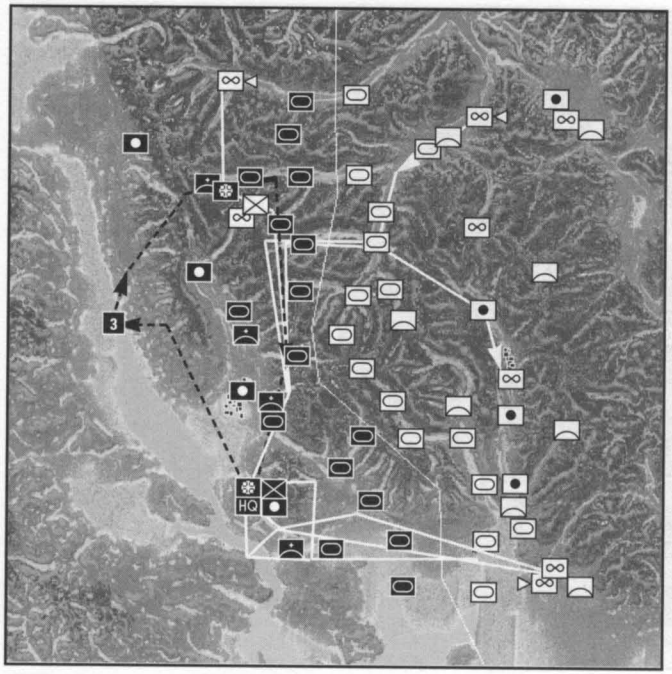
Flight 2 — November 89

Before you climb into the cockpit, get rid of the M60D door gun and load up the 5.56 gun. It's got a faster refire rate than the M60D, and you aren't going to be too concerned about having a lot of extra rounds.

At Waypoint 2, meet up with your escort flight and make your way to the pickup point at Waypoint 3. Your assignment is to pick up the XXVIII Airborne Commander and four of his men. When you get within a couple of kilometers of the pickup zone, look for a star formation on the ground. If you have trouble finding it, look for the tents, Humvees and the commander and his men. When you land within 300 meters, your extraction group will come running and board the helicopter.

As you pass Waypoint 3 and head toward Waypoint 4, ignore any ground troops you see. Although you might be getting an itchy trigger finger by now, they're the primary objectives for Flight 4 (*November 91*).

You do have a cheat at your disposal if you choose to use it in this mission. After you make the pick up at Waypoint 3, you can head straight for the dropoff point at Waypoint 6. You'll pass right over the town of Angekakot, bypassing the enemy Hinds. The best part about this route is that if you're flying a computer escort flight, they'll follow you.



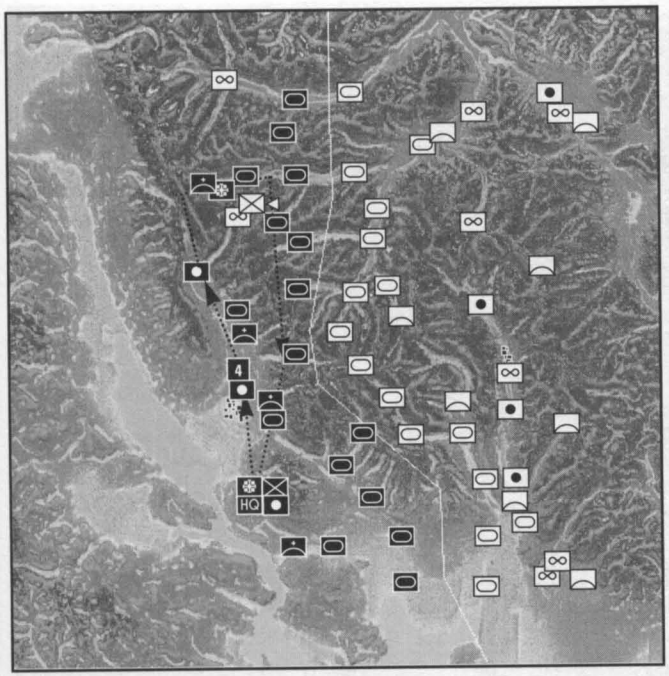
Flight 3 — November 90

In this mission, load up on rockets and forget about Hellfires. Since you never cross the phase line and you're concerned mostly with helicopters, rockets will serve the purpose better. Flight 1 (*November 88*) will carry enough heavy-duty weaponry to handle any big ground threats.

Your flight is very similar to that of Flight 1, and the same rules of engagement apply. At Waypoint 3 remain aware of the enemy troops with SA-18 man-portable SAMs just east of that area. They've got decent range, and can take you out if you're caught the slightest bit off-guard.

Your job during this mission is to locate and destroy enemy helicopters and keep them off of the escorts' and Black Hawks' backs. Still, you're going to want to conserve some of your Stinger missiles during the first wave of enemy helicopters (Sea Cobras). Use a few rocket salvos to take them down. If you so desire, follow the ambush tip given in Flight 1's writeup, making full use of your wingman and his Stingers.

Around Waypoint 5, target one of the Hinds and call in an F-16 air strike on them. If you do find yourself in a helicopter dogfight, take advantage of the incoming missile view (F9). By taking an external look at a missile's approach, you've got a better chance of evading it.



Flight 4 — November 91

True to the Kiowa's purpose, you're providing the intelligence arm of this operation. But first, you must get there alive. Load up with Stingers on both wingtips, and give your wingman a duplicate loadout. Helicopters are your main threats in this mission, and although you've got Flight 3 flying CAP for you, it never hurts to be prepared.

Stingers aboard, fly as fast as you physically can to Waypoint 3 and keep pressing [T]. You're looking for Iranian special forces around the insertion and extraction area.

The best way to find them is to head east as you leave Waypoint 3 and spend a few minutes choosing a good hiding spot. Your MMS has enough range that you can stay a fair distance away from the troops and still track them down with your VSD.

If you're having problems, try using the UPFRONT display (press [U]) and cycling through targets until you see PRIMARY. This greatly increases your chance of finding exactly what you're looking for.

All in all, you've got the easiest tasking order of all in this mission. But if you want to bolster your score, help the other flights take out enemy helos when you've done your duty.

SINGLE 6: STOMPER

Mission Parameters

OVERALL OBJECTIVE

LOCATE AND DESTROY ADVANCING ARMOR IN SECTOR 4. ABCCC CALLSIGN IS X-RAY 11; 1/66TH ARMOR CALLSIGNS ARE ZULU 84-87.

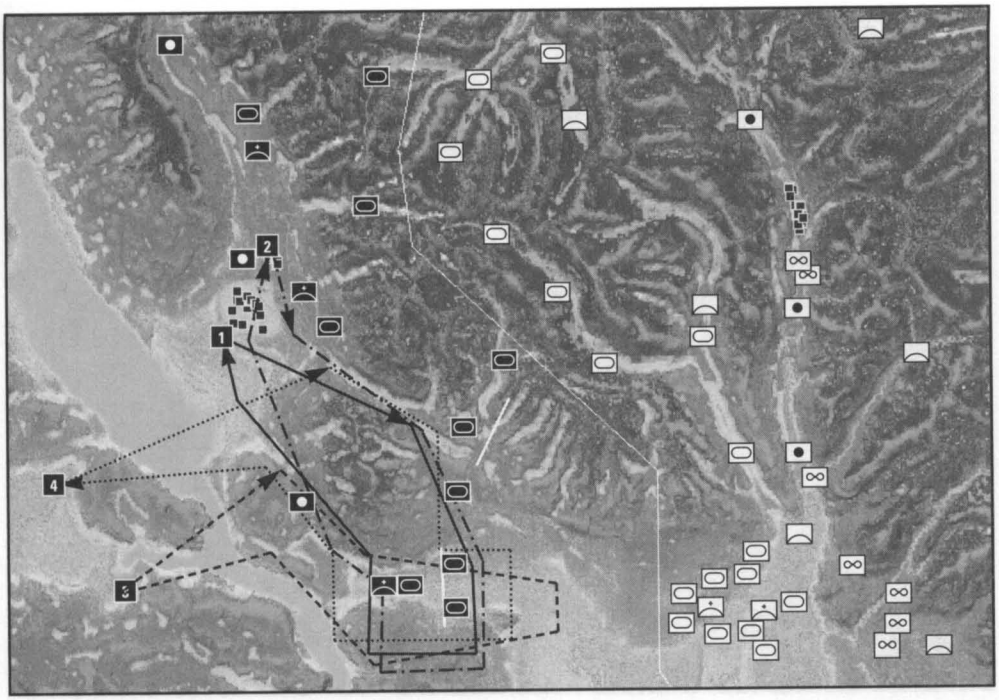
ENVIRONMENT	8KM / 1900 HOURS / 67° F / 0 KNOTS
LOCATION	4KM E OF PL APPLE / I-6
AIR STRIKES	1
ARTILLERY STRIKES	1

	FLIGHT 1	FLIGHT 2	FLIGHT 3	FLIGHT 4
HELICOPTER	LONGBOW	LONGBOW	LONGBOW	LONGBOW
CALLSIGN	*TANGO 29*	*TANGO 30*	*TANGO 31*	*TANGO 32*
ATO #	15051	15052	15053	15054
PRIMARY	CAS DEFENSIVE	CAS DEFENSIVE	SEAD	CAP
	12 T-72M	12 T-72M	8 SA-13	6 MI-24
	2 ZSU-23-4	2 ZSU-23-4	4 ZSU-23-4	4 AH-1J
	2 ZULFIQAR	2 ZULFIQAR	2 RBS-70/M113	
	3 BMP-2 IFV	3 BMP-2 IFV		
	4 SA-13	4 SA-13		
SECONDARY	*1/66TH ARMOR*	*1/66TH ARMOR*	–	–
	12 M1	*12 M1*	–	–

Success/Failure

	FLIGHT 1	FLIGHT 2	FLIGHT 3	FLIGHT 4
PRIMARIES	ENEMY ARMOR	ENEMY ARMOR	ENEMY ADA	ENEMY COPTERS
(CALLSIGN)	–	–	–	–
SUCCESS+	23 KILLED	23 KILLED	14 KILLED	9-10 KILLED
SUCCESS	16-22 KILLED	16-22 KILLED	10-13 KILLED	6-8 KILLED
FAIL	9-15 KILLED	9-15 KILLED	7-9 KILLED	5 KILLED
FAIL –	0-8 KILLED	0-8 KILLED	0-6 KILLED	0-4 KILLED

SECONDARIES	*1/66TH ARMOR*	*1/66TH ARMOR*
(CALLSIGN)	*12 M1*	*12 M1*
SUCCESS+	12 LIVE	12 LIVE
SUCCESS	7-11 LIVE	7-11 LIVE
FAIL	5-6 LIVE	5-6 LIVE
FAIL –	0-4 LIVE	0-4 LIVE



FLIGHT 1 (Air Tasking Order: 15051) Time On Target: 1907L Time From Target: 1918L

Objective: A large enemy offensive has been reported in Sector 4. Provide Close Air Support (CAS) to forward elements of D Co. 1/66th Armor in the vicinity of map grid I-6. Attack the advancing armor's northern formations and TANGO 30 will assist in the destruction of southern formations. TANGO 31 will provide Suppression of Enemy Air Defenses (SEAD) and Combat Air Patrol (CAP) will be provided by TANGO 32.

FLIGHT 2 (Air Tasking Order: 15052) Time On Target: 1905L Time From Target: 1922L

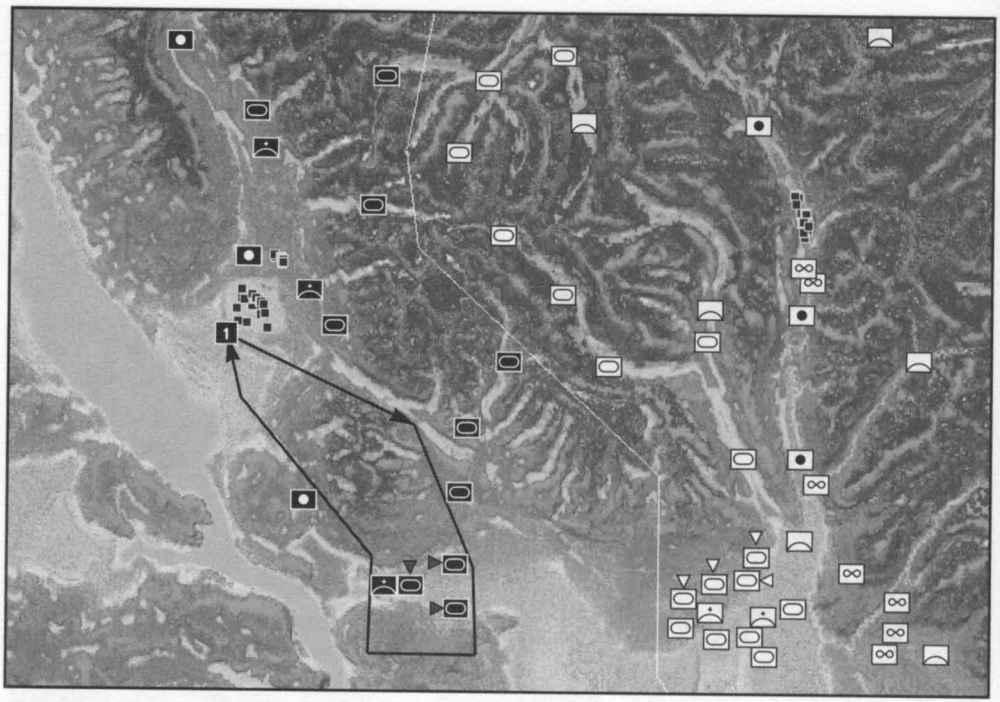
Objective: A large enemy offensive has been reported in Sector 4. Provide Close Air Support (CAS) to forward elements of D Co. 1/66th Armor in the vicinity of map grid I-6. Attack the advancing armor's southern formations and TANGO 29 will assist in the destruction of northern formations. TANGO 31 will provide SEAD and CAP will be provided by TANGO 32.

FLIGHT 3 (Air Tasking Order: 15053) Time On Target: 1906L Time From Target: 1920L

Objective: A large enemy offensive has been reported in Sector 4. Provide SEAD in the vicinity of map grid I-6 (see map). TANGO 29 will be on station to provide Close Air Support (CAS) to forward elements, while TANGO 30 will attack advancing armor and CAP will be provided by TANGO 32.

FLIGHT 4 (Air Tasking Order: 15054) Time On Target: 1907L Time From Target: 1920L

Objective: A large enemy offensive has been reported in Sector 4. Provide Combat Air Patrol in the vicinity of map grid I-8. TANGO 29 will be on station to provide Close Air Support (CAS) to forward elements, while TANGO 30 will attack advancing armor and Suppression of Enemy Air Defenses (SEAD) will be provided by TANGO 31.



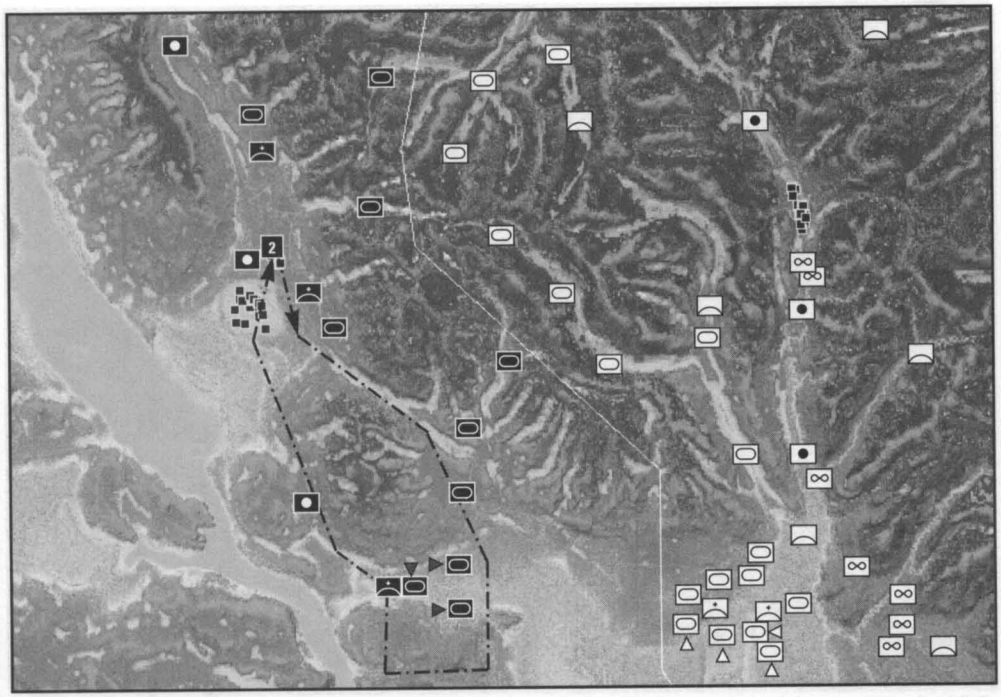
Flight 1 — Tango 29

This operation is in support of a massive armor battle going on below. You're going to finish this mission and see tanks in your sights for days. There are lots of them, and by the time you and Flight 2 (*Tango 30*) get rid of them all and cover all of the friendly ones, you're going to know the ins and outs of attacking them. You've got 14 T-72s and 2 Zulfiqars as your primary enemy targets, and 12 M1 Abrams to protect as your secondaries. If you pay attention to your briefing, you'll know to take a good stash of Hellfires with you.

Before all of the fun starts, however, you can take your own sweet time getting to Waypoint 3. This will give the other flights enough time to take out most of the high-priority ground threats and enemy helicopters before you and your wingman start taking potshots at tanks between Waypoints 3 and 4. The US armor may take out a sizeable share of them as well.

As for the artillery batteries, take whatever is left over. After your primary targets are destroyed (the advancing enemy T-72s), stay on target for a few more minutes to make sure that no follow-up air strikes are coming your way.

That's about it. If you're interesting in boosting your tank kills, this is the mission for you. If you find that ground armor alone isn't challenging enough for you, consider taking one of the other flights.



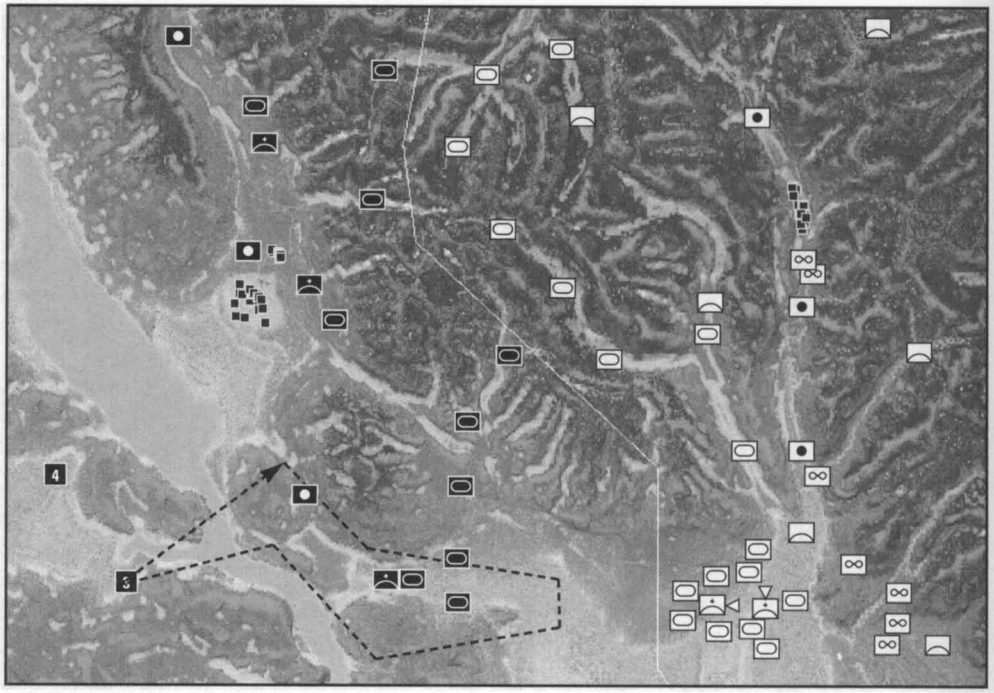
Flight 2 — Tango 30

Tanks, tanks and more tanks. As far as you can see on the battlefield, you see tanks. Obviously, you're going to want to take as many Hellfires as you and your wingman can carry. Iranian armor has initiated a westerly advance in an attempt to break through the phase line, and US armor has put up a mammoth armor front to stop them.

You're going to work closely with Flight 1 (*Tango 29*) to clear out the enemy armor. Your task is to attack the southernmost armor formation, while Flight 1 takes on the northern formation. You've got 4 SA-13s, 2 ZSU-23-4s, 3 BMP-2 IFVs, 12 T-72s and 2 Zulfiqars as your primary enemy targets, and 12 M1 Abrams as friendly secondaries.

Don't be in too big of a hurry to get into the fray of battle. You've got to make sure that the SEAD and CAP flights have time to accomplish their missions before you make your entrance. Otherwise, you stand a good chance of getting toasted by a SAM or AAA site, or by an enemy helicopter.

Use PFZs at will in this mission, and give your wingman the *Weapons Free* command. He can hardly go wrong, since tanks are about the only thing around to fire on at this point. After the tank battle subsides, you may want to hang around for a few minutes to make sure no enemy helicopters come in to attack your friendly secondaries.



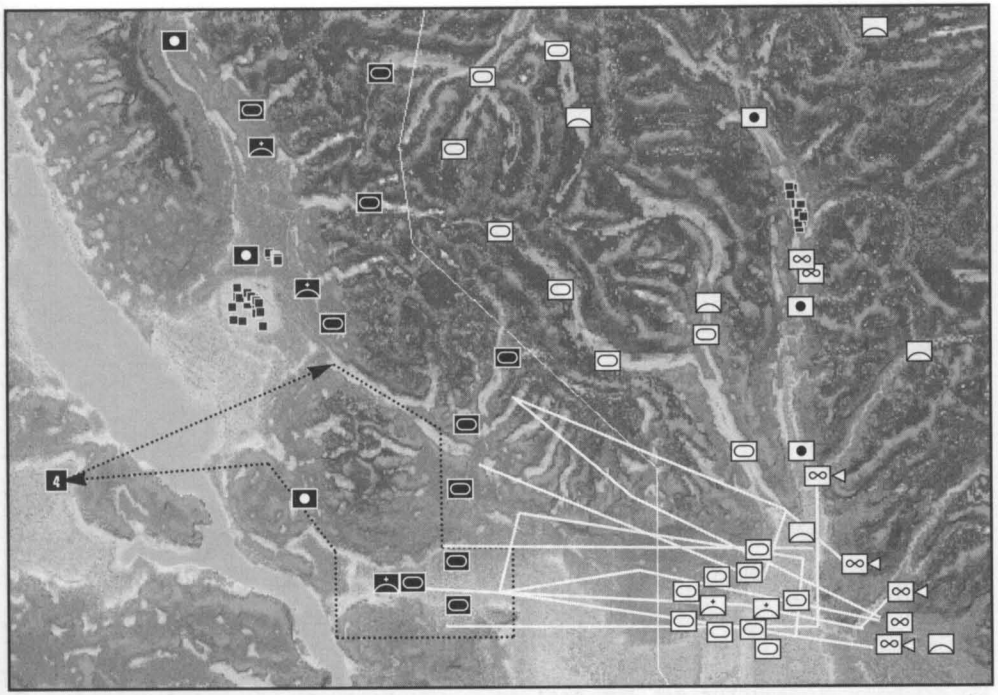
Flight 3 — Tango 31

If you can stay low and survive until you reach the hills on the northern side of this tank battle, you've got this mission in the pocket. Hands down. Take Hellfires and a Longbow with radar.

After you take off, head straight for the mountains, set up shop and start locating the closest SAM and AAA sites. Don't stray so far that you're over the mountains – there's an enemy helo flight waiting for you.

Once you're in position, hold off on starting your attack for a few minutes. The tanks on the friendly side can do an impressive job of taking out many of the ground threats for you. If you're into the F6 view, you can use it to watch the tank units battle it out. A dozen vehicles total are awaiting the enemy advance. You might just let them do their job, then mop up what's left.

You can accomplish this entire mission without ever crossing over the phase line. If you do cross it, you'll fly over the enemy armor and find yourself with no place to hide. The battle area is predominantly flat, and you could fall victim to an enemy helo or rearward ADA unit.



Flight 4 — Tango 32

You've got the most difficult tasking order of all in this mission – taking out eight enemy helicopters that are threatening your friendly armor. Don't waste any time finessing your waypoints or the other flights' loiter times. Make a beeline to the battle zone and kill anything airborne that moves. Keep your ASE up and your radar in air mode.

Now that you know what to do, a few tips on helicopter vs. helicopter combat are in order:

- Enemy helicopters have a seemingly endless number of chaff pods, and in nearly all cases, it takes a pair of Stingers to bring one of them down. Of course, you only have four, and your wingman only has four. If any of the other flights are carrying Stingers, they may opt to help you. Or not.
- Enemy computer pilots will always do their best to maneuver onto your tail. Keep a close watch behind you, and try to get behind them before firing. They can't see all that well behind them, so that's the best approach to use when attacking them.
- If you run into trouble, target one of the helicopters and call in an F-16 air strike.

SINGLE 7: SWEEPER

Mission Parameters

OVERALL OBJECTIVE

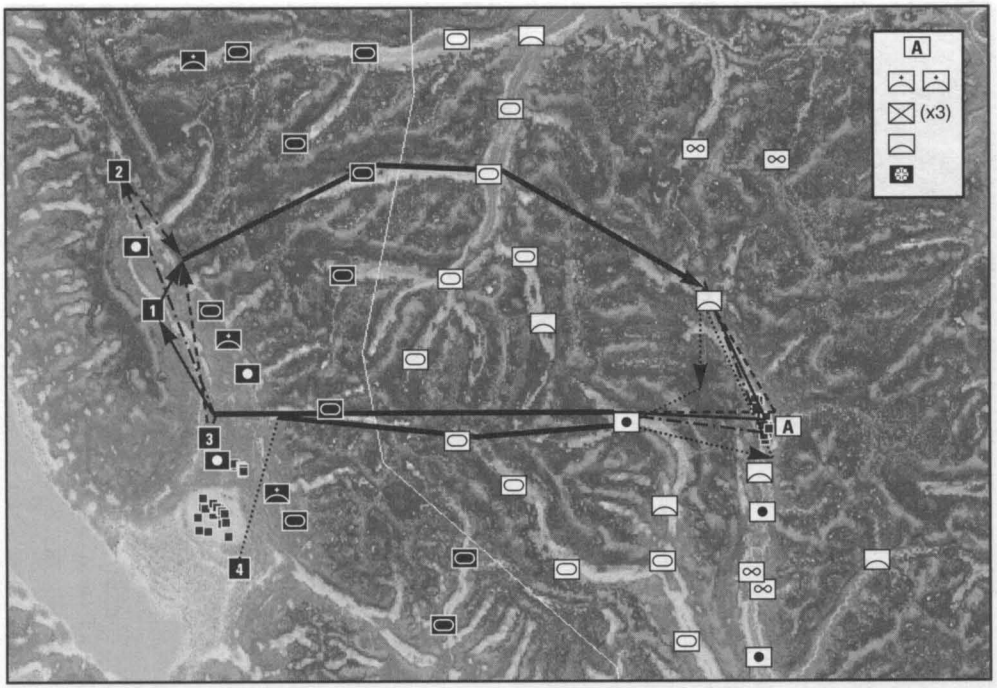
BLACK HAWK FLIGHTS (JULIET 34, JULIET 35) ARE TO TRANSPORT AND INSERT TWO LRSU TEAMS TO MAP SECTOR F-8 IN ORDER FOR BUILDING INSPECTION. ACCOMPANYING FLIGHTS ARE TO PROVIDE ESCORT AND STRIKE ENEMY SAMS AND THEIR ASSOCIATED RADARS NEAR TARGET LOCATION. ABCCC CALLSIGN IS GULF 19; LRSU TEAM (F COMPANY 51ST INFANTRY) CALLSIGN IS PAPA 99.

ENVIRONMENT	8KM / 0700 HOURS / 71° F / 0 KNOTS
LOCATION	4KM W OF PL APPLE / F-8
AIR STRIKES	0
ARTILLERY STRIKES	1

	FLIGHT 1	FLIGHT 2	FLIGHT 3	FLIGHT 4
HELICOPTER	LONGBOW	BLACK HAWK	BLACK HAWK	LONGBOW
CALLSIGN	*JULIET 33*	*JULIET 34*	*JULIET 35*	*JULIET 36*
ATO #	29011	29012	29013	29014
PRIMARY	ESCORT	INSERT/EXTRACT	INSERT/EXTRACT	SEAD
	JULIET 34	*PAPA 99*	*PAPA 99*	1 CLAM SHELL
		(1/2 LRSU TM)	*(1/2 LRSU TM)*	1 FLAP LID
				4 SA-10
				2 BLINDFIRE
				8 RAPIER SAM
				8 ZU-23
SECONDARY	ESCORT	–	–	–
	JULIET 35	–	–	–

Success/Failure

	FLIGHT 1	FLIGHT 2	FLIGHT 3	FLIGHT 4
PRIMARIES	*2 UH-60L*	*4 SOLDIER*	*4 SOLDIER*	ENEMY ADA
(CALLSIGN)	*(JULIET 34)*	*(PAPA 99)*	*(PAPA 99)*	–
SUCCESS+	2 LIVE	4 LIVE	4 LIVE	24 KILLED
SUCCESS	1 LIVES	3 LIVE	3 LIVE	17-23 KILLED
FAIL	0 LIVE	2 LIVE	2 LIVE	12-16 KILLED
FAIL –	–	0-1 LIVE	0-1 LIVE	0-11 KILLED
SECONDARIES	*2 UH-60LS*	–	–	–
(CALLSIGN)	*(JULIET 35)*	–	–	–
SUCCESS+	2 LIVE	–	–	–
SUCCESS	1 LIVES	–	–	–
FAIL	0 LIVE	–	–	–
FAIL –	–	–	–	–



FLIGHT 1 (Air Tasking Order: 29011) Time On Target: 0714L Time From Target: 0718L

Objective: Provide escort for JULIET 34 and JULIET 35. JULIET 34 and JULIET 35 will insert PAPA 99 (LRSU team) 1 km north and south of the town of Sisian at map grid F-8. Cover the insertion and extraction of PAPA 99 as they inspect selected buildings in the town. Suppression of Enemy Air Defenses (SEAD) will be provided by JULIET 36.

FLIGHT 2 (Air Tasking Order: 29012) Time On Target: 0716L Time From Target: 0718L

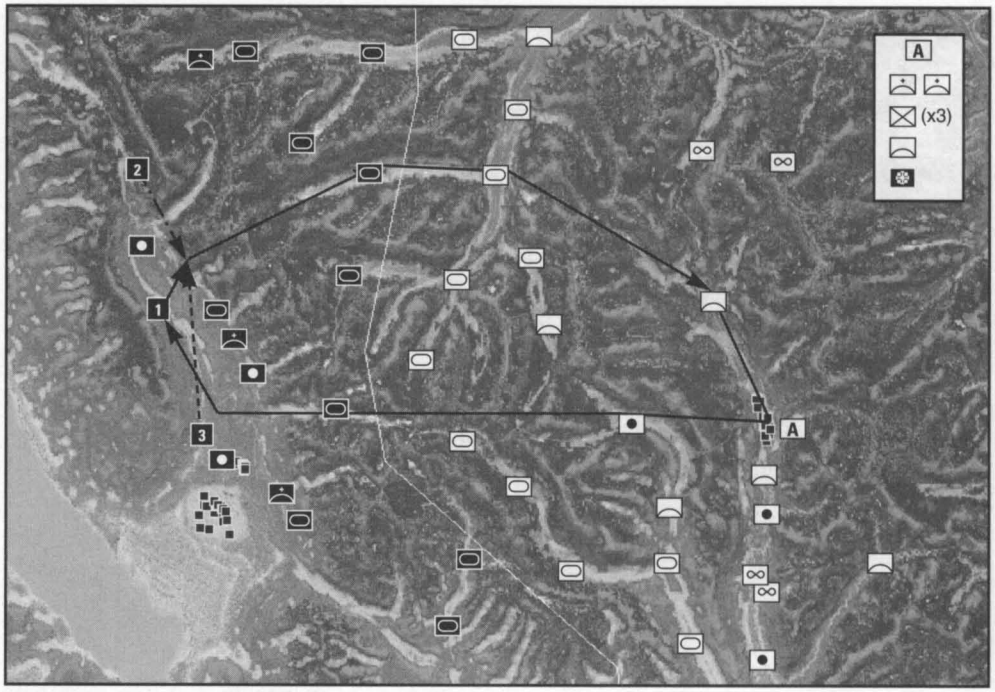
Objective: Insertion and extraction of PAPA 99 (LRSU team) 1 km south of the town of Sisian at map grid F-8. PAPA 99 will inspect selected buildings in the town. Escort will be provided by JULIET 33 and Suppression of Enemy Air Defenses (SEAD) will be provided by JULIET 36.

FLIGHT 3 (Air Tasking Order: 29013) Time On Target: 0715L Time From Target: 0718L

Objective: Insertion and extraction of PAPA 99 (LRSU team) 1 km north of the town of Sisian at map grid F-8. PAPA 99 will inspect selected buildings in the town. Escort will be provided by JULIET 33 and Suppression of Enemy Air Defenses (SEAD) will be provided by JULIET 36.

FLIGHT 4 (Air Tasking Order: 29014) Time On Target: 0708L Time From Target: 0715L

Objective: Provide Suppression of Enemy Air Defenses (SEAD) in and around the town of Sisian at map grid F-8. In preparation for covert operations being conducted by PAPA 99 (LRSU team), be on station by 0708L.



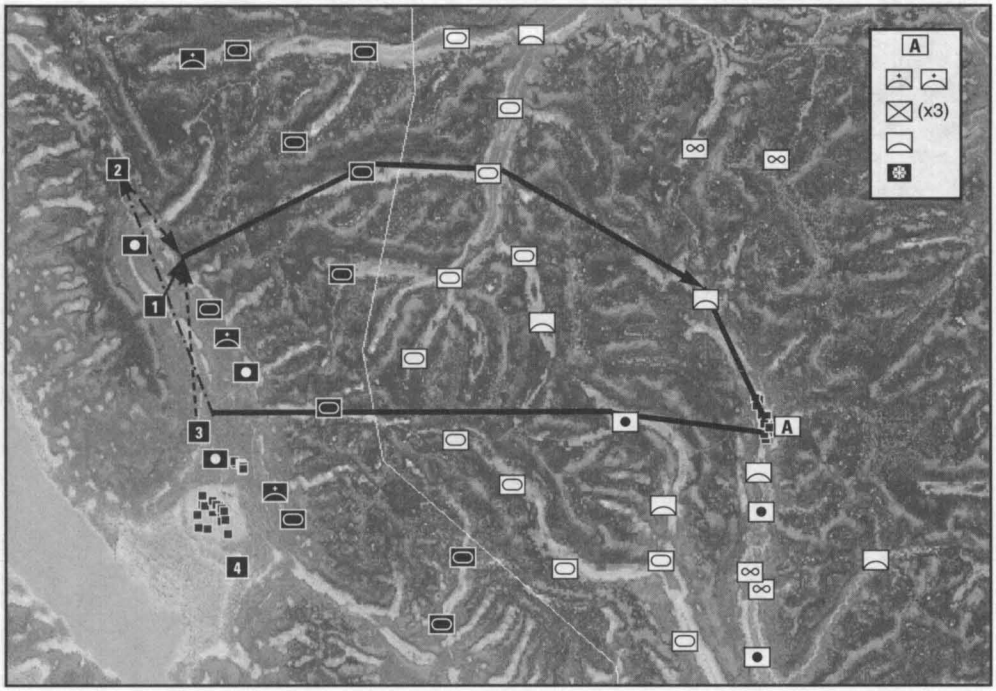
Flight 1 — Juliet 33

Before you take off, do two things. First, take all of the Hellfires and Stingers you can carry, and give your wingman HE rockets and a rack of RF Hellfires. Secondly, go into the Mission Planner and increase the loiter time for both of the Black Hawks (you're escorting two of them). *Juliet 34* and *Juliet 35* tend to arrive at the linkup point before you do, and they don't wait around. Slowing them down will help you stay far enough ahead of them to knock out a path.

Set their loiter times at Waypoint 2 to five minutes. Once you approach the linkup point, bypass it — the Black Hawks take off after they've been there for five minutes, no matter what. They'll be behind you, but not too far.

If you stay low, everything's fine until Waypoint 5, where a couple of Mi-24s appear. After you spot them, duck behind a hill and activate your FCR. Acquire them, then use your [-] view to see what direction they're moving. If you see their tail, they're moving toward you. To see how close they are, watch your FCR range (just left of the field of regard box). When they get within 2km, nose up and fire off two Stingers as they pop over the hill.

At Waypoint 6, both Black Hawk flights will land to insert the LRSU teams. Beware of the enemy infantry that emerges from the buildings. Part of your tasking order is to protect the US troops as they inspect the buildings and make sure they're safe.



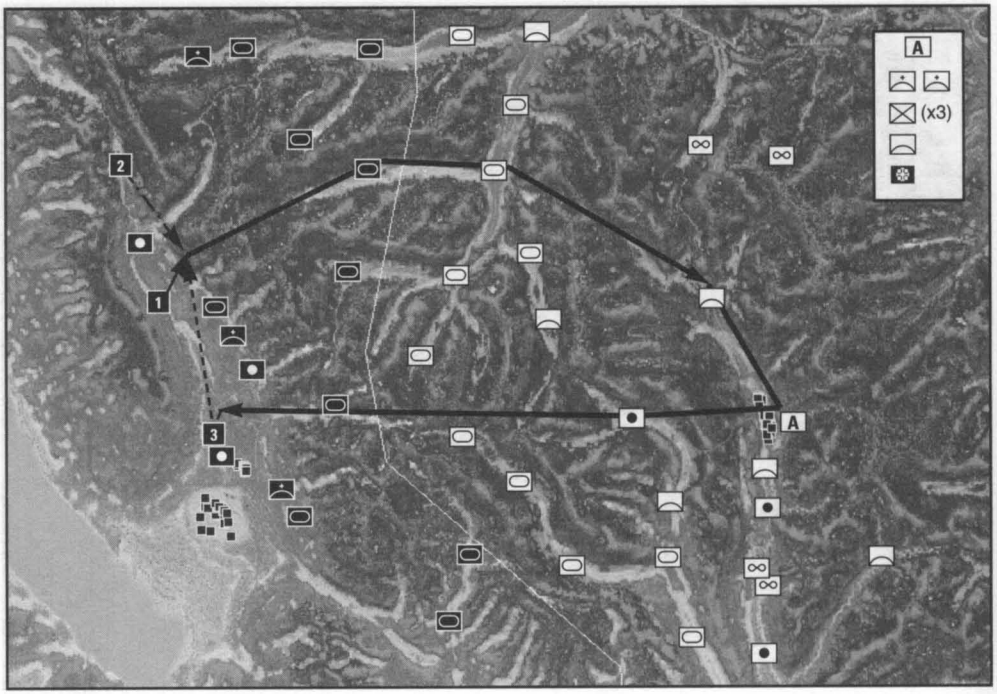
Flight 2 — Juliet 34

You're going to want to take miniguns on this mission — you need power, but not that many rounds. Another thing you're going to want to do is take your time in getting to your waypoints. The way the flight routes are timed, you'll arrive too early at the linkup point. So, fly slowly and wait at Waypoint 2 until your escorts arrive.

There are a couple of Mi-24s at Waypoint 5, but your escorts should have enough Stingers to take them out. Stay low, and out of the way.

Once you get to your LZ (Waypoint 6), land near the northernmost buildings. Your ground troops will run off to inspect the buildings. Normally, you'd stay on the ground until your men return, but in this case, that's dangerous. Enemy infantry units suddenly emerge from the buildings, armed with machine guns and shoulder-launched SA-14s.

For the two or three minutes that it takes to do the inspection, fly small, slow circles over the troops you dropped off. Use your doorguns to engage the enemy infantry that pop up. First, however, make sure you give your wingman the "Stay Here" command. Otherwise, you might shoot him as you're trying to kill enemy infantry.



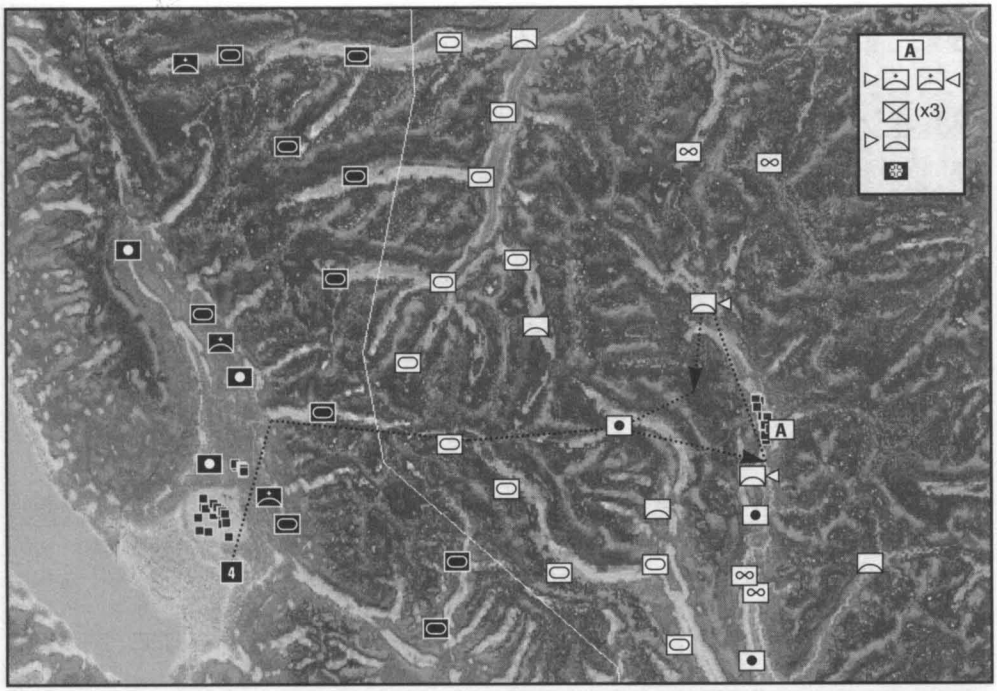
Flight 3 — Juliet 35

Your mission is very similar to that of the other Black Hawk flight, except that you insert your troops near the southernmost buildings in the complex. Take the minigun, and take your time getting to Waypoint 2 to meet your escort (*Juliet 33*) and the other Black Hawk flight (*Juliet 34*).

You aren't going to want to engage in combat yourself. All you have is a doorgun, and the escorts can do a much better job at taking out any enemies you run across. Just hang back anywhere from 5km to 8km behind them. Don't pass them up, in any case.

Your insertion point is at Waypoint 6, along with Flight 2's LZ. Watch your TSD MFD and land almost directly on top of Waypoint 6 when you're about .2km or so out from the buildings.

Once your troops disembark, take off and fly in small circles around them. They're going to get ambushed by enemy ground troops that were hiding in the buildings. You can assist them with your minigun — just target the SAM-toting soldiers first. Tell your wingman to "Stay Here" so that you don't hit him. Be careful, too, that you don't accidentally hit the other Black Hawks, just in case they're doing the same thing.



Flight 4 — Juliet 36

In this mission, you're responsible for taking out everything that could threaten the escort-Black Hawk flights. *Juliet 33* (the other escort flight) won't be able to offer you much help, since it's protecting two flights of Black Hawks. Load your flight's choppers up with Stingers.

Your first objective is going be to take out the Sea Cobras that are flying a CAP around Waypoint 7. Ignore the AAA sites around Waypoint 4 for the moment — the enemy helicopters pose a greater threat. Send your wingman after one Sea Cobra while you take care of the other one. Once they're dispatched, concentrate on taking out your primary ground targets. Don't worry about attacking enemy infantry at the complex — the escort flight and both Black Hawk flights should be able to contend with them.

If you do get shot down, it's interesting to watch the ground troops fight in the F6 exterior view, or on your HDD display with TADS and PNVS active. The battle will go on without you, and the troops actually move and fight.

One thing you should do in this mission is exert total control over your wingman. Give him lots of commands — especially "Weapons Hold" and "Attack My Target." This is a good mission in which to lure SAM and AAA shots, and you don't want your wingman attacking things if you're trying to use him (or yourself) as a decoy. Bob up to lure the ground threat into firing at you, then drop down to shake the missiles.

SINGLE 8: HELPING HAND

Mission Parameters

OVERALL OBJECTIVE

GROUND FORCES ARE TO ADVANCE AND CAPTURE HILL-273 IN MAP SECTOR C-7. ACCOMPANYING FLIGHTS ARE TO INSERT B COMPANY 72ND INFANTRY (LRSU TEAM) AND PROVIDE CAS AND SEAD FOR FRIENDLY FORCES. ABCCC CALLSIGN IS DELTA 48; LRSU TEAM CALLSIGN IS DELTA 47.

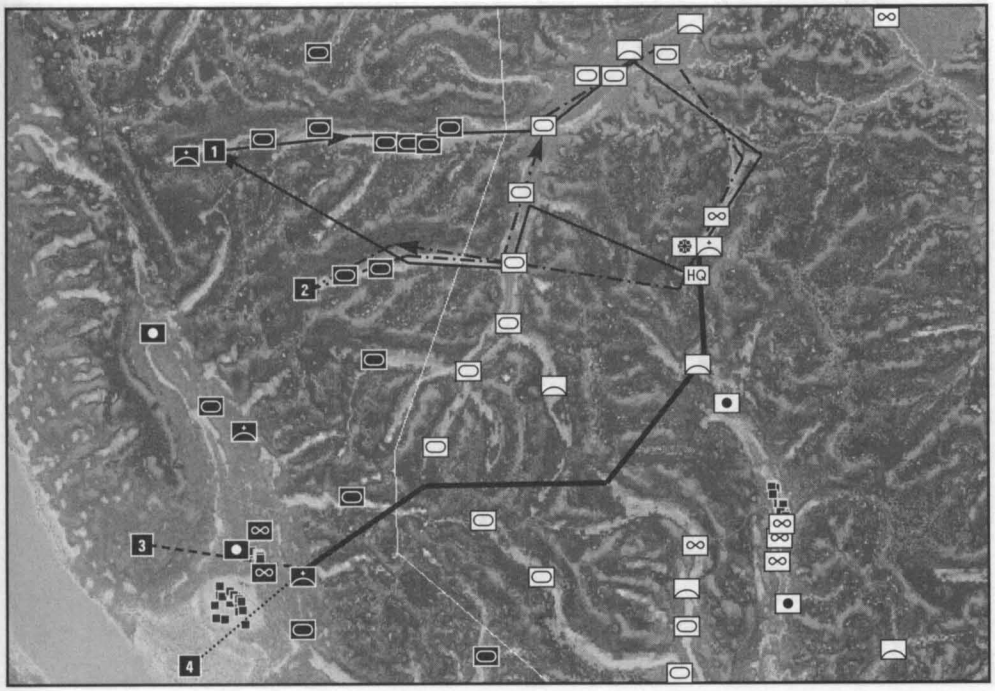
ENVIRONMENT	6KM / 1200 HOURS / 68° F / 5 KNOTS N
LOCATION	12KM W OF PL APPLE / C-7
AIR STRIKES	1
ARTILLERY STRIKES	1

	FLIGHT 1	FLIGHT 2	FLIGHT 3	FLIGHT 4
HELICOPTER	LONGBOW	LONGBOW	LONGBOW	BLACK HAWK
CALLSIGN	*INDIA 77*	*INDIA 78*	*INDIA 79*	*INDIA 80*
ATO #	14021	14022	14023	14024
PRIMARY	CAS	SEAD	ESCORT	INSERT/EXTRACT
	2 AVENGER	1 CLAM SHELL	*INDIA 80*	*4 SOLDIER*
	16 M1	1 FLAP LID		*(DELTA 47)*
	2 M163 AAA	4 SA-10		
		4 ZU-23		
		1 BLINDFIRE		
		4 RAPIER		
SECONDARY	–	–	–	–
	–	–	–	–

Success/Failure

	FLIGHT 1	FLIGHT 2	FLIGHT 3	FLIGHT 4
PRIMARIES	ENEMY ARMOR	ENEMY ADA	*2 UH-60L*	*4 SOLDIER*
(CALLSIGN)	–	–	*(INDIA 80)*	*(DELTA 47)*
SUCCESS+	20 KILLED	15 KILLED	2 LIVE	4 LIVE
SUCCESS	14-19 KILLED	10-14 KILLED	1 LIVES	3 LIVE
FAIL	10-13 KILLED	6-9 KILLED	0 LIVE	2 LIVE
FAIL –	0-9 KILLED	0-5 KILLED	–	0-1 LIVE

SECONDARIES NONE OF THE FLIGHTS HAVE SECONDARY MISSIONS.



FLIGHT 1 (Air Tasking Order: 14021) Time On Target: 1204L Time From Target: 1224L

Objective: Elements of 1/22nd armor are advancing 12 km west of Phase Line APPLE. Provide Close Air Support (CAS) for 1/22nd armor as they attempt to capture and hold Hill-273 in map grid C-7. INDIA 78 will provide Suppression of Enemy Air Defenses (SEAD) in the area.

FLIGHT 2 (Air Tasking Order: 14022) Time On Target: 1204L Time From Target: 1224L

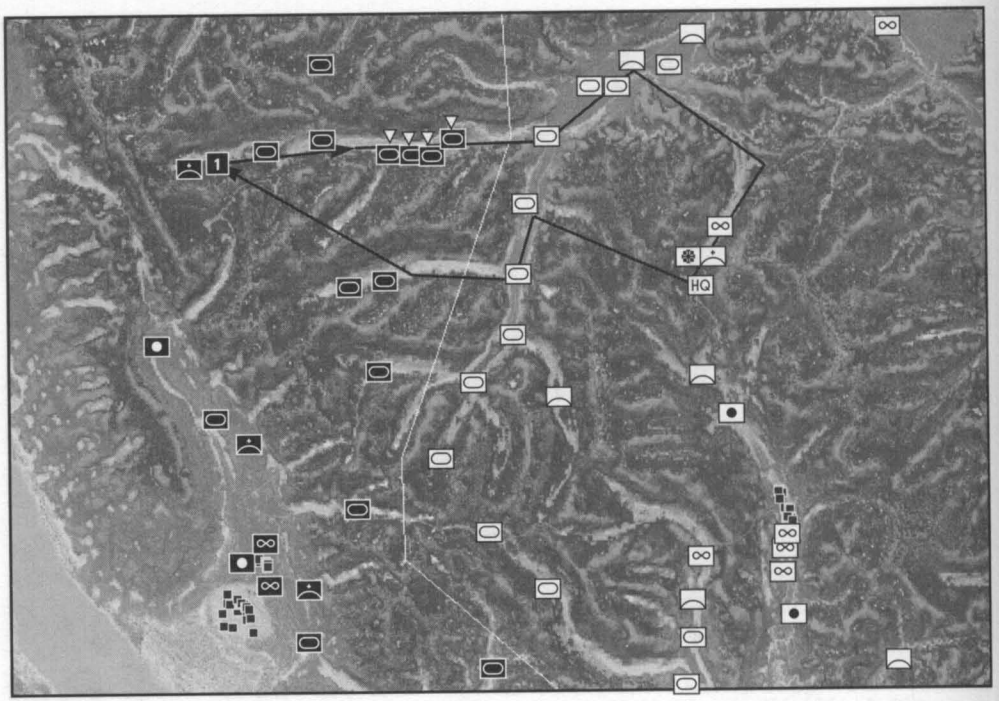
Objective: Elements of 1/22nd armor are advancing 12 km west of Phase Line APPLE. Provide Suppression of Enemy Air Defense (SEAD) in and around the area of Hill-273 at map grids C-7, C-8 and D-8.

FLIGHT 3 (Air Tasking Order: 14023) Time On Target: 1212L Time From Target: 1215L

Objective: Elements of 1/22nd armor are advancing 12 km west of Phase Line APPLE. Provide escort for INDIA 80. INDIA 80 will insert DELTA 47 (LRSU team) on the eastern face of Hill-273 at map grid D-8. Cover the insertion as DELTA 47 sets up the perimeter.

FLIGHT 4 (Air Tasking Order: 14024) Time On Target: 1212L Time From Target: 1215L

Objective: Elements of 1/22nd armor are advancing 12 km west of Phase Line APPLE. Insert DELTA 47 (LRSU team) on the eastern face on Hill-273 map grid D-8. DELTA 47 will search the local area and set up a perimeter. Escort will be provided by INDIA 79.



Flight 1 — India 77

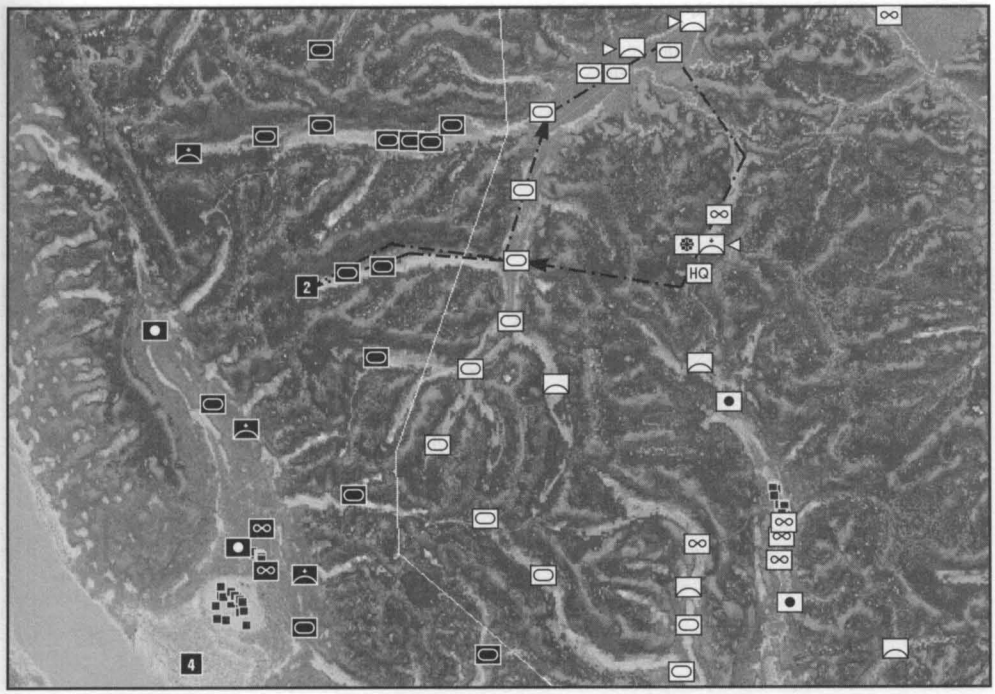
Go into this mission expecting a hectic battle — since the operation is based on ground armor movement, there's going to be a lot happening at once. Concentrate your efforts on protecting friendly forward armor movement while they attempt to capture Hill-273.

Your friendly primaries are mostly M1 Abrams tanks you have to protect. Load up a Longbow with laser and radar Hellfires, and ditto that for your wingman. Radar Hellfires are your best choice since they're fire-and-forget. (Laser Hellfires require that you keep a single target designated until impact, which means you can't use PFZs.)

All of your friendly primaries are lined up in a convoy between Waypoints 1 and 2, and they'll start moving in 2.5 minutes. Over a hill west of Waypoint 3, your convoy will be attacked. This happens before the SEAD flight (India 78) can arrive, so you want to hurry. Target one of the AH-1J Cobras that comes in, and call in an F-16 air strike to make your life easier. Then, eliminate the long-range ZSU-23-4s and the enemy T-72 tanks. Clear out threats near the roads first — that's the path your convoy follows.

Somewhere around Waypoint 3, a couple of anti-tank Hinds move in to attack your tanks. Take them out, then book to Waypoint 4 and take out an additional column of tanks you see there. This will expend most of your radar Hellfires, but this is definitely the place to use them.

The Black Hawks' troops get dropped off at Waypoints 4, 5 and 6. Support them as they establish a perimeter. After that happens your job is finished, and you can head straight for base.



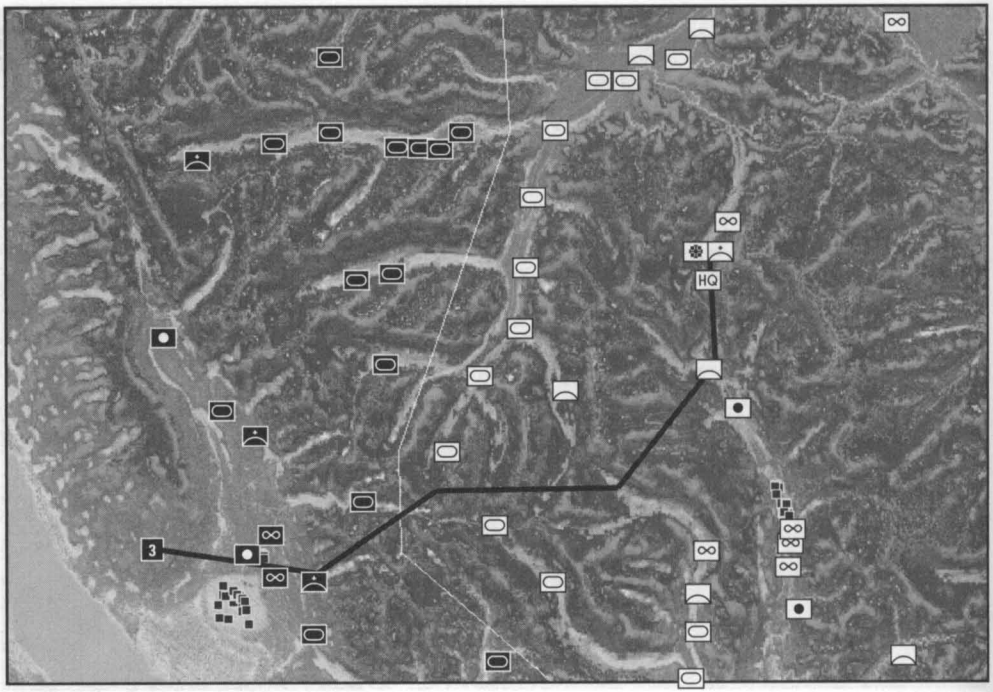
Flight 2 — India 78

Timing is fairly important if you're taking on this flight. The friendly ground advance is moving forward rapidly, and you need to get to Waypoints 2, 3 and 4 as quickly as you can. You might even consider bypassing Waypoints 2 and 3 to speed up your trip. (As a general tip, don't fly faster than 110. Your wingman isn't quite the pilot you are, and he might not be able to keep up if you're got much more airspeed than that.)

The convoy is about to fall under attack at Waypoint 4. Come in firing at the SAMs (SA-10s and Rapiers) and artillery (M109s) along the valley to the northwest. Using your cannon versus your missiles can improve your weapons efficiency rating, and your M230 can manage most of the targets there. Don't worry about armor — in a couple of minutes, the CAS flight will barrel in and take out the T-72 tanks.

If you've cleared out all serious ground threats in the convoy's path, exhaust your Hellfire supply by helping the CAS flight take out T-72s. Be careful what you're firing at, however, since friendly tanks will figure into the mix.

Finally, when everything there is demolished, move on to Waypoints 6 and 7. Halfway between them, you'll have to contend with a foursome of ZU-23s that are threatening a friendly troop insertion. If you're low on missiles, don't forget that the missiles that your wingman is carrying are just as respectable and damaging as yours are.



Flight 3 — India 79

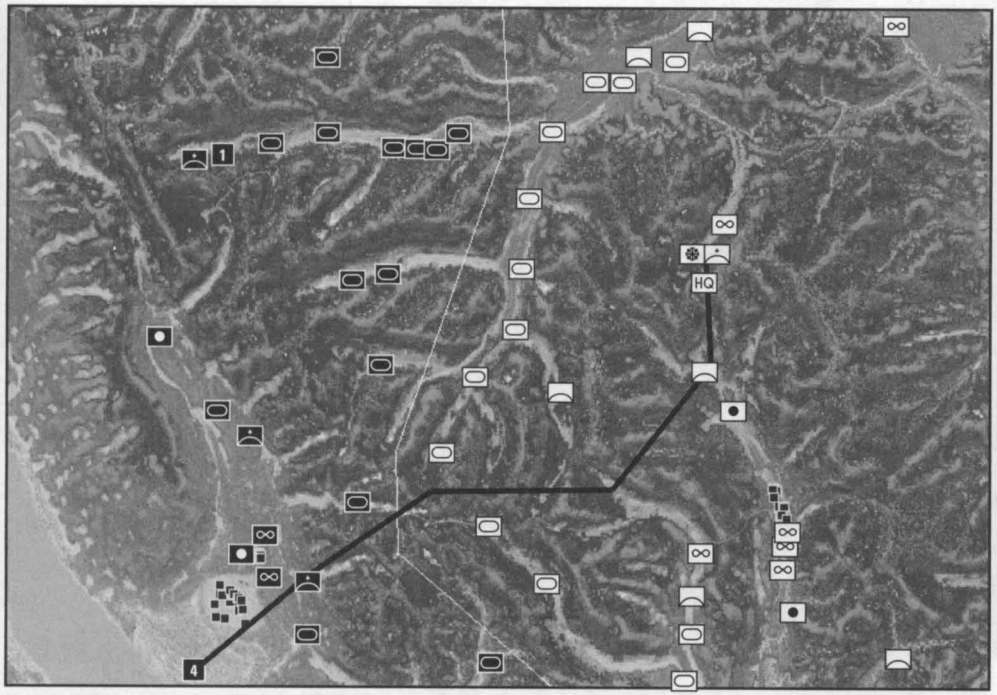
Here's another cut-and-dry escort mission. There's nothing too complicated about it if you carry a full load of Stingers and a few Hellfires. The main push of this operation is to support a friendly ground advance, and your part in accomplishing that mission is to escort a flight that's dropping US forces in to establish a perimeter.

The secret in this mission — if there is one — is merely to not get too far ahead of your escort. Stay close and attack air targets first, along with anything else that targets your primaries.

Your trip will be fairly uneventful until you reach Waypoint 5. A few kilometers out from there, speed up and beat your escorted flight to the nest of SA-10s and their accompanying radars. They're directly in your flight path, just over the hill west of that waypoint. There's also an M109 unit roughly to the southeast.

Once Waypoint 5 is secure, head for Waypoint 6 and remove the four ZU-23s that are waiting for the Black Hawks' ground troops.

At the insertion point (Waypoint 6) there aren't any ground troops around to hassle your forces, but there are helicopters — two Mi-24 Hinds and two AH-1J Sea Cobras. Use your Stingers and your wingman's Stingers liberally, and call in an F-16 air strike. Once that's all said and done, head for home the same way you came.



Flight 4 — India 80

Just as Flight 3 is a cut-and-dry escort mission, Flight 4 is a run-of-the-mill insertion mission. Most of what you have to do is follow your navigational points to the insertion area at Waypoint 6 and land within 300 meters of the actual waypoint. The rest of what you have to do is avoid enemy helicopters if they decide to go after you. Of course, the first part is easier than the second ....

At the insertion point, your escort should have already called in an air strike against the helicopters that are threatening your position. If the job's been done, you don't have anything to worry about. If there appears to be an air battle happening, drop off your troops, then find a good hiding spot and stay there until things cool down at bit.

You can head for home anytime after you get the Mission Accomplished message. There's nothing you can really do to help anyone else out, so there's no reason to stick around.

SINGLE 9: BREAKOUT

Mission Parameters

OVERALL OBJECTIVE

ADVANCING ELEMENTS OF 1/29TH ARMOR HAVE BEEN HALTED AT MAP SECTOR G-7. ARRIVING FLIGHTS ARE TO SUPPLY RECONNAISSANCE, CAS AND SEAD AS 1/29TH AND 1/167TH ARMOR ATTEMPT TO MOVE SOUTHWARD AND BREAK ENEMY STRONGHOLDS. ABCCC CALLSIGN IS LIMA 59.

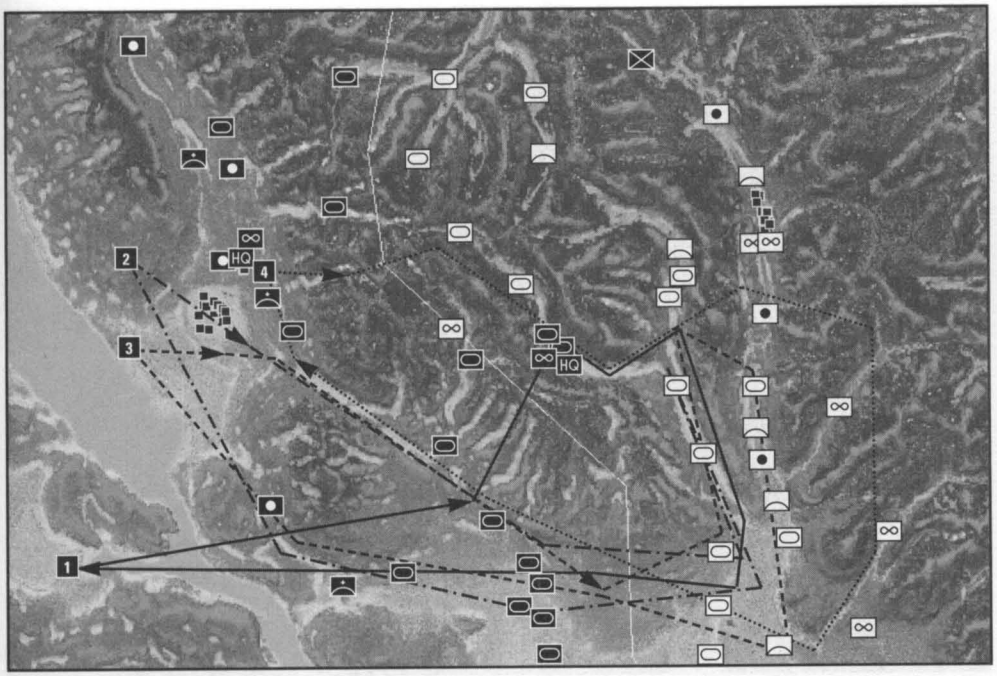
ENVIRONMENT	6KM / 0100 HOURS / 63° F / 4 KNOTS E
LOCATION	4KM W OF PL APPLE / G-7
AIR STRIKES	0
ARTILLERY STRIKES	1

	FLIGHT 1	FLIGHT 2	FLIGHT 3	FLIGHT 4
HELICOPTER	LONGBOW	LONGBOW	LONGBOW	KIOWA
CALLSIGN	*ECHO 03*	*ECHO 04*	*ECHO 05*	*ECHO 06*
ATO #	*72771*	*72772*	*72773*	*72774*
PRIMARY	CAS	CAS	SEAD	RECON
	8 M1	*16 M1*	2 CLAM SHELL	3 BUNKER
	1 AVENGER	*1 AVENGER*	2 BLINDFIRE	4 URAL-375
	1 M163 AAA	*3 M163 AAA*	2 FLAP LID	4 ZSU-23-4
			8 RAPIER	2 ZU-23
			8 SA-10	2 RBS-70/M113
				1 TENT
SECONDARY	–	–	–	–

Success/Failure

	FLIGHT 1	FLIGHT 2	FLIGHT 3	FLIGHT 4
PRIMARIES	*1/167TH ARMOR*	ENEMY	ENEMY	ENEMY
(CALLSIGN)	*M1*	–	–	–
SUCCESS+	9-10 LIVE	18-20 LIVE	20-22 KILLED	16 SPOTTED
SUCCESS	8-9 LIVE	12-17 LIVE	15-19 KILLED	10-15 SPOTTED
FAIL	6-7 LIVE	10-11 LIVE	11-14 KILLED	6-9 SPOTTED
FAIL –	0-5 LIVE	0-9 LIVE	0-10 KILLED	0-5 SPOTTED

SECONDARIES NONE OF THE FLIGHTS HAVE SECONDARY MISSIONS.



FLIGHT 1 (Air Tasking Order: 72771) Time On Target: 0107L Time From Target: 0126L

Objective: Elements of 1/29th armor have been cut off in a recent advance. Their current location is at map grid G-7. Provide Close Air Support (CAS) to 1/29th armor as they attempt to break through to the south. Additional armor from the 1/167th will try to clear a path to the south in map grid H-8. The 1/167th are being supported by ECHO 04. Suppression of Enemy Air Defenses (SEAD) in the area will be provided by ECHO 05 and close reconnaissance by ECHO 06.

FLIGHT 2 (Air Tasking Order: 72772) Time On Target: 0106L Time From Target: 0128L

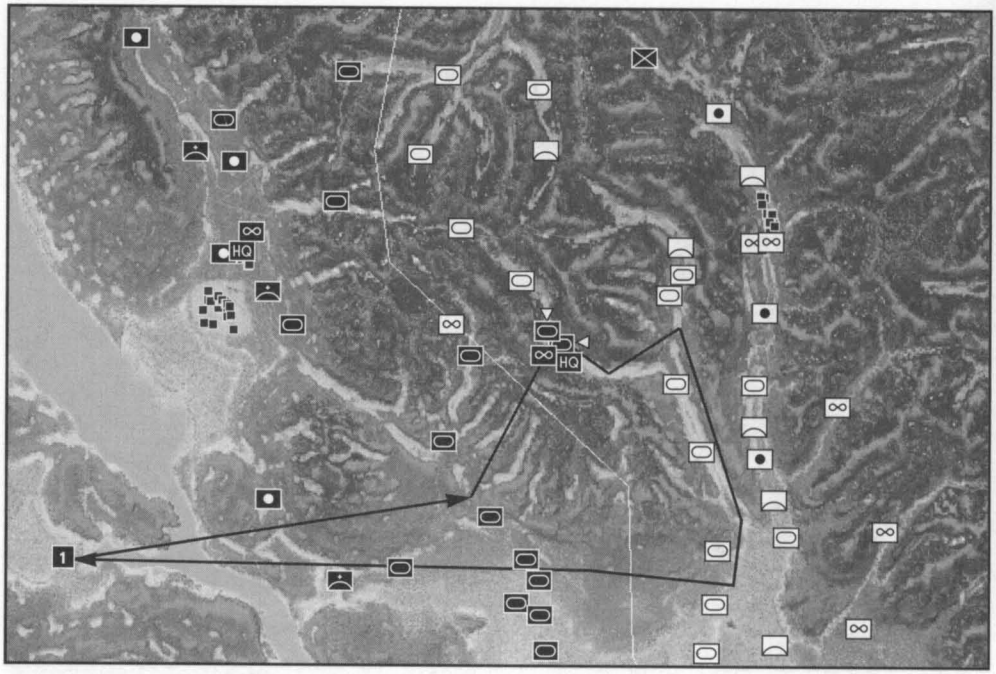
Objective: Elements of 1/29th armor have been cut off in a recent advance. Their current location is at map grid G-7. Provide Close Air Support (CAS) to 1/167th armor as they attempt to clear a corridor to the south of 1/29th armor in map grid H-8. Suppression of Enemy Air Defenses (SEAD) in the area will be provided by ECHO 05 and close reconnaissance by ECHO 06.

FLIGHT 3 (Air Tasking Order: 72773) Time On Target: 0108L Time From Target: 0120L

Objective: Elements of 1/29th armor have been cut off in a recent advance. Their current location is at map grid G-7. Provide Suppression of Enemy Air Defenses (SEAD) in and around the area of map grids G-8 and H-8. Reconnaissance in the area will be provided by ECHO 06.

FLIGHT 4 (Air Tasking Order: 72774) Time On Target: 0107L Time From Target: 0116L

Objective: Elements of 1/29th armor have been cut off in a recent advance. Their current location is at map grid G-7. Provide reconnaissance in and around the area of map grids F-8 and I-9. Enemy FARPs are believed to be set up in the area, visual confirmation is required. Suppression of Enemy Air Defenses (SEAD) will be provided by ECHO 05.



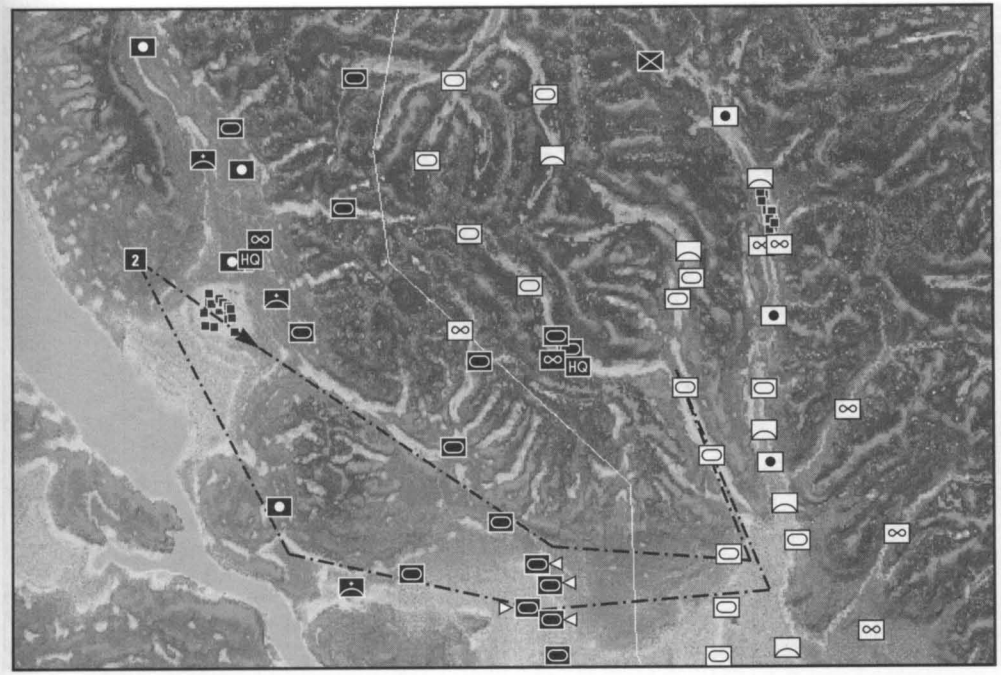
Flight 1 — Echo 3

In this mission, friendly armor made a valiant attempt to advance, but they were cut off by a countering force of enemy tanks. This has the potential to turn into a major ground fiasco unless you protect the friendly M1 Abrams. You're going to need lots of Hellfires and Stingers for this one.

The first thing you need to do is reach your primaries at Waypoint 3. These friendly tanks start moving about 6 minutes or so into the mission. When you arrive, stick as close as you can to them, and be on your toes. They're being surrounded by enemy tanks from the north and arriving helicopters from various directions.

Send your wingman after the tanks moving in from the north. (You may even want to PFZ an area around them and then send him in.) If you've got a higher CAT setting, an enemy air strike may commence. Don't worry, however — your friendly tanks have some air defense artillery, and Flight 2 bears the responsibility of taking out the helos.

Next, rush ahead to Waypoint 5 and look for a geographical "T-junction" in the valley. More enemy tanks are rolling in from the south and north. Send your wingman in one direction, while you take the other. Killing the tanks is usually enough to get the Mission Accomplished message, but the mission isn't really over at this point. You still have to get home alive … and several enemy helos come in bent on keeping you from accomplishing that last little objective. Anywhere from four to eight may or may not show up, depending on the CAT difficulty you have set. If they do, give your wingman the *Weapons Free* command, and do what you can.



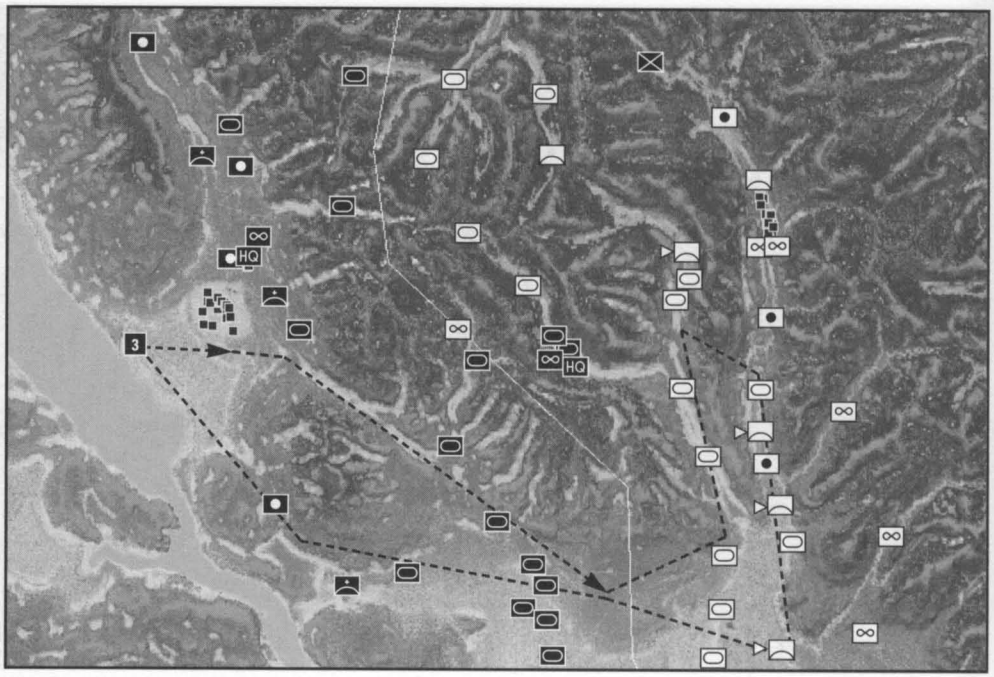
Flight 2 — Echo 4

This mission is unique in that none of the flights share flight paths on the way to the battle zone. This makes your job of flying CAS for friendly armor slightly more difficult. The first thing you're going to do is bypass your primaries (for the moment) and take the fast track to Waypoint 4. Your tanks are still safe at this point, but you've got to meet Flight 1 and its tank platoons and move back to your primaries before enemy armor attacks.

Once you've linked up, proceed back south toward Waypoint 5 and float over the hill on the left side of the valley. There are artillery groups and SAMs there that can do quite a bit of damage if you aren't careful. The SEAD flight should arrive to clear them out before the friendly armor comes in from the north, but remain aware.

Meanwhile, to the south, your four primary US armor units are advancing to gain territory. Only one moves forward into the valley — the rest secure flank positions near the mouth of the valley. Your mission success depends on all of these tanks. Until you arrive with Flight 1 and the 1/29th armor division, the southernmost armor can take care of itself against the T-72s and ZSUs it's matched up against.

When you do arrive, take out the enemy armor at a distance, or use up your single artillery strike. Once the enemy armor has been conquered, your mission is a success.



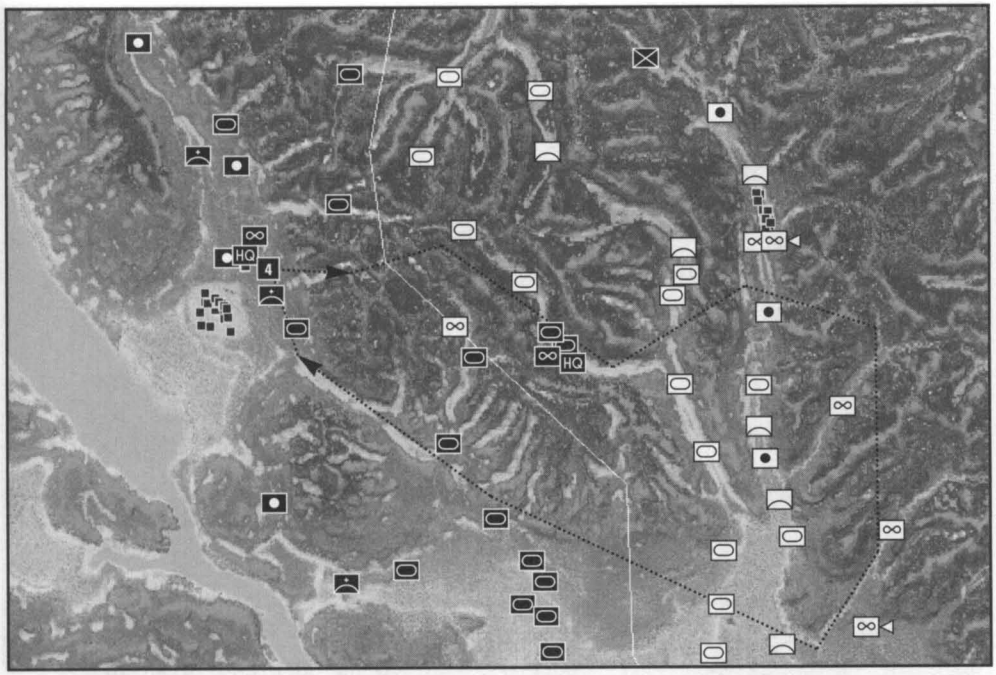
Flight 3 — Echo 5

Since you're flying SEAD for a whole slew of tanks and two CAS flights, you want to reach your primary objectives ASAP. Fly through to Waypoint 3 at breakneck speed (but not faster than 110 knots, if you want your wingman to stay with you).

This is where your mission really begins. You'll spot friendly armor around that area. Just west of that lies a group of enemy armor with T-72s and a few scattered ZSU-23-4s. They aren't marked as primaries, but taking them out will go a long way toward helping out Flight 2 (Echo 5). Blast them if you can spare the time, then move on to Waypoints 4 and 5. Between them, you'll find a Rapier SAM site and Blindfire radar you must destroy. There's also an artillery group slightly north of the SAMs.

Next, head for Waypoint 6 and take out the SAMs and other targets of opportunity. On the way, demolish the AAA directly north of Waypoint 5. However, don't destroy the FARP near that site — it's the primary target for Flight 4's recon mission. After you pass Waypoint 6, get any SAM and AAA sites you find in your southward travels.

Alternatively in this mission, you can go through waypoints in this order: 1-2-3-7. If you choose this route, take out the SA-10s to the south. This method hands Flight 1 more targets, but gives Flight 4 a clearer path to follow. It basically comes down to who you want to help more.



Flight 4 — Echo 6

While everyone else on the battlefield is dealing with a major friendly offensive, you have a recon mission to accomplish. You'll definitely want to be in a Kiowa (the default helicopter), and load up on Stingers and mount a .50 caliber machine gun.

The first FARP you're assigned to spy on is just north of Waypoint 5. You'll have to be especially careful on your approach, since the FARP has a couple of Mi-24 Hinds that will scramble if they spot you. That's why you want to carry Stingers …

The best spot to hide and perform your recon is just east of Waypoint 5 and toward Waypoint 6. There are lots of hills you can hide behind, provided you can avoid the M109 AAA site nestled in the middle of your flight path.

Once you spot all primaries — bunkers, tents, trucks and AAA sites — head for Waypoint 7. It will probably take you three or four minutes to gather all of the intelligence. (To "gather intelligence" on an object, you simply need to spot it and target it for several seconds.)

You'll find your second recon target — another FARP — resting in the valley just south of Waypoint 7. Do the same thing here that you did before. Find a good spot to hide, then pop-up to target all of your primaries. This done, you can skip Waypoint 8 and go directly back to base.

This mission is straightforward for the most part. If you do get spotted and attacked by enemy helos, you and your wingman will have to deal with them by yourselves — this mission doesn't afford you any air strikes.

SINGLE 10: UMBRELLA

Mission Parameters

OVERALL OBJECTIVE

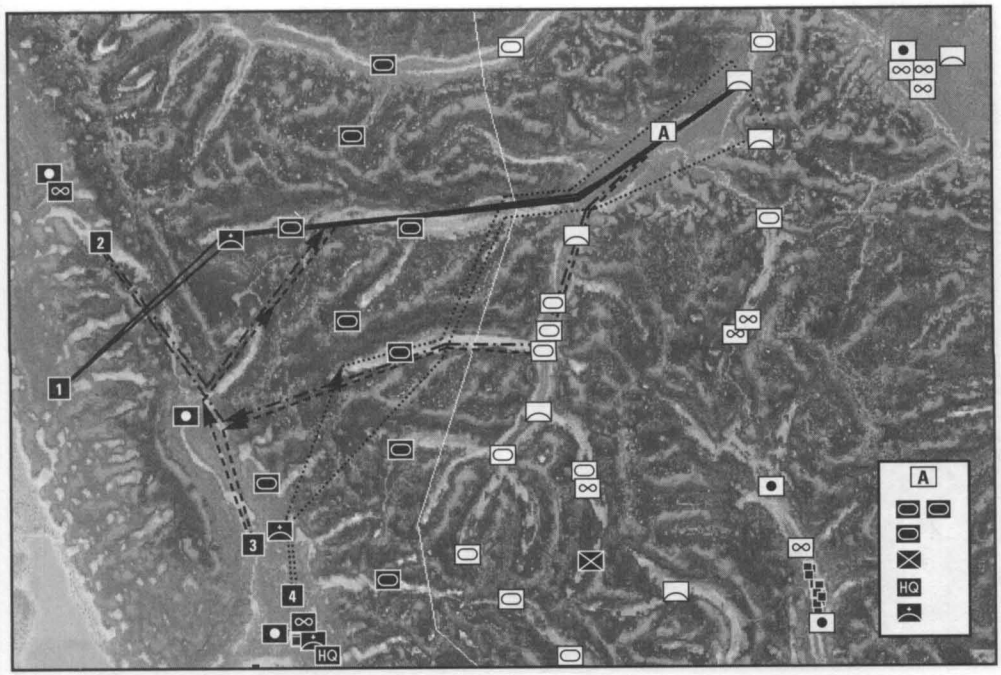
ELEMENTS OF 1/25TH ARMOR ARE MAKING A TACTICAL WITHDRAWAL FROM B-7. AND REQUIRE CAS. GULF 33 IS TO EXTRACT SUPPLIES AND HEADQUARTERS STAFF FROM THE FORWARD LINES, WHILE REMAINING FLIGHTS ARE TO SUPPLY ESCORT AND CAP TO GULF 33. ABCCC CALLSIGN IS ROMEO 81.

ENVIRONMENT	8KM / 0700 HOURS / 66° F / 0 KNOTS
LOCATION	5KM E OF PL APPLE / B-7
AIR STRIKES	1
ARTILLERY STRIKES	1

	FLIGHT 1	FLIGHT 2	FLIGHT 3	FLIGHT 4
HELICOPTER	LONGBOW	LONGBOW	BLACK HAWK	LONGBOW
CALLSIGN	*GULF 31*	*GULF 32*	*GULF 33*	*GULF 34*
ATO #	26001	26002	26003	26004
PRIMARY	CAS	ESCORT	EXTRACT	CAP
	12 M1	GULF 33	6 HQ SOLDIER	4 AH-1J
	2 M163			4 MI-24
	2 AVENGER			
SECONDARY	–	–	–	6 HQ SOLDIER

Success/Failure

	FLIGHT 1	FLIGHT 2	FLIGHT 3	FLIGHT 4
PRIMARIES	ENEMY	2 UH-60L	6 SOLDIER	ENEMY
(CALLSIGN)	–	(GULF 33)	(HQ STAFF)	–
SUCCESS+	20 KILLED	2 LIVE	6 LIVE	8 KILLED
SUCCESS	15-19 KILLED	1 LIVES	5 LIVE	6-7 KILLED
FAIL	10-14 KILLED	0 LIVE	4 LIVE	3-5 KILLED
FAIL –	0-9 KILLED	–	0-3 LIVE	0-2 KILLED
SECONDARIES	–	–	–	6 SOLDIER
(CALLSIGN)	–	–	–	(HQ STAFF)
SUCCESS+	–	–	–	6 LIVE
SUCCESS	–	–	–	4-5 LIVE
FAIL	–	–	–	2-3 LIVE
FAIL –	–	–	–	0-1 LIVE



FLIGHT 1 (Air Tasking Order: 26001) Time On Target: 0709L Time From Target: 0716L

Objective: Elements of 1/25th armor are making a tactical withdrawal from map grid B-7 (see map). Provide Close Air Support (CAS) to 1/25th armor as they attempt to withdraw 5 Km west to Phase Line APPLE. GULF 32 will be escorting GULF 33 to extract supplies and troops from the forward area Headquarters. Combat Air Patrol (CAP) in the area will be provided GULF 34.

FLIGHT 2 (Air Tasking Order: 26002) Time On Target: 0712L Time From Target: 0715L

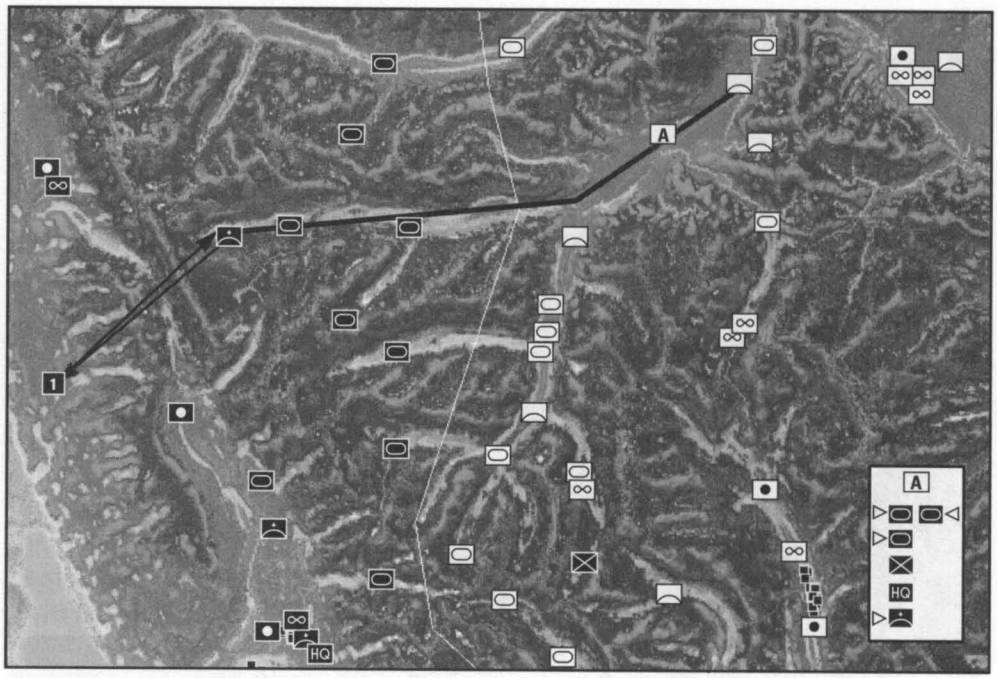
Objective: Elements of 1/25th armor are making a tactical withdrawal from map grid B-7 (see map). Provide escort for GULF 33. GULF 33 will be extracting troops and supplies from the forward area Headquarters. Combat Air Patrol (CAP) in the area will be provided GULF 34.

FLIGHT 3 (Air Tasking Order: 26003) Time On Target: 0712L Time From Target: 0715L

Objective: Elements of 1/25th armor are making a tactical withdrawal from map grid B-7 (see map). Extract troops and supplies from the forward area Headquarters. Escort will be provided by GULF 32. Combat Air Patrol (CAP) in the area will be provided GULF 34.

FLIGHT 4 (Air Tasking Order: 26004) Time On Target: 0705L Time From Target: 0719L

Objective: Elements of 1/25th armor are making a tactical withdrawal from map grid B-7 (see map). Provide Combat Air Patrol (CAP) in and around the area of map grids B-7 and B-8 (see map). GULF 32 will be escorting GULF 33 to extract supplies and troops from the forward area Headquarters.



Flight 1 — Gulf 31

In this mission, you're protecting friendly units as they make a tactical withdrawal and extract supplies from a forward-line headquarters. When arming, load up on Hellfires and Stingers, and give your wingman Hellfires and HE rockets.

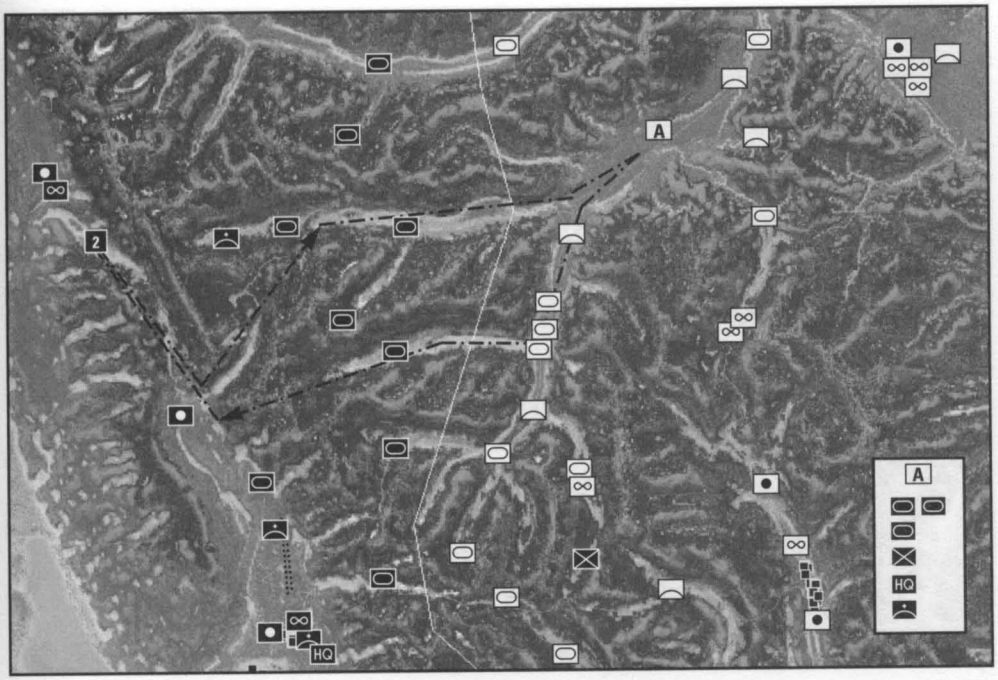
After takeoff, bypass Waypoint 2 entirely and head straight for Waypoint 3. It shortens the trip, and there's no real reason to go to the second waypoint. As you cross the phase line (near Waypoint 3), issue the "Weapons Free" order to your wingman and let him seek out whatever he can find.

Once you're on station at Waypoint 3, you'll run across AAA and SAM units defended by a tank unit. Target them, then order your wingman to "Attack My Targets." Just south of that area, there are also enemy air defense units and tanks. Order your wingman to "Stay Here" and give him the "Weapons Free" order.

If you want to conserve your ordnance and head for Waypoint 4, call in an air strike. Just make sure you destroy the air defense artillery before the A-10 shows up.

Once you're halfway to Waypoint 4 (over the friendly tanks), call your wingman to rejoin you. You'll need his assistance in fighting off incoming enemy helos south of Waypoint 4 that are attempting to prevent the armor withdrawal. Flight 4 (Gulf 34) is tasked with taking them out, but may not be finished. Approach with caution, and watch for AAA units in that area.

Just when you think you're finished, enemy armor advances from the northeast and southeast on the surrounded friendly units. And to make things more interesting, more enemy helicopters join the fight. Stay on station here and pick them off until you're given the thumbs-up to return home.



Flight 2 — Gulf 32

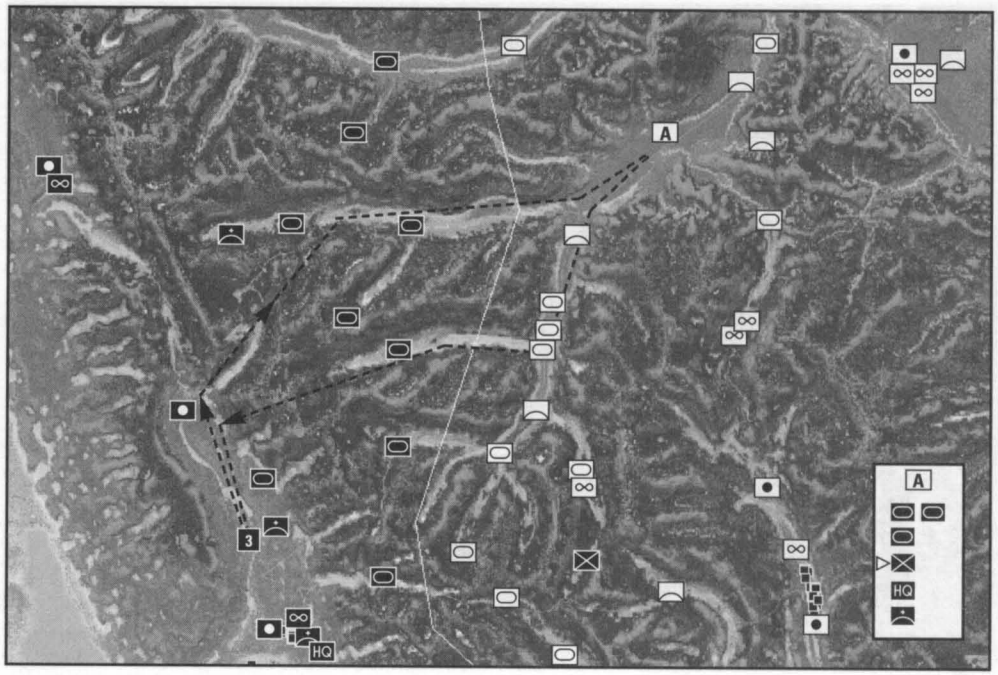
You've got a challenging role to fill this time out. Armor units are making a tactical retreat to 10km west of Phase Line Apple, and you've got to support the extraction flight (Gulf 33). You're going to make the linkup at Waypoint 2, then head for Waypoint 3.

Everything proceeds as planned and without incidence all the way to Waypoint 4. Your flight path leads you through a long, protected valley. Stick within .5 to 1km of the Black Hawks until you're close to Waypoint 4. Then, gain some airspeed and go support Flight 1 (Gulf 31). That flight arrives first at the battle area, and it's going to be a real challenge for them to clear the area before your extraction crew moves in.

Wait for the Black Hawks to land and pick up the equipment and supplies. When they move out of the area, follow them and forge ahead to Waypoint 7. That area has been overrun with enemy T-72s that are moving north along the road, en route to your friendly ground armor. Take out what you can, because this will make Flight 1's job easier, and will give the US armor a bit of a safety net.

While you're tank-hunting, enemy helicopters sneak in from the south and the east — Cobras and Hinds. Take them out, then loiter in the area around Waypoint 5 for a while and guard your Black Hawks from within visual range. Flight 4 is flying CAP, so just hold down the fort until they arrive on the scene.

That's about it. Once you escort the Black Hawks back into friendly territory, you're home free.



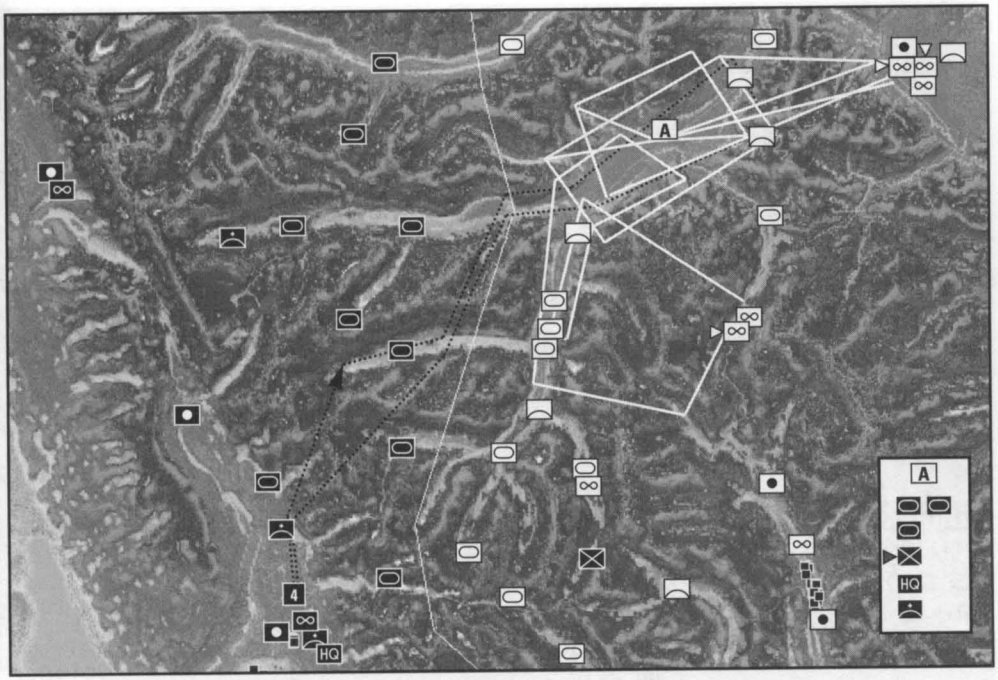
Flight 3 — Gulf 33

By now, you know the drill for an insertion/extraction mission — come in low, stick with your escort flight, land, pick up or drop off your troops, take off, and go home. That's pretty much what you're going to do here, except that you're strictly doing an extraction, and you have time considerations. Friendly armor is making a retreat, and you've got to get in and pick up the HQ staff.

Before you leave your FARP, dump the M60D and load up with a minigun. You only need guns for a short time during this mission, but you need concentrated power. This will come into play around Waypoints 4, 5 and 6. You'll be facing a lot of threats in this area. Use your guns if necessary, and stay close to your escorts. Also, make sure you keep a really low profile so that enemy fighters don't get called in on you.

At the LZ, land near the HQ staff — they're standing there anxiously awaiting your arrival. Do what you need to do, and leave as quickly as you can.

As soon as you pick up the staff, the US armor starts withdrawing and moving south. Keep in mind that the longer it takes for you to perform this extraction, the more beat-up your US armor gets.



Flight 4 — Gulf 34

On this CAP sweep, don't fully load your Longbow with Hellfires. Take some, but also carry Stingers and a load of rockets.

You're going to have to rely on the terrain during this mission — you've got quite a few enemy helos to deal with, and they're best dealt with from a masked position. Unlike most AI flight routes in this game, the helicopters in this mission fly various patterns that aren't very predictable. You'll face 4 Sea Cobras and 4 Hinds (some scramble and some simply attack) from the east, so you'll certainly need to call on your wingman for support. It's good to call in an air strike once you see the first wave of Sea Cobras appear. The anti-tank Hinds aren't far behind, and they're all heading straight for the friendly armor.

You want to dispose of the helicopters quickly. The longer the enemy has to spot your friendly armor, the more likely it is that you'll see an Su-25. (If that happens, you might as well start over. Or, if it happens and you haven't used your air strike yet, use it against the Sukhoi.)

As you're attacking them, hover over or near the center of the US Headquarters area. The reason for doing so is that you've got the advantage of having friendly air defense artillery units there. Shoot at what you can, and with luck, the M163 and Avenger SAM can score a few hits against the helicopters as well. In any case, you're trying to draw attention to yourself instead of the US armor. You're serving as a distraction.

After the helos are gone, use any Hellfires you have to help defend against advancing enemy armor. Then, head home.

SPECIAL MISSIONS

SPECIAL ORDER 1

Mission Parameters

CONDITION

20% CHANCE IF ARMOR IN SECTORS 2, 3 AND 4 ADVANCE TO PL CHERRY.

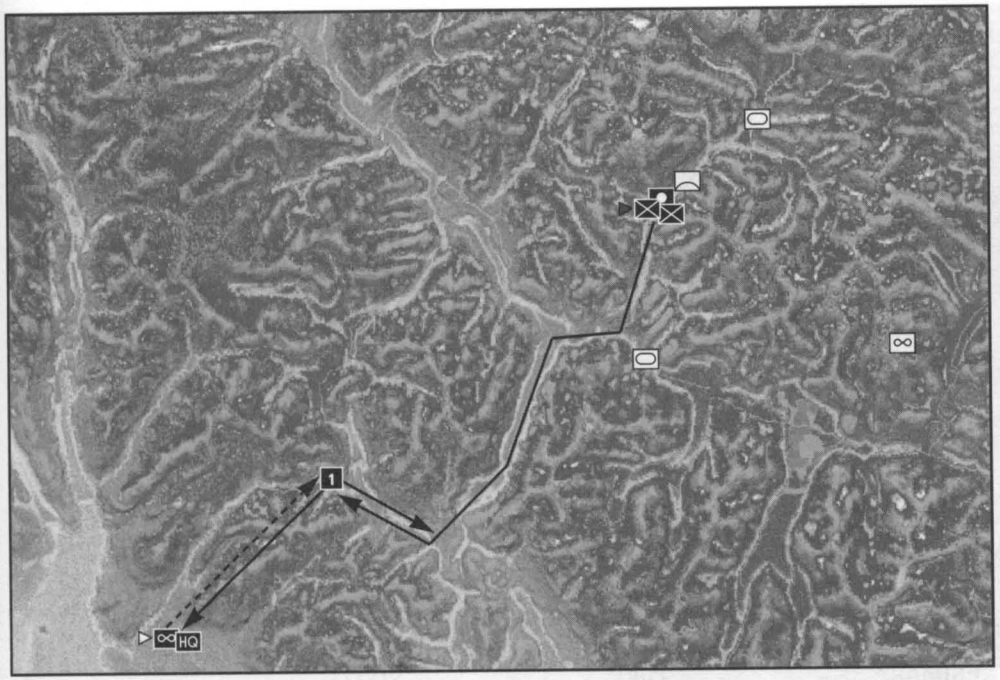
OVERALL OBJECTIVE

AN AC-130 OF THE 4TH SOS HAS BEEN SHOT DOWN BY ENEMY FORCES AT THE FORWARD EDGE OF THE BATTLE AREA (FEBA). YOU ARE TO ESCORT AN MH-53J TO MAP GRID F-8 AND OVERWATCH THE EXTRACTION OF THE DOWNED CREW.

FLIGHT	
HELICOPTER	LONGBOW
CALLSIGN	SAME AS FLIGHT IT REPLACES
ATO #	SAME AS FLIGHT IT REPLACES
PRIMARY	ESCORT
	1 MH-53J
SECONDARY	ESCORT
	4 CREW MEMBERS

Success/Failure

FLIGHT	
PRIMARIES	*1 MH-53J*
SUCCESS+	1 LIVES
SUCCESS	–
FAIL	0 LIVE
FAIL –	–
SECONDARIES	*4 CREW MEMBERS*
SUCCESS+	4 LIVE
SUCCESS	3 LIVE
FAIL	2 LIVE
FAIL –	0-1 LIVE



Mission Notes

The objective of this special mission is to escort an MH-53J rescue helicopter and help it extract the crew of an AC-130 downed behind enemy lines. Since you don't know what you're going to face, the Longbow is the best candidate.

Link up with the MH-53J at Waypoint 2, right after take off. Head through your waypoints until you reach Waypoint 6, then clear out the four BMP IFVs chasing the downed crew. Next, proceed to the extraction zone (Waypoint 7).

You'll usually have at least one strike available, so try calling in artillery against the Rapier SAMs just northeast of the friendly crew. While you're waiting, clear out any other SAM launchers and large threats in the area. (Remember, Rapiers don't trigger an ASE warning — you usually have to rely on your CP/G to let you know they've launched a missile if you've got the REALISTIC ASE option active.)

When the Pave Low arrives, the crew runs to meet it. At the same time, more BMPs and a flight of enemy Sea Cobras move in. Eliminate the helicopters and try to draw the BMP fire away from the Pave Low. But, stay close enough to keep an eye on things.

When the Pave Low takes off, you're ready to move and head for home. When you see the Pave Low cross into friendly territory, you can return to base. However, don't land before the Pave Low does., or you'll fail.

Another approach to this mission involves bypassing Waypoint 2. Going there triggers the Pave Low, so if you want to visit trouble spots ahead of time, clear out the LZ, then return to Waypoint 2 and resume your normal flight path.

SPECIAL ORDER 2

Mission Parameters

CONDITION

75% CHANCE IF ARMOR IN SECTORS 1 AND 2 ADVANCES TO PL PEAR.

OVERALL OBJECTIVE

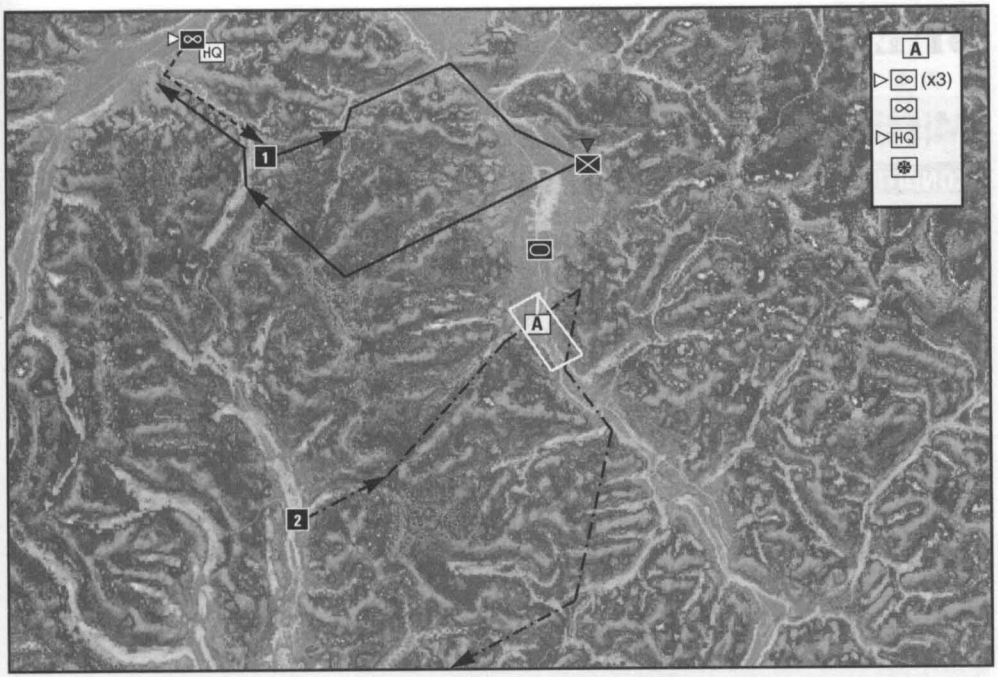
SPECIAL FORCE A-TEAM HAS BEEN COMPROMISED, AND AN ORDER HAS BEEN PLACED FOR IMMEDIATE EXTRACTION. THEIR TACTICAL GOAL WAS TO ASSASSINATE THE 88TH ARMOR GENERAL, WHO IS LIKELY BEING AIRLIFTED OUT OF MAP GRID E-7.

YOU WILL FULFILL ONE OF TWO ROLES: A) ESCORT MH-53J DURING EXTRACTION OF SPECIAL FORCES FROM MAP GRID C-7 AND LOCATE/DESTROY THE ESCAPING ENEMY ARMOR GENERAL IN THE VICINITY OF MAP GRID E-7.

	FIRST FLIGHT	SECOND FLIGHT
HELICOPTER	LONGBOW	LONGBOW
CALLSIGN	VARIES BY MISSION	VARIES BY MISSION
ATO #	VARIES BY MISSION	VARIES BY MISSION
PRIMARY	ESCORT	STRIKE
	1 MH-53J	2 MI-8
		4 AH-1J
		4 ZSU-23-4
		2 COMMAND BUNKER
		2 BUNKER
SECONDARY	ESCORT	
	4 SOLDIERS	

Success/Failure

	FLIGHT 1	FLIGHT 2
PRIMARIES	*1 MH-53J*	ENEMY
SUCCESS+	1 LIVES	13-14 KILLED
SUCCESS	–	11-12 KILLED
FAIL	0 LIVE	6-10 KILLED
FAIL –	–	0-5 KILLED
SECONDARIES	*4 SOLDIERS*	
SUCCESS+	4 LIVE	–
SUCCESS	3 LIVE	–
FAIL	2 LIVE	–
FAIL –	0-1 LIVE	–



Mission Notes

In this mission, US Special Forces assigned to assassinate an enemy commander have been compromised and need extraction. The general is escaping, and it's your job to either take down his helicopter or to escort a flight assigned to pull out the friendly ground troops. This mission isn't too difficult — unless the game generates a million enemies at the main mission sites. The one caveat — which applies to both flights — is that you have a 20-minute time limit. If you breach that, the commander escapes, and the Special Forces stand to get captured.

Escorting. If you choose escort duty, link up with the single Pave Low at Waypoint 2 and stay close to it. You have exactly 20 minutes to make this extraction, so keep an eye on your mission clock. The only objects sure to attack are the BMP-3s that are going after your Special Forces. If you've got Hellfires, you can take the BMP-3s without a problem. If the mission is loaded with additional SAM and AAA sites, try making use of TADS targeting and your chain gun.

Strike. The strike portion of this special mission is a very interesting flight. Not only do you have a good mix of target types — six helicopters, a commander's complex and four ZSU-23-4s — but you also have the satisfaction of shooting down a commander. Use the hill near Waypoint 4 as a hideout.

The best way to win this mission is to target the helicopters marked PRIMARY in your UPFRONT display and call in an air strike. (The commander is in one of the Hips.) Then, from the same masked position, pick off the other PRIMARY targets at the heavily defended complex between Waypoints 4 and 5. Once you've done that, the mission's all but won.

SPECIAL ORDER 3

Mission Parameters

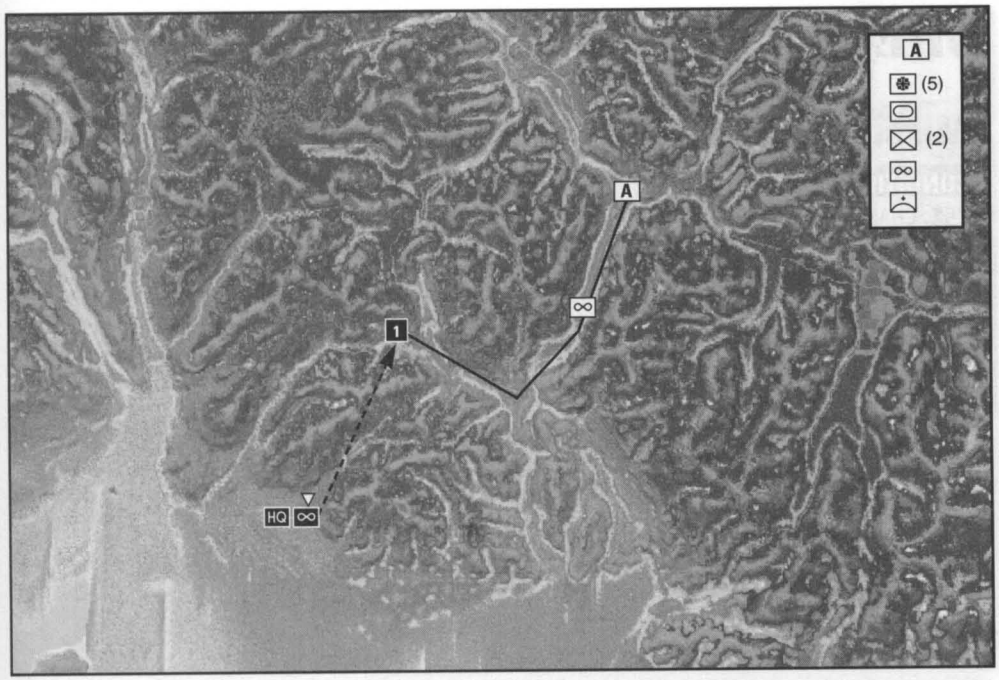
CONDITION
20% CHANCE IF ARMOR IN SECTORS 3 AND 4 ADVANCES TO PL CHERRY.

OVERALL OBJECTIVE
AN ENEMY SUPPLY CONVOY TRAVELING NORTH ALONG HIGHWAY 4 IS SUSPECTED OF CARRYING CHEMICAL AGENTS. INTELLIGENCE REPORTS INDICATE A SCHEDULED STOP AT MAP GRID G-7. YOU ARE TO ESCORT AN MH-53 FROM 21ST SOS AS SPECIAL FORCES ARE INSERTED TO RECON ENEMY CONVOY TRUCK.

FLIGHT	
HELICOPTER	LONGBOW
CALLSIGN	SAME AS FLIGHT IT REPLACES
ATO #	SAME AS FLIGHT IT REPLACES
PRIMARY	ESCORT
	1 MH-53J
SECONDARY	ESCORT
	4 SOLDIERS

Success/Failure

FLIGHT	
PRIMARIES	*1 MH-53J*
SUCCESS+	1 LIVES
SUCCESS	–
FAIL	0 LIVE
FAIL –	–
SECONDARIES	*DELTA CELL (4 SOLDIERS)*
SUCCESS+	4 LIVE
SUCCESS	2-3 LIVE
FAIL	0-1 LIVE
FAIL –	–



Mission Notes

Previous intelligence efforts have uncovered a probable chemical weapons convoy, suspected to be in transit to forward units, moving north on Highway 4. Your mission, should you choose to fly it, is to support a Pave Low carrying a Special Forces team that will inspect the convoy to look for chemical agents.

It's a good idea to lead your Pave Low by a good distance, because right after you pass Waypoint 4, two enemy helicopter flights scramble and ambush you. One group (composed of Cobras) appears if you're playing on CAT III or CAT II, and several Hinds arrive as you approach Waypoint 5. Send your wingman after one group while you take the other. There's no particular advice here, except to refer to **Beating Helicopter Bandits**, p. 30.

The remainder of this special mission features a concentrated convoy of firepower. You've got to knock out the primary air defense targets so that the Pave Low can land north of the convoy. Use the nice valleys on either side of the road as cover, and knock out threats one by one. Be extremely careful not to destroy the truck — if you do, your Pave Low will turn around, and you'll fail.

When the way is clear, approach the white chemical weapons truck, but don't destroy it. Provide chain gun cover for the ground troops as they deploy and inspect the vehicle. Keep your TADS up, and keep a close eye on the farmhouse just south of the LZ. It has a nasty habit of housing enemy troops.

When the inspection's finished, your ground troops will blow up the truck and reboard the Pave Low.

SPECIAL ORDER 4

Mission Parameters

CONDITION

75% CHANCE IF ARMOR IN SECTORS 3 AND 4 ADVANCES TO PL BANANA.

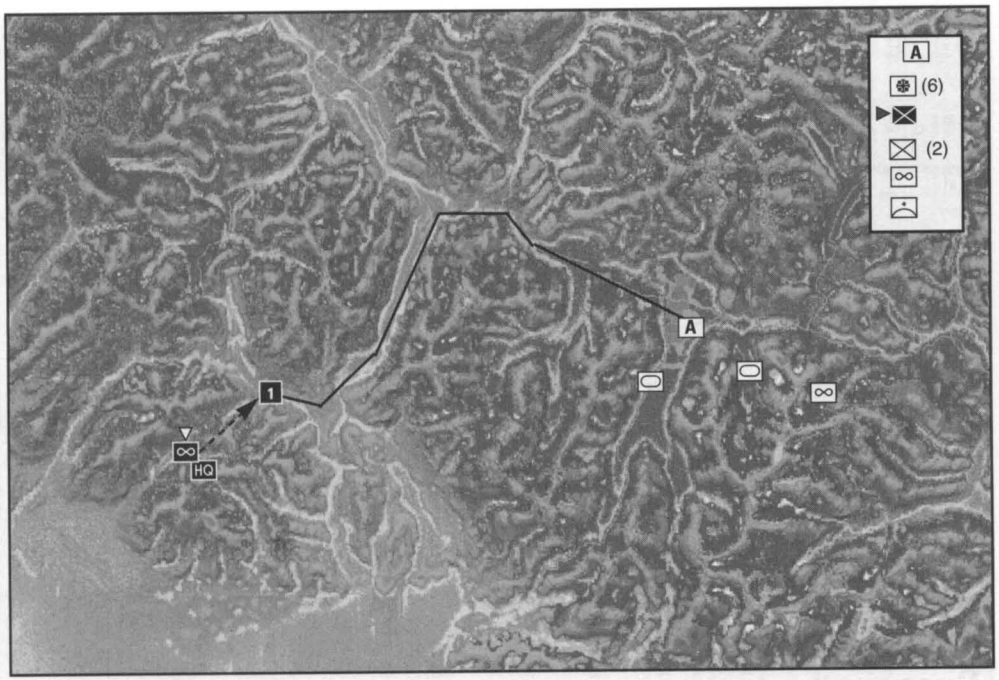
OVERALL OBJECTIVE

ALLIED PRISONERS ARE BEING HELD IN A POW COMPOUND NEAR MAP GRID H-7. RECENT INTELLIGENCE INDICATES A MOVEMENT OF PRISONERS WITH 24-48 HOURS. YOU ARE TO ESCORT AN MH-53J AND ITS LIMA 40 RANGER SQUAD AND PROVIDE CAS AS THEY INVADE THE COMPOUND.

FLIGHT	
HELICOPTER	LONGBOW
CALLSIGN	SAME AS FLIGHT IT REPLACES
ATO #	SAME AS FLIGHT IT REPLACES
PRIMARY	ESCORT
	1 MH-53J
SECONDARY	ESCORT/CAS
	LIMA 40 (RANGER SQUAD)

Success/Failure

FLIGHT	
PRIMARIES	*1 MH-53J*
SUCCESS+	1 LIVES
SUCCESS	–
FAIL	0 LIVE
FAIL –	–
SECONDARIES	*LIMA 40 (RANGER SQUAD – 7 SOLDIERS)*
SUCCESS+	7 LIVE
SUCCESS	5-6 LIVE
FAIL	3-4 LIVE
FAIL –	0-2 LIVE



Mission Notes

Here, you're on a mission to escort Rangers as they attempt to rescue POWs from a prison compound. The most challenging aspect is eliminating the six guard towers and dealing with the duo of AH-1J Sea Cobras that are flying CAP over the area. This is all compounded, of course, by whatever the dynamic mission generator throws into the mix.

The enemy helicopters pose the most immediate threat to the Pave Low's survival. (If you loaded up a few Stingers, they should answer just fine.) Once you link up with the friendly helicopter, fly a kilometer ahead of it and task your wingman with one of the Sea Cobras when they arrive. Disposing of them shouldn't be too difficult, since there are only two.

When you reach the prison complex, survey it carefully. The guard towers there have large guns and fairly decent aim. If you don't want to get riddled by fire, stake out a spot in the surrounding hills for your wingman and give him the "Stay Here" command. Then, swing 180 degrees around to the other side of the complex and take up a similar position there.

If you have a Longbow with radar, acquire all the radar-detectable targets — especially the towers — and pass them off as single targets to your wingman, telling him to "Attack My Target." Since friendly prisoners are in the complex, you don't want him firing recklessly. Switch to TADS and take out the enemy ground troops yourself. Once you've dispatched them, the Pave Low will move in. This is the bulk of the mission, although you may face additional threats on the way home.

SPECIAL ORDER 5

Mission Parameters

CONDITION

75% CHANCE IF ARMOR IN SECTORS 1, 2, 3 AND 4 ADVANCES TO PL LEMON.

OVERALL OBJECTIVE

ELEMENTS OF THE 5TH SPECIAL FORCES ARE TO COVERTLY CONTACT ANTI-IRANIAN LEADERS IN GORIS IN MAP GRID D-7. YOU ARE TO ESCORT THE 31ST SOS MH-53J CARRYING THESE FORCES AND PROVIDE CAS FOR THE INSERTION.

FLIGHT

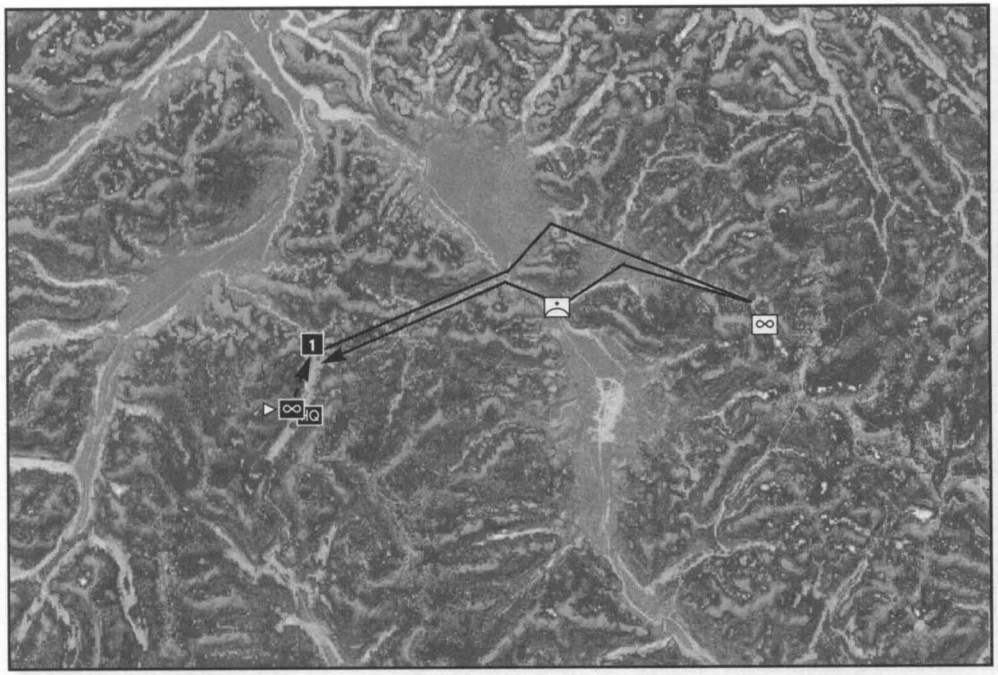
HELICOPTER	LONGBOW
CALLSIGN	SAME AS FLIGHT IT REPLACES
ATO #	SAME AS FLIGHT IT REPLACES
PRIMARY	ESCORT
	1 MH-53J
SECONDARY	—
	—

Success/Failure

FLIGHT

PRIMARIES	*1 MH-53J*
SUCCESS+	1 LIVES
SUCCESS	—
FAIL	0 LIVE
FAIL –	—

SECONDARIES NONE



Mission Notes

This mission is a fancy insertion featuring a bit of a plot. US Special Forces are planning to "drop by" and contact anti-Iranian rebels in the town of Goris. The rebels are making great plans to disrupt Iranian activity in the town, and you are going to help them by inserting seven members of this special team to help them lay out the scheme.

The actual insertion happens at Waypoint 5. Before that, however, you may have to contend with a group of AH-1J Sea Cobras flying a CAP. If you don't see them prior to reaching the target zone, you will soon afterward. The mission may also be compounded by other threats that have been randomly generated for this particular mission.

There's no extraction at the landing site, just an insertion. Several enemy soldiers are waiting for you there, so you should switch to TADS as soon as you move within 5km of Waypoint 5. Try to dispose of all of the soldiers and clear out whatever else is in the area before the Pave Low arrives and drops off its forces. When it lifts off, you're cleared to start the escort journey back into friendly territory.

You're basically following the same route home that you took to get to the insertion point. Be cautious of the four ZU-23s positioned just south of the large hill at Waypoint 7. You can swing north around that hill to avoid them, but if you haven't hit the Cobras yet, you most definitely will.

SPECIAL ORDER 6

Mission Parameters

CONDITION

90% CHANCE IF ARMOR IN SECTORS 2, 3 AND 4 ADVANCES TO PL MANGO.

OVERALL OBJECTIVE

AN ENEMY MIG-29 FIGHTER IS SUSPECTED TO HAVE BEEN DOWNED IN THE VICINITY OF MAP GRID H-6. YOU ARE TO DENY ANY ENEMY SEARCH AND RESCUE (SAR) EFFORTS TO REGAIN THE DOWNED PILOT AND PROVIDE CAS FOR THE 20TH SOS MH-53J THAT IS ATTEMPTING TO CAPTURE THE PILOT.

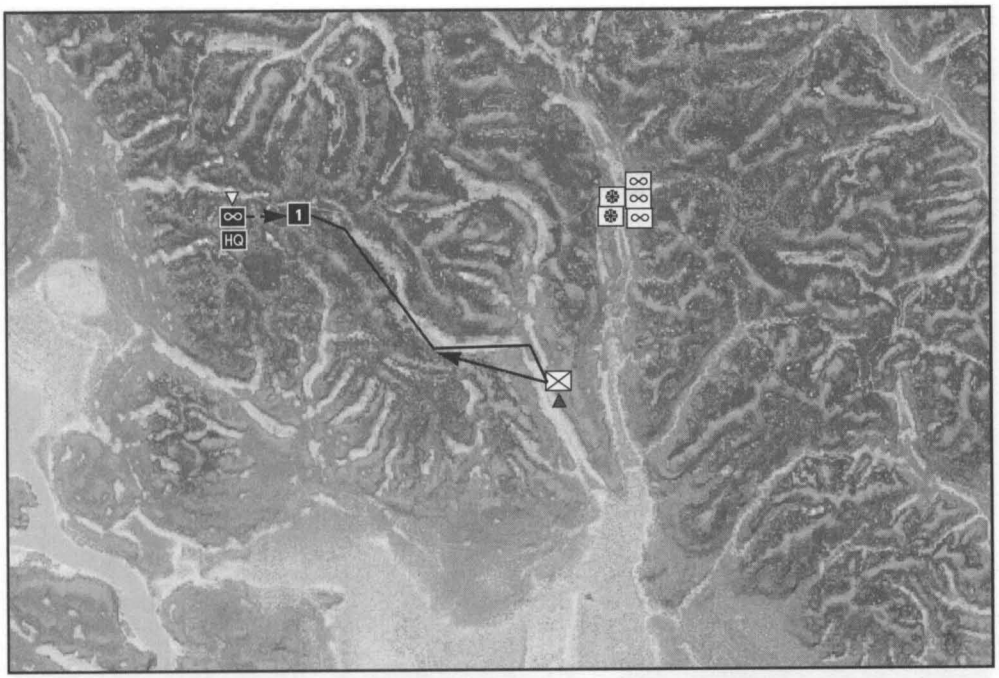
FLIGHT

HELICOPTER	LONGBOW
CALLSIGN	SAME AS FLIGHT IT REPLACES
ATO #	SAME AS FLIGHT IT REPLACES
PRIMARY	ESCORT
	1 MH-53J
SECONDARY	ESCORT
	1 MIG PILOT

Success/Failure

FLIGHT

PRIMARIES	*1 MH-53J*
SUCCESS+	1 LIVES
SUCCESS	–
FAIL	0 LIVE
FAIL –	–
SECONDARIES	1 MIG PILOT
SUCCESS+	1 CAPTURED
SUCCESS	–
FAIL	0 CAPTURED
FAIL –	–



Mission Notes

American Intel has recently intercepted a communication indicating that a MiG-29 has gone down along the phase line. Now, it's a race to see who can grab the downed pilot first — an Iranian rescue Hip, or a friendly Pave Low. Whoever lands first, wins.

Your role in this mission is to link up with the Pave Low and escort it to the crash site. Also, you're tasked with providing CAS for friendly troops. This would be an easy task if it weren't for the fact that four AH-1J Cobras arrive on the scene to make things more complex.

Basically, this comes down to a helicopter vs. helicopter battle. When you arrive on target, switch your wingman to "Weapons Free" and instruct him to attack air targets (Ctrl -). He'll engage air targets as they come in.

The Cobras pose a threat because they'll shoot down your Pave Low, but it's the Hip you should worry about. If it lands, you fail. Take the Cobras first, maintain a low altitude and watch for the Hip. The best place to hide is about 1km west of Waypoint 5, behind the hill. Acquire a helo, then pop off a Stinger or two.

When one of the rescue helicopters lands (either your Pave Low or the enemy Hip), the Iranian MiG pilot will head for that chopper. The appropriate ground troops will move him to the helicopter, which will then take off.

Save one Stinger for your trip home, just in case you get attacked by a MiG or Su-25. If you lose the pilot to the Hip, kill everything you see to up your kill tally.

SPECIAL ORDER 7

Mission Parameters

CONDITION

90% CHANCE IF ARMOR IN SECTORS 2 AND 3 ADVANCES TO PL ORANGE.

OVERALL OBJECTIVE

ALLIED HEADQUARTERS ARE BEING THREATENED BY REPORTS FROM AWACS THAT ENEMY HELICOPTER FORMATIONS HAVE BEGUN MOVING WESTWARDLY FROM ROUTE 5. YOU ARE TO PROTECT THE HEADQUARTERS IN MAP GRID F-5 AND PROVIDE CAP TO DEFEND AGAINST INCOMING ENEMY HELICOPTERS.

FLIGHT

HELICOPTER	LONGBOW
CALLSIGN	SAME AS FLIGHT IT REPLACES
ATO #	SAME AS FLIGHT IT REPLACES
PRIMARY	STRIKE
	2 MI-8
	2 MI-24
	8 AH-1J
SECONDARY	CAP
	2 M163 VULCAN AAA
	6 AVENGER SAM

Success/Failure

FLIGHT

PRIMARIES	ENEMY HELICOPTERS
SUCCESS+	12 KILLED
SUCCESS	7-11 KILLED
FAIL	5-6 KILLED
FAIL –	0-4 KILLED
SECONDARIES	*WHISKY 31 (ALLIED AIRFIELD AIR DEFENSE)*
SUCCESS+	7-8 LIVE
SUCCESS	4-6 LIVE
FAIL	3 LIVE
FAIL –	0-2 LIVE

Mission Notes

This is a tough mission, any way you look at it. You're going up against eight enemy helicopters, and you have to protect a friendly airfield. The only redeeming factor is that the attacks come in nearly manageable waves.

Find a masked location in the valley east of the airfield. This allows you to conduct ambushes from cover. Position your wingman there and tell him to "Stay Here," then find a similar position for yourself on the other side of the valley. When enemy helos arrive, have your wingman "Pop Up and Scan." Hit the helos as they fly into the mouth of the valley — don't let them get within 5-6km of the airfield.

Wave 1 — The first attack comes from an Su-25. The airfield AAA can take it.

Wave 2 — The two Sea Cobras that come in next are flying a SEAD mission. If you attack them before they reach the airfield, they'll concentrate on you instead.

Wave 3 — This wave brings two more Sea Cobras. Distract them, and call an air strike. It will then be there to greet Wave 4.

Wave 4 — Four Sea Cobras flying CAP come after you directly.

Wave 5 — Finally, two insertion Hips with 2 Hind escorts arrive.

If you need more assistance in this mission, try altering the waypoints of another flight so that it goes to the airfield, then assign it an extra-long loiter time. You won't win their mission, but you'll win yours.

SPECIAL ORDER 8

Mission Parameters

CONDITION

90% CHANCE IF ARMOR IN SECTOR 1 ADVANCES TO PL PINEAPPLE.

OVERALL OBJECTIVE

A BSN NEWS CREW HAS INADVERTENTLY TRESPASSED INTO ENEMY TERRITORY IN MAP GRID C-7. ELEMENTS OF THE 207TH MI BRIGADE FORWARD LISTEN POST HAVE INTERCEPTED ENEMY RADIO MESSAGES INDICATING THAT UNITS HAVE BEEN DISPATCHED TO CAPTURE THE CREW. YOU ARE TO PROVIDE ESCORT FOR AN MH-53J FROM 160TH SOS AND AN LRSU TEAM AS THEY ATTEMPT TO EXTRACT THE CREW.

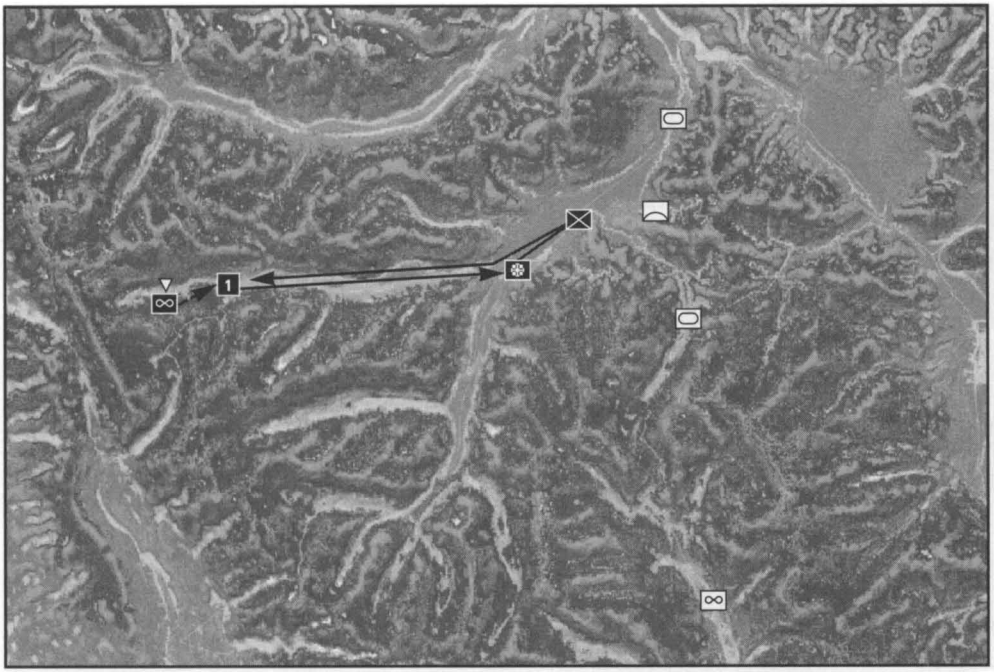
FLIGHT

HELICOPTER	LONGBOW
CALLSIGN	SAME AS FLIGHT IT REPLACES
ATO #	SAME AS FLIGHT IT REPLACES
PRIMARY	ESCORT
	1 MH-53J
SECONDARY	ESCORT
	ZULU 24 (LRSU EXTRACTION TEAM – 4 SOLDIERS)

Success/Failure

FLIGHT

PRIMARIES	*1 MH-53J*
SUCCESS+	1 LIVES
SUCCESS	–
FAIL	0 LIVES
FAIL –	–
SECONDARIES	*ZULU 24 (4 SOLDIERS)*
SUCCESS+	4 LIVE
SUCCESS	3 LIVE
FAIL	1-2 LIVE
FAIL –	0 LIVE



Mission Notes

A BSN news vehicle has inadvertently driven into enemy territory. To rescue them, you escort an extraction team, then fly back to base. Sounds simple, doesn't it? It would be, except that it's a competition to see if you can accomplish the mission before the enemy captures the crew.

Pick up the Pave Low at Waypoint 2 after you take off, then escort it along Route 3. You'll pass directly over the news truck, then land ahead of the enemy convoy.

Stay close to the highway and take out the tanks and the Rapier SAMs just east of the news van. Stay approximately 1 to 2km ahead of the Pave Low and make your way into the valley to destroy whatever enemy targets you can find before it arrives at Waypoint 4 to extract the crew.

Soon after you arrive, BMPs roll in from the northeast and southeast. Switch to TADS, then train your cannon on them. You could use Hellfires as well, or give your wingman the "Weapons Free" command. The advantage to freeing your wingman is that he might very well spot some threats you don't see.

Southeast of the valley, a pair of AH-1J Sea Cobras attack as soon as the Pave Low lands to extract the crew. If your wingman is having trouble getting rid of them, you may have to take them on yourself.

This is a simple mission, as long as you take out the Rapiers and any other incidental ground threats in the valley. Anything, even a soldier, can shoot at your Pave Low. Watch it take off, then head for friendly ground.

SPECIAL ORDER 9

Mission Parameters

CONDITION

90% CHANCE IF ARMOR IN SECTORS 2 AND 3 ADVANCES TO PL ORANGE.

OVERALL OBJECTIVE

MARINE FORCE RECON 6 (ALPHA 22) HAS ENGAGED SEVERAL SMALL GROUPS OF ENEMIES AND HAS REQUESTED IMMEDIATE EXTRACTION FROM MAP GRID D-6. YOU ARE TO ESCORT AN MH-53J FROM 31ST SOS AND PROVIDE CAS DURING THE EXTRACTION.

FLIGHT

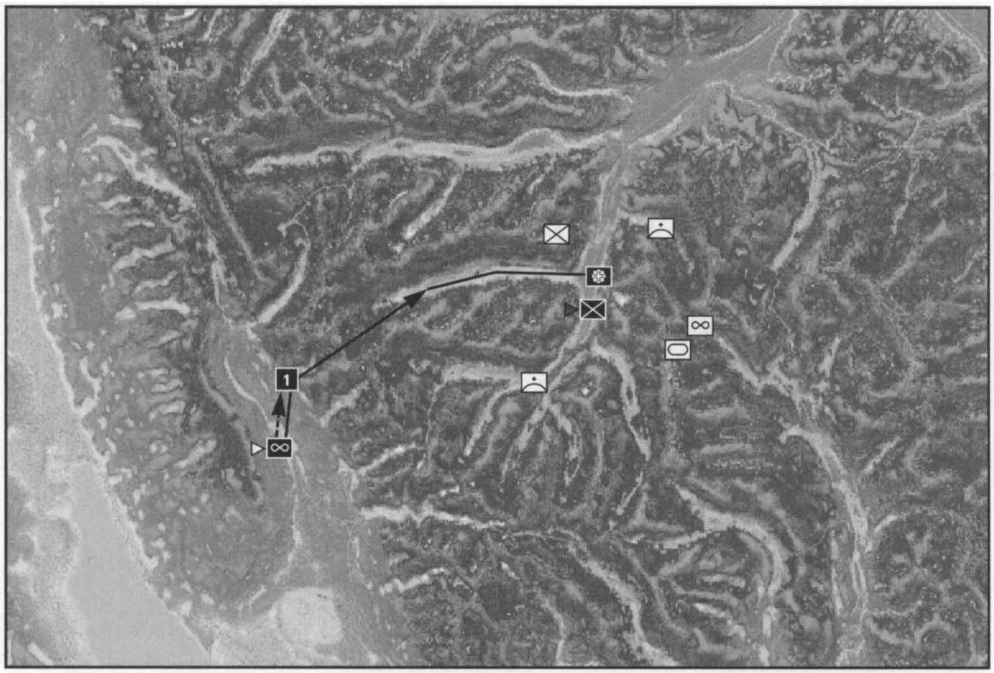
HELICOPTER	LONGBOW
CALLSIGN	SAME AS FLIGHT IT REPLACES
ATO #	SAME AS FLIGHT IT REPLACES
PRIMARY	ESCORT
	SIERRA 07 (1 MH-53J)
SECONDARY	CAS
	ALPHA 22 (USMC FORCE RECON 6 — 6 SOLDIERS)

Success/Failure

FLIGHT

PRIMARIES	*SIERRA 07 (1 MH-53J)*
SUCCESS+	1 LIVES
SUCCESS	—
FAIL	0 LIVE
FAIL –	—

SECONDARIES	*ALPHA 22 (6 SOLDIERS)*
SUCCESS+	6 LIVE
SUCCESS	3-5 LIVE
FAIL	2 LIVE
FAIL –	0-1 LIVE



Mission Notes

At first look, this looks to be a standard extraction. But, this one's a setup — the enemy has placed a decoy rescue tent near US forces that have radioed for help. By sending false messages, they hope to ambush your flight. To win this mission, pay close attention to the radio and follow the *green* smoke radio messages.

Link up with a Pave Low at Waypoint 2, then travel to Waypoint 5. On your approach, you receive an accent-ridden radio call from an Iranian soldier impersonating a Marine. He's making a radio request for extraction from a US tent at your scheduled waypoint, and says they're popping red smoke. The Iranians try to ambush you with four ZSU-23-4s, two Sea Cobras, artillery and enemy troops.

In actuality, the team you want to extract is 1km south of that position, in the T-shaped valley. As the Pave Low comes into Waypoint 5, the real Marines send out a message indicating that they've popped green smoke. Almost immediately, two convoys of ZSU-23-4s, BMPs and Sea Cobras jump you. The Pave Low runs away to the "T" zone 1km west of Waypoint 5, leaving you alone.

You've got about 3 minutes. Hit the northern ZSU-23-4s first with your radar Hellfires in LOBL mode. Then, hit the Cobras. Take on the ZSU-23-4s from the south. Lastly, hit the northern ground troops with your TADS and chain gun.

Eventually, you'll hear a radio message in which the Pave Low authenticates *Gulf Mike* as *Whiskey*. After this happens, the Pave Low diverts to the green smoke and lands. The way home should be easy.

SPECIAL ORDER 10

Mission Parameters

CONDITION

90% CHANCE IF ARMOR IN SECTORS 3 AND 4 ADVANCES TO PL PINEAPPLE.

OVERALL OBJECTIVE

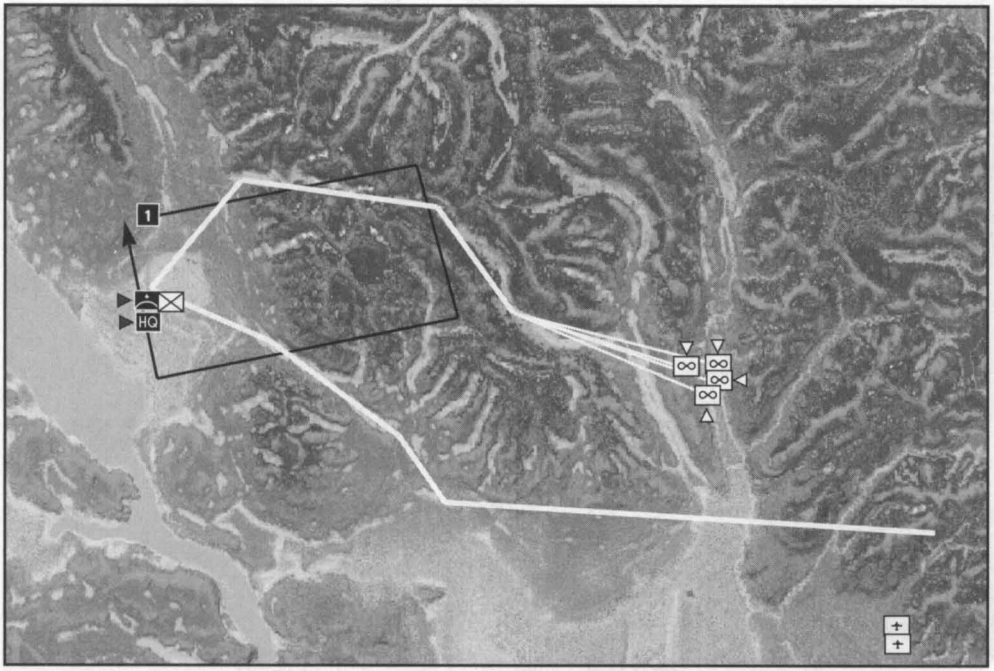
AN INCOMING FORMATION OF ENEMY HELICOPTERS HAS BEEN DETECTED. IT IS CURRENTLY ADVANCING FROM THE EAST IN MAP GRID 3. YOU ARE TO AMBUSH AND DESTROY THE INCOMING ENEMY FORCES AND PROTECT ALLIED ASSETS AT THE XX COMMAND POST.

FLIGHT		
HELICOPTER	LONGBOW	
CALLSIGN	SAME AS FLIGHT IT REPLACES	
ATO #	SAME AS FLIGHT IT REPLACES	
PRIMARY	STRIKE	
	4 AH-1J	
	4 MI-24	
	2 MI-8	
SECONDARY	CAP	
	XX COMMAND POST	*XX COMMAND POST ADA*
	1 M163 VULCAN AAA	*4 M163 VULCAN AAA*
	2 COMMAND BUNKER	*4 AVENGER SAM*
	2 BUNKER	*1 M2 BRADLEY IFV*

Success/Failure

FLIGHT	
PRIMARIES	ENEMY HELICOPTERS
SUCCESS+	10 KILLED
SUCCESS	8-9 KILLED
FAIL	4-7 KILLED
FAIL –	0-3 KILLED

SECONDARIES	*XX COMMAND POST / ADA*
SUCCESS+	14 LIVE
SUCCESS	8-13 LIVE
FAIL	6-7 LIVE
FAIL –	0-5 LIVE



Mission Notes

Similar to Special Mission 7, this objective involves a large enemy helicopter formation making an inbound attack on a US command post near Angekakot. You're going to have to rely on your stealth, instincts and wingman to take out the ten enemy helicopters and four aircraft that are threatening the CP. (This is usually a night mission. One advantage this gives you is that friendly units have better night vision than enemy units. This means that you should be able to see the enemy before he sees you.) Leave your Hellfires at home and load up with HE rockets and Stingers.

Wave 1 — The first wave is a fixed-wing flight consisting of two Su-25s and two MiG-29s. They aren't primaries, so try not to engage them unless you have to. Instead, call in an F-16 air strike as soon as you can acquire one of them. The command post will defend itself with M163s until the strike arrives.

Wave 2 — Ten enemy helicopters come in. (If you don't believe us, count them.) You've got two flights with a pair of Sea Cobras each (flying SEAD) and four Hinds that are escorting two Hips.

Use the notes given in Mission 7 to help you knock out these helicopters. Hit the Hips first with your guns. They're objectives, but you'll want to save your missiles for the Hinds and Cobras. If you get into trouble, increase the rocket salvo size to eight. This will nearly always kill a target in a head-on attack. Also, when firing rockets, yaw or nose up and down as you ripple-fire them. This spreads out the rockets and delivers widespread damage.

SPECIAL ORDER 11

Mission Parameters

CONDITION

75% CHANCE IF ARMOR IN SECTORS 1 AND 2 ADVANCES TO PL PAPAYA.

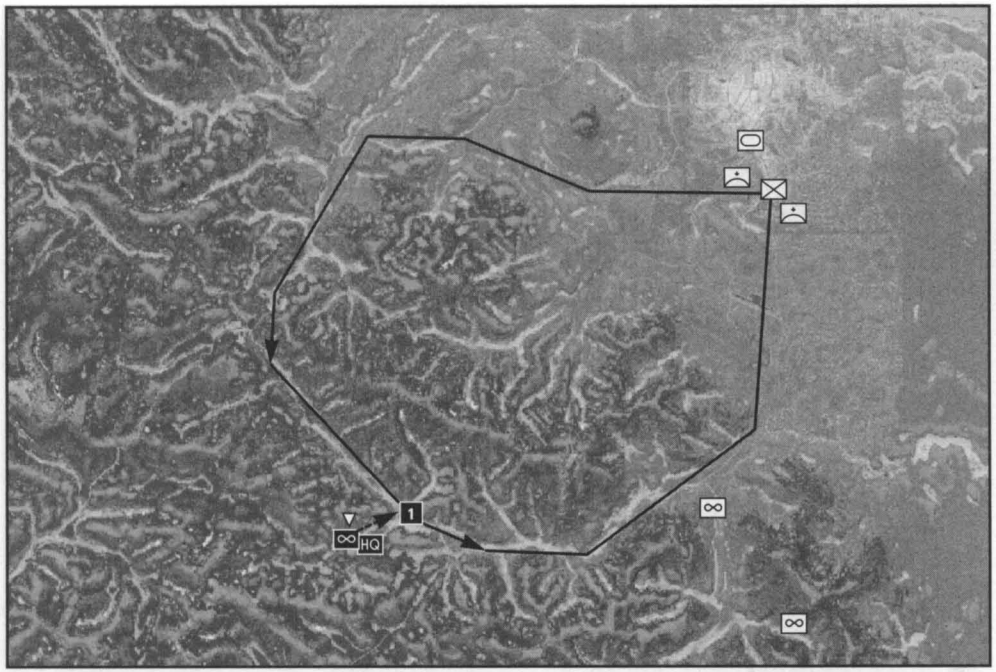
OVERALL OBJECTIVE

HOTEL 57 (DELTA CELL) IS ON A MISSION TO DESTROY THE STEPANAKERT POWER STATION IN MAP GRID C-9 FOLLOWING ORDERS FROM 1ST SOCOM. YOU ARE TO ESCORT THE 20TH SOS MH-53J AND COVER THE INSERTION AND EXTRACTION OF HOTEL 57. AVOID COLLATERAL DAMAGE TO CIVILIAN BUILDINGS.

FLIGHT	
HELICOPTER	LONGBOW
CALLSIGN	SAME AS FLIGHT IT REPLACES
ATO #	SAME AS FLIGHT IT REPLACES
PRIMARY	ESCORT
	1 MH-53J
SECONDARY	ESCORT
	HOTEL 57 (DELTA CELL – 4 SOLDIERS)

Success/Failure

FLIGHT	
PRIMARIES	*1 MH-53J*
SUCCESS+	1 LIVES
SUCCESS	–
FAIL	0 LIVE
FAIL –	–
SECONDARIES	*HOTEL 57 (4 SOLDIERS)*
SUCCESS+	4 LIVE
SUCCESS	3 LIVE
FAIL	2 LIVE
FAIL –	0-1 LIVE



Mission Notes

In this escort-and-demolition mission, you lead an MH-53J Pave Low to the Stepanakert power plant, where Special Forces (*Delta Cell: Hotel 57*) plan to wire it for demolition. Link up with the Pave Low at your first waypoint, then use normal escort tactics all the way to the target area. Knock out any ground threats within 3 to 4km on either side of the flight route.

Once you leave Waypoint 5, there's not much to hide behind. You'll probably want to speed up ahead of the Pave Low once you leave Waypoint 4 and snake your way to the edge of the hills there to set up your attack. As you reach the flat plateau preceding Stepanakert, watch for two flights of Sea Cobras. They're flying CAPs around the power plant. Give your wingman the "Stay Here" command and coordinate an attack from cover.

Once the helos are gone, work on the eight ZSU-23-4s that are defending the station — four are positioned just northeast of the plant, and the other four to the southwest. Soon, the Pave Low will arrive and make its landing south of the power plant. The inserted ground troops move to the buildings, and must immediately contend with enemy ground troops. About the same time, four BMP-2s move in from the north. Give them to your wingman, and take out the enemy troops with your TADS and gun. Avoid collateral damage to civilian buildings.

As soon as the insertion team loads, get out of there. Save half of your Hellfire load for the trip home, because it's along a new route and probably holds a few surprises along the way.

SPECIAL ORDER 12

Mission Parameters

CONDITION

75% CHANCE IF ARMOR IN SECTORS 1, 2 AND 3 ADVANCES TO PL PEACH.

OVERALL OBJECTIVE

SEAL TEAM 5 HAS BEEN COMPROMISED AND REQUIRES IMMEDIATE EXTRACTION FROM MAP GRID D-4 BEFORE ADVANCING ARMOR ARRIVES. YOU ARE TO ESCORT THE 31ST SOS MH-53J AND PROVIDE CAS DURING THE EXTRACTION.

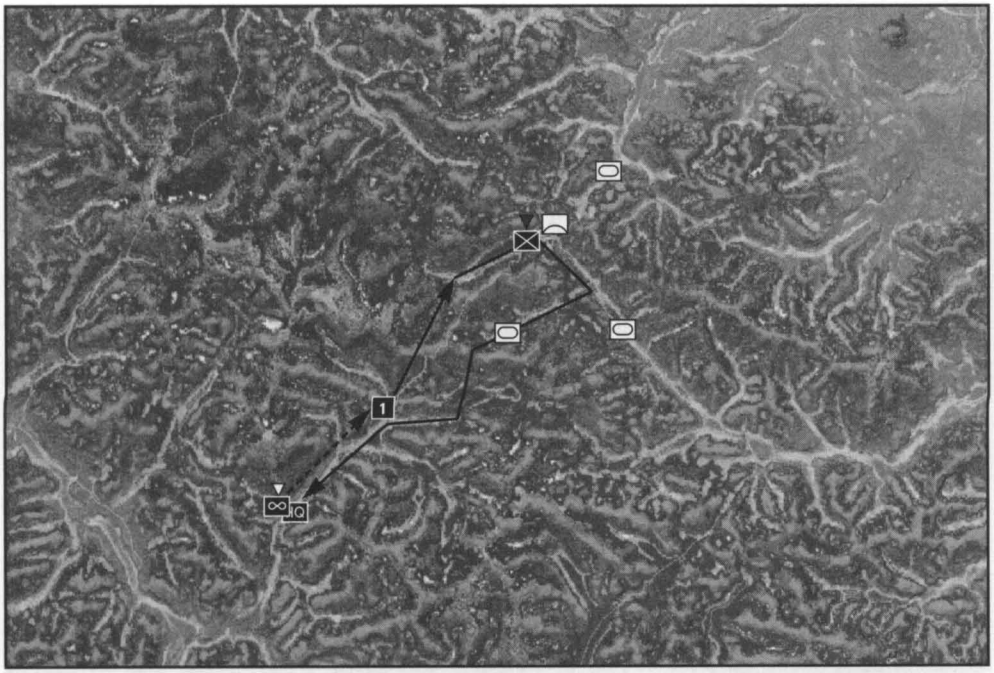
FLIGHT

HELICOPTER	LONGBOW
CALLSIGN	SAME AS FLIGHT IT REPLACES
ATO #	SAME AS FLIGHT IT REPLACES
PRIMARY MISSION	ESCORT
	1 MH-53J
SECONDARY	ESCORT
	SEAL TEAM 5 (6 SOLDIERS)

Success/Failure

FLIGHT

PRIMARIES	*1 MH-53J*
SUCCESS+	1 LIVES
SUCCESS	–
FAIL	0 LIVE
FAIL –	–
SECONDARIES	*SEAL TEAM 5 (6 SOLDIERS)*
SUCCESS+	5 LIVE
SUCCESS	4 LIVE
FAIL	2-3 LIVE
FAIL –	0-1 LIVE



Mission Notes

SEAL Team 5 is facing impending capture and has sent out an urgent SOS for immediate extraction. You're to escorting an MH-53J Pave Low to the extraction site and oversee the pullout. Load up on Hellfires for this mission — you've got lots of ground targets ahead of you.

Enemy ground forces are quickly closing in on the SEALs, so you'll need to move fast. Pick up the Pave Low at Waypoint 2, then make your approach from the southwest, using the long ridge as cover. Stay low, and stay a kilometer or two ahead of the Pave Low. Once you pass Waypoint 3, gain some airspeed and put some distance between you and the Pave Low. You'll need to arrive at the extraction site early enough to take out anything threatening the Pave Low.

Just northeast of the SEALs, you'll find a Rapier SAM site. Open fire on it as soon as you get within range — these launchers can fire at you and your Pave Low without a line of sight. Target the Blindfire first, then concentrate your fire on the individual Rapier launchers. If you can get close enough to them after their radar is gone, you can use your guns pretty effectively.

Not too long afterward, an enemy convoy with BMPs arrives from the northeast, and trucks, AAA and more BMPs roll in from the south. Set your wingman to "Weapons Free" — he may spot other threats that you miss in the area. Send him down south, while you take on the threats to the north. Meanwhile, the Pave Low attempts to land and make the extraction. Once you see it lift off, head for base.

SPECIAL ORDER 13

Mission Parameters

CONDITION

75% CHANCE IF ARMOR IN SECTORS 1 AND 2 ADVANCES TO PL MELON.

OVERALL OBJECTIVE

AN F-16 FROM THE 389TH FS HAS BEEN ASSIGNED TO DESTROY A SUSPECTED MUNITIONS FACTORY IN STEPANAKERT. YOU ARE TO IDENTIFY AND LASER-DESIGNATE THE FACTORY FOR DESTRUCTION PRIOR TO THE AIR STRIKE. AVOID COLLATERAL DAMAGE TO THE MOSQUE ON THE NORTH SIDE OF THE FACTORY.

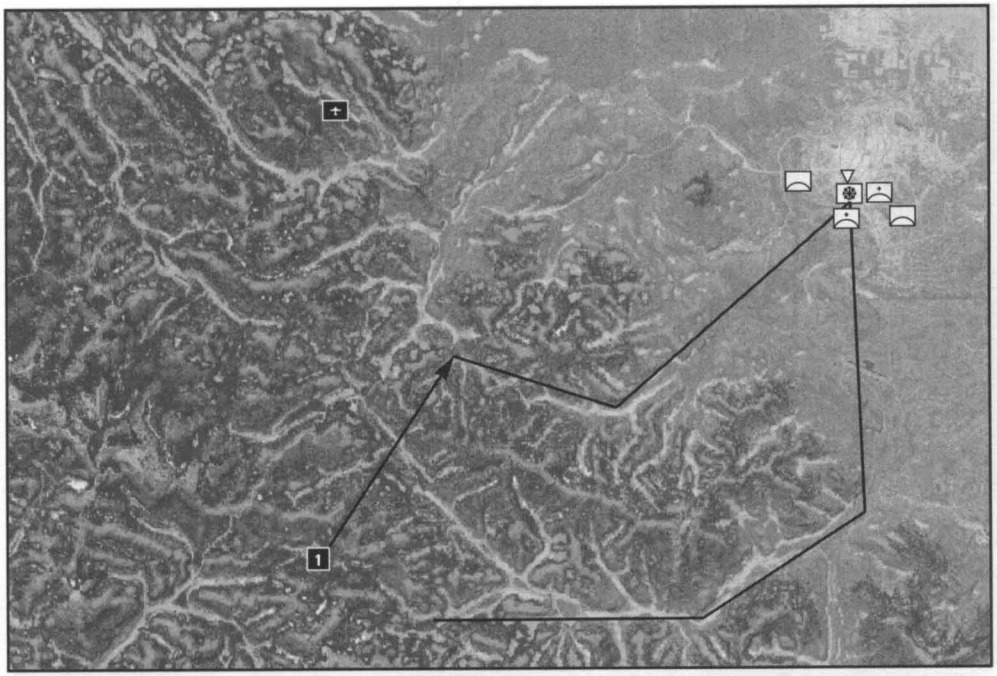
FLIGHT

HELICOPTER	KIOWA WARRIOR
CALLSIGN	SAME AS FLIGHT IT REPLACES
ATO #	SAME AS FLIGHT IT REPLACES
PRIMARY	LASE
	1 MUNITION PLANT
SECONDARY	—
	—

Success/Failure

FLIGHT

PRIMARIES	MUNITION PLANT
SUCCESS+	1 LASED
SUCCESS	—
FAIL	—
FAIL –	0 LASED
SECONDARIES	NONE



Mission Notes

Here, you're assigned to laser-designate a munitions factory. This is one of the few Specials in which you can take the Kiowa or the Longbow and still come out shining. You need stealth, but not a lot of firepower. The Kiowa fits the stealth bill. The Longbow, of course, has firepower but not a lot of stealth.

You've got a 20-minute window in which to accomplish this mission. An F-16 is scheduled to make two passes on targets that you designate with your laser, but you need to clear the area of dangerous SAMs ahead of time.

The eight ZU-23s don't pose much danger to the F-16s, so avoid them (or PFZ them and send your wingman after them) and attack the Rapier SAMs northwest and southeast of the target zone. Take out the Blindfire radar first.

Then, move within 5.7km and use the hill to the southwest to mask your position while you're designating. (If you've gotten this far in a Kiowa, you're in great shape.) Use your MMS to lase the target — switch between MMS camera modes (Numpad [1]) until you can make out the munitions factory. Use [T] to target the factory, then press Numpad [Enter] to activate the laser. Watch the range on the VSD or TSD. The "XXXX" will turn to a number and flash when the target is being lazed. When it blows up, head for home. Follow the waypoints to score more points if you can spare the ordnance. Otherwise, you can just retrace your flight path home.

SPECIAL ORDER 14

Mission Parameters

CONDITION

75% CHANCE IF ARMOR IN SECTORS 1, 2 AND 3 ADVANCES TO PL COCONUT.

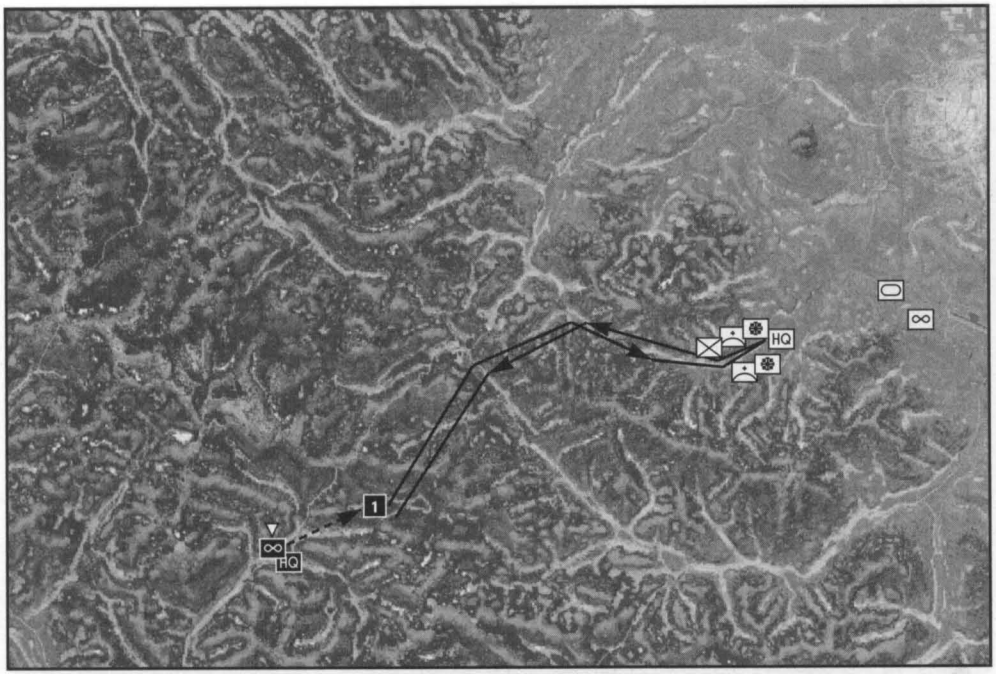
OVERALL OBJECTIVE

JOINT SPECIAL FORCES CHARLIE 20 (DELTA CELL) HAVE ORDERS TO RAID A SUSPECTED 88TH ARMORED DIVISION TACTICAL COMMAND POST AT MAP GRID D-9. FOLLOWING THE RAID, THE TEAM WILL CONDUCT A SEARCH FOR THE CP AND WITHDRAW TO AN LZ 1KM SW FOR PICKUP. YOU ARE TO ESCORT THE 20TH SOS UH-60L AND COVER THE INSERTION AND EXTRACTION OF TROOPS.

FLIGHT	
HELICOPTER	LONGBOW
CALLSIGN	SAME AS FLIGHT IT REPLACES
ATO #	SAME AS FLIGHT IT REPLACES
PRIMARY	ESCORT
	1 UH-60L
SECONDARY	ESCORT
	CHARLIE 20 (DELTA CELL – 7 SOLDIERS)

Success/Failure

FLIGHT	
PRIMARIES	*1 UH-60L*
SUCCESS+	1 LIVES
SUCCESS	–
FAIL	0 LIVE
FAIL –	–
SECONDARIES	*CHARLIE 20 (7 SOLDIERS)*
SUCCESS+	7 LIVE
SUCCESS	4-6 LIVE
FAIL	3 LIVE
FAIL –	0-2 LIVE



Mission Notes

In this mission, you're supporting a Joint Special Ops raid on an enemy command post. The Black Hawk you're escorting performs an insertion-inspection-extraction. Take as many Hellfires and Stingers as you can carry, and give your wingman the same. You'll find lots of ZU-23s to the southwest and north. Although they aren't particularly dangerous to the UH-60 (it's loitering and inserting troops behind a hill), they can still tag you.

After dispatching the ZU-23s, take on the ZSU-23-4s, guard towers and SAM-toting soldiers at the command post. They'll attack your troops, so use your TADs and chaingun to pick them off from the corner of the valley to the west.

Do not kill the command bunkers! They're targets for inspection, and if you kill them, the troops can't complete their mission. Get a visual ID from the Longbow's HDD view or UPFRONT display to make sure what you're targeting, then fire.

Next, four BMP-2 IFVs and a couple of Sea Cobras assemble at the target area. Your troops are on the ground at this point, so send your wingman individual targets instead of ordering "Weapons Free."

Switch to FCR and air radar mode and try to gain a Stinger lock on the helos. Or, if you're still busy with ground threats, send your wingman after them.

The Special Forces spend several minutes searching the compound, then reboard the Black Hawk. Follow it back into friendly territory via the approach route and make sure nothing interrupts the trip home.

SPECIAL ORDER 15

Mission Parameters

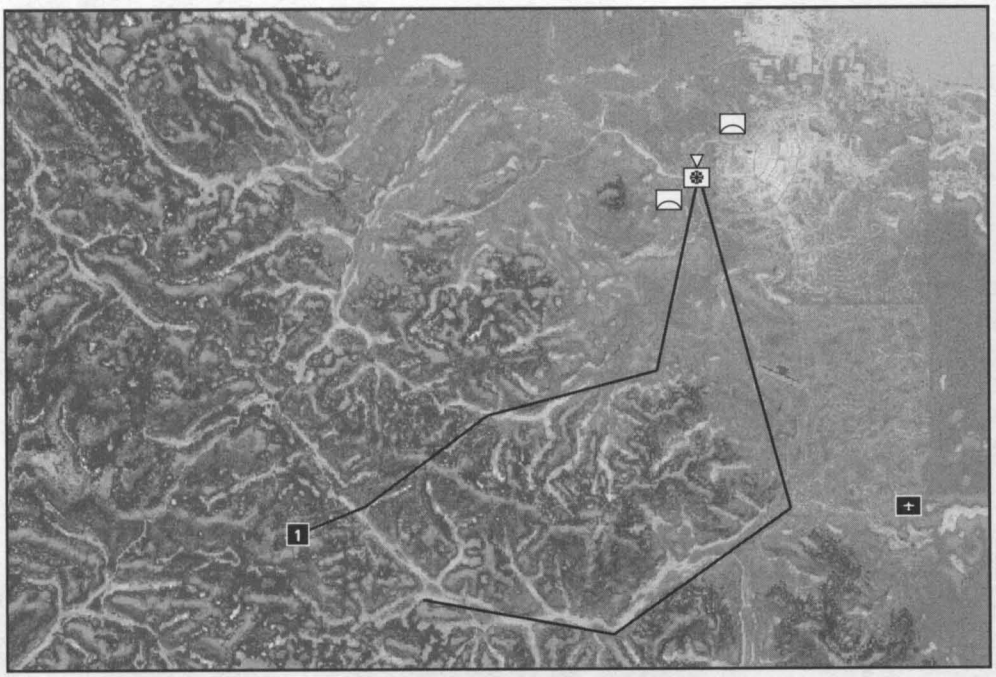
CONDITION
75% CHANCE IF ARMOR IN SECTORS 1 AND 2 ADVANCES TO PL MELON.

OVERALL OBJECTIVE
A TACTICAL BRIDGE ALONG HIGHWAY 8 HAS BEEN MARKED FOR DESTRUCTION BY AN F-16 FROM THE 389TH TFS. YOU ARE TO LASER-DESIGNATE THE BRIDGE 20 TO 25 MINUTES INTO THE MISSION TO ASSIST IN THE AIR STRIKE.

FLIGHT	
HELICOPTER	KIOWA WARRIOR
CALLSIGN	SAME AS FLIGHT IT REPLACES
ATO #	SAME AS FLIGHT IT REPLACES
PRIMARY	LASE
	1 BRIDGE
SECONDARY	—
	—

Success/Failure

FLIGHT	
PRIMARIES	1 ENEMY BRIDGE
SUCCESS+	1 LASED
SUCCESS	—
FAIL	0 LASED
FAIL –	—
SECONDARIES	NONE



Mission Notes

By the time you've gotten this far into the campaign, American forces are taking laser pot-shots at will on strategic enemy targets. In this case, the target is a bridge. Like Special Mission 13, you have 20 minutes in which to lase a target for destruction by an inbound F-16.

You'll probably want to take a Kiowa on this mission. Unless the dynamic campaign throws a strange twist into the mission, all you've really got to do is take out a pair of Rapier SAM sites. One sits quite a ways northeast of the bridge, and the second one lies to the southwest. If you don't want to remain out in the open, there's a lone hill just west of that area that you can use to mask your position.

Take out both of the Blindfire radars with a couple of Hellfires yourself, then task your wingman with four of the Rapier launchers, while you take on the other four yourself. After these targets are dispatched, you usually won't have much to worry about. The enemy's nearly out of steam and ordnance by now.

Target the bridge, turn on your laser, and wait for the F-16 to arrive. If you want to witness the destruction firsthand, activate the F6 object view.

55 242

JANE'S SENTINEL

Jane's
SENTINEL
THE UNFAIR ADVANTAGE

AZERBAIJAN

COUNTRY PROFILE

0.1 MAJOR CHARACTERISTICS

Azerbaijan, like its neighbour, Georgia, has been stricken by separatism, civil war and economic collapse since the Soviet Union's demise. Although oil resources give cause for long-term financial optimism, the current state of the economy is extremely poor. Roughly one-fifth of this Caucasian republic is presently in the hands of the self-declared Nagorny-Karabakh Republic, whose army controls swathes of territory in Azerbaijan.

0.2 Defence

Azerbaijan has found itself unequal to the task of defending disputed territory: Nagorny-Karabakh has fallen to local Armenian control, and there is no immediate military solution to the war in sight. Not only has Azerbaijan lost the territory of Karabakh but it has also been forced to retreat from much of its own non-disputed territory around the enclave.

0.3 Government & Politics

Political stability is proving elusive, chiefly the result of the country's poor military performance. Three Presidents held office in as many years at the beginning of the 1990s. President Heidar Aliev has an ever-increasing grip on power and few political decisions are taken without his personal involvement. Having removed all possible rivals from power, he appears to be unchallenged, although his advanced age leaves a question mark over future stability. While Aliev currently has a good deal of national support and is popularly regarded as a legitimate leader, his position is by no means secure, with Moscow still hoping for a more pliable Azerbaijani leader.

0.4 National Security

As Armenians continue to hold Azerbaijani territory, national security looks threatened. Although there appears to be no immediate threat to the security of Baku, Azerbaijan has consistently failed to deal effectively with the Armenian advance. The apparent complete inability of the country to create effective armed forces leaves it potentially vulnerable to other aggressors.

0.5 Economy

Azerbaijan's economy is not well developed; it is largely based on the oil and gas industry located around Baku. Unemployment is high and the average standard of living is low, although the planned development of the country's oil resources in the wake of a 1994 consortium agreement has given cause for optimism. The country is rich in mineral and agricultural resources and the supply of luxury goods in Baku is prodigious by the standards of the region. The civil war has greatly affected output, with Government policies aiming at 'get-rich-quick' solutions rather than long-term steady growth. Dependence on domestic rather than foreign resources for industrial production has limited the damage, however. In March 1994 it was announced that the World Bank had allocated up to US$ 150 million for economic development.

Fig 1. **GDP**

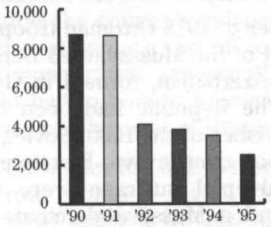


Fig 2. **Imports**

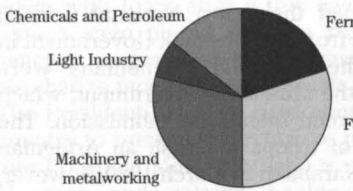
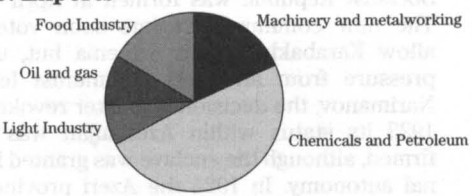


Fig 3. **Exports**



HISTORY

1.1 HISTORICAL OVERVIEW

Consciousness of an Azeri identity grew up towards the end of the last century among the Turkic inhabitants of the southern Caucasus. Most were rural dwellers, as the region's most important city, Baku, was dominated by Russians and Armenians.

In 1905, simultaneous with the unrest in the Russian capital of St Petersburg, revolutionary fervour broke out among workers in Baku's oil industry. Vital to Russian interests, this industry provided half the oil needs of the Russian Empire. In 1911 Azeri nationalists founded the Mussavat (Equality) Party. Other workers joined the fledgling socialist and communist parties and in 1913-14 Baku was hit by sustained industrial action. In 1917, during the rule of the Provisional Government, Workers' Soviets were established in Baku and other towns, these soon declaring Soviet rule. An anti-Soviet Mussavat uprising of March 1918 was suppressed by the Soviets.

In the Summer of 1918 Ottoman troops invaded in support of the Mussavat-led Democratic Republic of Azerbaijan, formed in Gyanja in May 1918. The Republic had been declared against the wishes of the Baku Soviet, but the latter was soon overthrown. Elections on the basis of universal suffrage were held in November and a Mussavat-dominated coalition was formed.

The Armenians of Nagorny-Karabakh had already formed their own National Council with support from the Dashnak Government in Armenia. The Karabakh Armenians were opposed by the Mussavat Government, which eventually forced them into submission. The deployment of troops to crush an Armenian rebellion in Karabakh in March 1920, however, allowed the Red Army to seize control in Azerbaijan, helped by the communists of Baku. As a consequence, the Azerbaijan Soviet Socialist Republic was formed in April 1920. The new communist regime soon voted to allow Karabakh to join Armenia but, under pressure from an Azeri communist leader, Narimanov, the decision was later revoked. In 1923 its status within Azerbaijan was confirmed, although the enclave was granted internal autonomy. In 1924 the Azeri province of Nakhichevan (then 40% Armenian) was given autonomy within Azerbaijan.

The communisation of Azerbaijan continued through the 1920s. In 1922 Latin script replaced Arabic script for the Azeri language. Islamic customs were eradicated, helped by the expropriation of land owned by Muslim trusts and Christian monasteries. The Soviet regime concentrated on industrialisation and the development of the oil industry which, by 1937, supplied 60% of the Soviet Union's needs.

In March 1922 a Transcaucasian Federal Republic was formed by the merger of Azerbaijan, Armenia and Georgia. This survived until December 1936, when the republics assumed their previous status.

Stalin's wartime rapprochement with the Muslims allowed the creation of a Muslim Board in Baku in 1943 but Islam remained tightly controlled. Few mosques were permitted in Azerbaijan.

The greater liberalisation initiated by Khrushchev (which affected many areas of life, although not religion) revived Azeri-Armenian hostility. Karabakh's Armenians petitioned Khrushchev to leave Azerbaijani for Armenian or Russian jurisdiction, a demand that provoked anti-Armenian riots in Baku and Sumgait. In 1968 there were Armenian protests in Karabakh over continued alleged harassment.

The economy prospered in post-war Azerbaijan but so too did corruption. As head of the Azerbaijani KGB, Heidar Aliev sought to eradicate the problem, a battle he continued when he became party leader in 1969. In 1971 he joined the Central Committee in Moscow and in 1976 he became a candidate member of the Politburo, making him the highest-ranking Azeri in the Soviet Union. He was made a full member of the Politburo in November 1982.

Gorbachev's policy of glasnost led to a revival of the Karabakh Armenians' demand to reunify with Armenia, provoking a strong backlash from Azeris. When in February 1988 the Karabakh Supreme Soviet voted to seek to move from Azeri to Armenian jurisdiction, Azeris went on the rampage in Sumgait, attacking and massacring Armenians. A similar

HISTORY

attack drove out the Armenians from Kirovabad (Gyanja) in November. Azerbaijan blockaded Karabakh and Armenia in an attempt to prevent Karabakh's secession.

The Soviet regime sacked the Communist Party leaders in both Azerbaijan and Armenia and purged nationalist elements from the party. In Azerbaijan, anti-Armenian feeling led to the rapid growth of the Popular Front, bitterly anti-Soviet and anti-communist. The movement was led by Abulfaz Elchibey. In November 1988 the first Ashura processions in Soviet history were held by Shias in Baku, when portraits of Khomeini were displayed. At other demonstrations, Turkish flags and portraits of Kemal Ataturk were held up.

In January 1989 Karabakh was placed under the direct rule of Moscow but this did nothing to quell the unrest. It was only in September that the Azerbaijani Government registered the Popular Front (PF), following mass demonstrations. Karabakh was transferred back to Azeri jurisdiction in November. The Armenian Government then expelled the remaining Azeris, who poured into Azerbaijan as refugees. Local anger led to violent attacks on Baku's remaining Armenians in January 1990, when they were finally driven from the country. When later that month the PF called on the communist Government to resign, Moscow sent in troops, killing 131 people.

Party leader Vazirov was dismissed and replaced by Ayaz Mutalibov, who soon became Executive President. Elections to the Supreme Soviet in 1990, held under emergency rule and boycotted by the PF, saw 329 seats out of 360 going to the Communist Party.

Mutalibov was in Tehran during the August 1991 attempted coup in Moscow; he backed the Moscow plotters. In the wake of its failure, the Supreme Soviet declared Azerbaijan independent and Mutalibov was elected President (as the only candidate). He took Azerbaijan into the newly created Commonwealth of Independent States (CIS).

Following Armenian military gains in Karabakh, Mutalibov created a national army. In the wake of the Armenian seizure of Hojali in February 1992, Mutalibov was forced from office, however, only to make a return bid in May. This failed, and in an election in June, Elchibey became President. Aliev, the leader in Nakhichevan, was not allowed to stand, being older than the mandatory 65. Elchibey promised victory in Karabakh, closer ties with Turkey and internal democracy. He then took Azerbaijan out of the CIS. Despite popular sentiment in Turkey, the Government refused to aid Azerbaijan directly in the conflict, confining itself to the dispatch of advisers and weapons. As Azeri gains in Karabakh were reversed in 1993, Elchibey's popularity declined and he was ousted in June. Aliev returned to Baku as acting President. He was later elected President and immediately imposed his grip on the country. He took Azerbaijan back into the CIS.

However, as he attempted to consolidate his position, Aliev moved away from Moscow, refusing to succumb to Russian pressure to allow bases in the country and Russian troops on Azerbaijan's borders with Iran. Aliev sought to guarantee the country's independence from Russia by negotiating a vast oil contract with a Western consortium (eventually signed in 1994), but had to bow to Russian pressure to allow some involvement of Russian interests.

Several times Aliev has had to face down opposition from political rivals, including an October 1994 attempt to seize power by his erstwhile comrade, Surat Husseinov. In March 1995 a mutiny by police units in Baku was put down with force after a few days. Baku and Gyanja were placed under a state of emergency in response to these threats. Aliev has also had to face separatist threats in the south. The President has kept tight control over the country to prevent the return to power of former President Mutalibov, who is now based in Moscow and retains backing from the Russians.

INTERNATIONAL AFFAIRS

2.1 OVERVIEW

With the accession to power of President Elchibey and the Popular Front, Azerbaijan adopted a pro-Turkish position and turned its back on the CIS. Turkey offered political, military and economic support. Elchibey angered Iran by his undisguised calls for a greater Azerbaijan, to include the Azeri-populated areas of northern Iran. Turkey was unhappy at the ousting of Elchibey, seen as a key ally in Turkey's plan of drawing together the Turkic nations of the former Soviet Union.

Upon coming to power, Heidar Aliev initially re-forged strong links with Moscow. Despite a stormy first visit to Turkey as President, he gradually succeeded in restoring relations with Turkey and with Iran. Despite Russia's undoubted status as the dominant outside force in the region, Aliev has resisted Russian attempts to gain a significant military or economic role in Azerbaijan.

2.2 Alliances & Alignments

Azerbaijan claims to be Islamic but is pro-Western in its outlook. Turkey and Iran are vying for influence but it is the prospect of profitable oil and gas development in Azerbaijan which makes Western alignment possible. It will certainly be difficult for Baku to develop the oilfields alone.

2.3 Relations with Armenia

Despite the Armenian Government's claims not to be a party to the fighting in Nagorny-Karabakh (part of Azerbaijan) and Azerbaijan proper, Baku has always viewed the conflict as being with Armenia itself and has attempted to have the UN Security Council condemn Armenian aggression.

Both sides claim that hostages are being held by the other; in April 1994, the figures were 3,736 Azeris and "numerous" Armenians. Both sides report vast numbers of refugees fleeing the fighting; several thousand refugees are being kept in camps in Iran. Azerbaijan has imposed an embargo against Armenia and has urged Turkey to continue its embargo, although this has recently been eased.

2.4 Relations with the Central Asian States

Under President Elchibey, relations with the Central Asian states deteriorated. Baku was allowed to become a safe haven for Uzbek and Kazakh national-radical opposition, while Elchibey personally made vitriolic criticisms of the Republics' pro-communist leaders. Aliev saw to it that relations quickly improved.

2.5 Relations with the CIS

In December 1991 President Mutalibov took Azerbaijan into the CIS, although this was not endorsed by the Supreme Soviet. However, in October 1992 the new President Abulfaz Elchibey took Azerbaijan back out again. After seizing power in 1993, Aliev decided Azerbaijan would once again be included and the country rejoined in 1993, although Aliev remains wary of Russian domination of the CIS.

2.6 Relations with Georgia

A Treaty of Friendship was signed in November 1992 but Georgia is not seen as a foreign affairs priority. Relations were strained in the past due to ethnic discrimination directed at Azeris living in Georgia and Elchibey's desire that Azeri-populated areas of Georgia (around Marneuli) be included in a "Greater Azerbaijan." Although Georgia is concerned about frequent attacks on the gas pipeline to Armenia passing through Marneuli and on the railway line to Armenia, apparently conducted by local Azeris, relations between the Georgian and Azerbaijani Governments have now stabilised.

2.7 Relations with Iran

Azerbaijan shares the Shia form of Islam with Iran but, despite this, relations have not always been smooth, especially during the presidency of Abulfaz Elchibey, who called for the creation of a greater Azerbaijan, to include Azeri-populated areas of northern Iran. The relationship has since improved somewhat under the guidance of President Aliev, although Tehran has a vested interest in minimising Azeri and Turkish influence in the region. To this end, it has given some support to Armenia, supplying food and fuel through the Megri Corridor. Azerbaijan seeks to maintain reasonable relations with Iran and included Iranian interests

INTERNATIONAL AFFAIRS

in the 1994 deal to develop its oil resources, although, under American pressure, it was forced to cut Iran out of the deal in 1995.

Relations have deteriorated since then, as Iranian co-operation with Armenia has increased. Iranian fears of Azeri separatism in northern Iran were revived in mid-1995 with the formation in Iran of a Front of Independence of Southern Azerbaijan, a coalition of various groups dedicated to unifying with Azerbaijan proper. The Front gained some support within Azerbaijan.

2.8 Relations with NATO

Azerbaijan enrolled in the NATO Partnership for Peace programme on 27 April 1994. It has hopes of extending that co-operation with an individual partnership programme leading to NATO training for Azerbaijani forces (particularly in the field of anti-terrorism) and joint exercises, matters discussed during the June 1995 visit to Azerbaijan by NATO's deputy commander of combined forces in Europe, Jeremy McKenzie.

2.9 Relations with the Russian Federation

The relationship between Azerbaijan and Russia is complex, largely due to Moscow's rather ambivalent attitude toward the Karabakh conflict. Although Russia has sold military equipment to Azerbaijan, it has certainly helped in Armenia's war effort. Russia insists relations are good, but has placed troops along the mutual border. In March 1994, Azerbaijan complained that Russian Duma deputies were visiting Karabakh illegally and making statements "aimed against the sovereignty and territorial integrity of Azerbaijan."

Aliev initially reforged relations with Moscow, recognising Azerbaijan's continued dependence on Russia, following the deterioration under Elchibey. Azerbaijan's membership of the CIS was welcomed in Moscow, as were closer economic ties. However, relations have since deteriorated, exacerbated by Azerbaijan's desire to go it alone in the massive oil deal with a Western consortium led by BP. Russia protested vigorously at the deal Azerbaijan proposed, claiming that it had no right to exploit unilaterally any resources under the Caspian Sea. Azerbaijan had to make some accommodation to Russia before it could complete the deal.

Relations with Russia have also been affected by Azerbaijan's stance on Russian attempts to renegotiate CFE limits on the southern flank. Since early 1993 senior Russian General Staff officers have continued to demand a revision of the limits placed on Russian force levels on the 'southern flank' under the terms of the 1990 CFE Treaty. The Russian Defence Ministry points to the threat emanating from ethnic conflict and political instability on "the Caucasus frontier." In April 1995 during talks in Moscow with US Defence Secretary William Perry, Russian Defence Minister Army General Pavel Grachev warned that Russia in the last resort would refuse to abide by the CFE clauses affecting the 'southern flank.'

Inevitably Russian demands affect Moscow's ties with the three Caucasus Republics. While Georgia and Armenia have proved amenable to Moscow's approaches, share Moscow's concern regarding regional security, and concluded Treaties of Friendship and Military Cooperation and Assistance with Russia in 1994 and early 1995, Azerbaijan continues to oppose any 'new deal' and military co-operation with Russia. Moreover, Azerbaijan has refused to support Russian calls to re-negotiate the so-called 'sharing out' clause, which would increase its own 'share' of former Soviet equipment, and also allow Russia to deploy more military equipment in the region. Since December 1994 the war in Chechnya has strengthened Azeri resolve.

Azerbaijan has also been under pressure to allow Russian bases and border troops in the republic, which Aliev vigorously tried to resist.

The sole concession has been to permit Russia to service and operate the former Soviet strategic air defence radar facility at Gebele in northern Azerbaijan, part of a deal negotiated by Russian Defence Minister Grachev while on a visit to Baku in July 1994 for talks with President Aliev and the then Defence Minister Major General Mamedrafi Mamedov. The radar station has not been operational since the end of the Soviet era and Russian troops are merely guarding it at present.

INTERNATIONAL AFFAIRS

Despite this positive move to mend bilateral relations, relations were further strained on 18 January 1995, when Russia closed the border with Azerbaijan in retaliation for Azeri support for the Dudayev regime following the Russian 'invasion' of Chechnya on 11 December 1994. In turn Azeri officials have strenuously denied Russian accusations of their giving aid to the rebels in the form of arms, money, and mercenaries. The main effect of sealing off the border has been to cut Azeri foreign trade by almost 90%, halt all rail and communications, and reduced to a trickle the flow of humanitarian aid for over one million refugees caught up in the war between Azerbaijan and Armenia.

A further cause of annoyance to Baku is the presence of a number of high-ranking Azerbaijani politicians in exile in Moscow, all of them opposed to the Aliev regime. Among them are former President Ayaz Mutalibov, former Prime Minister Surat Husseinov and former Defence Minister Rakhim Kaziev. Baku fears that Moscow is using them to destabilise the Aliev regime. The Azerbaijani Government has repeatedly requested their extradition to face various charges, but Russia has not obliged.

2.10 Relations with Turkey

Elchibey pursued a very pro-Turkish stance, to the detriment of relations with Moscow. He supported Turkey's plans for an alliance of Turkic nations of the former Soviet Union with Ankara, and the ouster of Elchibey was a serious blow to Turkish ambitions. Turkey is particularly important to Azerbaijan, because of the close ethnic ties and the aid Ankara can provide for the prosecution of the Karabakh conflict. Aliev, whose takeover in Baku was initially unpopular in Ankara as he took Azerbaijan closer to Russia, has now improved relations with Turkey. While there is popular sentiment in Turkey in support of Azerbaijan's struggle to regain Karabakh from the Armenians, Ankara has been reluctant to provide more than supplies and training personnel to the Azerbaijani armed forces.

2.11 Trading Relations

Relations have been established with many Western trading organisations, including British Petroleum, following a successful visit to Baku by then UK Prime Minister Margaret Thatcher in 1992. Trading relations have also been opened with a number of Middle Eastern states, notably Turkey, Iran and Kuwait. Azerbaijan has imposed trade embargoes against Armenia and Nagorny-Karabakh.

2.12 International Organisation Membership

NATO Partnership for Peace (P4P)
Caspian Sea Co-operation Council
Black Sea Co-operation Council
Economic Co-operation Organisation
International Monetary Fund (IMF)
Org. for Security and Co-operation in Europe (OSCE)
United Nations (UN)
UN Conference on Trade & Development (UNCTAD)
Organisation of the Islamic Conference (OIC)

2.13 Treaties

1992 Non-Proliferation Treaty (NPT)

2.14 Diplomatic Directory

Office of the President
19 Istiglaliyat Street, 370066 Baku, Azerbaijan
Telephone: (+994 12) 92 55 85; 98 31 54
Facsimile: (+994 12) 98 33 28

Parliament
Ezizbayov Prospekti 1, 370152 Baku, Azerbaijan
Telephone: (+994 12) 39 97 50; 98 09 00
Facsimile: (+994 12) 65 10 08; 98 02 42

Customs Committee of the Azerbaijan Republic
Inshaatchilar Arospecti 2, Baku, Azerbaijan
Telephone: (+994 12) 39 73 94; 38 74 97
Facsimile: (+994 12) 38 80 63

Embassy of the United Kingdom
c/o Old Intourist Hotel, Room 214, Baku, Azerbaijan
Telephone: (+994 12) 92 48 13

Embassy of the United States of America
83 Azadlig, Baku, Azerbaijan
Telephone: (+994 12) 96 00 19; 65 10 02
Facsimile: (+994 12) 98 37 55

Embassy of Germany
ul. Tagi-Zade 59, 370001 Baku, Azerbaijan
Telephone: (+994 12) 94 88 82
Facsimile: (+994 12) 98 54 19

THREAT — EXTERNAL

3.1 SUMMARY

TERRITORIAL DISPUTES
Nagorny-Karabakh/Armenia

RESOURCE DISPUTES
Armenia, Russia, Turkmenistan

3.2 Current border disputes

The biggest dispute is with the Armenians of Nagorny-Karabakh. In addition to the Karabakh region itself, Karabakh Armenians are in control of substantial territory around Agdam and Fizuli and between Karabakh and Armenia (Kelbadjar and Lachin regions). The Karabakh Government declares that if there is a peace deal it will return all occupied territories except for Lachin and Kelbadjar.

There have been cross-border clashes between Armenia and Azerbaijan, involving shelling of settlements and air raids on border towns. These clashes have occurred along the whole of the joint border, as well as on the border between Armenia and Nakhichevan, an enclave which belongs to Azerbaijan.

The situation in Nakhichevan is more stable. Wedged between Armenia, Turkey and Iran and cut off from the rest of Azerbaijan, its border with Turkey (though short) ensures a land-link to the outside world. Despite clashes on the border with Armenia, an Armenian invasion is unlikely. Through treaty obligations, the status of the territory in theory cannot be changed without reference to Turkey.

While in power, President Elchibey was a vocal supporter of the reunification of Azerbaijan with the Azeris of northern Iran. His views were not appreciated in Tehran, nor was much enthusiasm shown by Iran's Azeri minority.

Dispute over Nagorny-Karabakh and concern over Nakhichevan continue to overshadow relations between Armenia and Azerbaijan. Armenian forces occupy 20% of Azeri territory.

Events have at times led to the threat of both Turkish and Iranian intervention on Azerbaijan's behalf. In September 1994, at the invitation of Russian Foreign Minister Andrei Kozyrev, the leaders of Armenia and Azerbaijan met in Moscow to discuss the ongoing tensions. According to President Ter-Petrosyan of Armenia the talks were of crucial importance, but "there are still fundamental disagreements." Azerbaijan continues to muster support from its Islamic neighbours and take advice from Turkey.

The Russian Defence Minister again put forward a 'plan' for a cease-fire and a Russian-controlled monitoring force, but it was rejected by the Azeri leadership, which would prefer a UN force with 30% Turkish participation. Russia, like the Armenians, opposes any significant Turkish peacekeeping role in the disputed region. Attempts by Russia, other CIS members and the OSCE to broker a peace continue.

3.3 Resource disputes

In the Caspian Sea, Baku is claiming major areas of the seabed as its exclusive economic zone against counter-claims from Russia and Turkmenistan, which view the Caspian Sea resources as the joint property of all the states bordering the sea. Although a number of other states have expressed some support for Azerbaijan's claims, it is Azerbaijan which has led opposition. Iran is also thought to have resource-related claims against Azerbaijan.

3.4 Religious differences

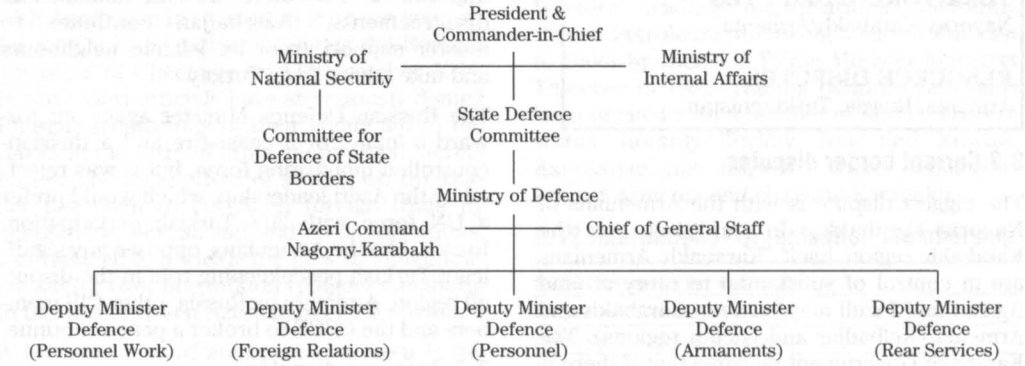
Traditional tensions between Azeris and Armenians have been heightened by religious differences. Azeris are mainly Shia Muslims, while Armenians have been predominantly Christian since the early 4th Century. Many on both sides see the Karabakh conflict as a Muslim-Christian war, although politicians and religious leaders on both sides deny this. The International Islamic Council for Daw'a and Relief and the World Council of Churches have sponsored reconciliation meetings between leading Azeri and Armenian clerics.

3.5 Assessment

Azerbaijan is currently threatened by Armenian and Karabakh fighters, but the greatest threat is to be seen in terms of the domestic instability their successes have created. To the south, Iran must be considered a potentially expansionist nation, and there are still concerns over the frontier republics of southern Russia.

MILITARY OVERVIEW

Fig 1. **Chain of Command**



4.1 ORGANISATION

TOTAL STRENGTH
60,000 (actual)
70,000 (CFE limits)

The Azeri armed forces comprise three arms of service: Ground Forces; joint Air Force and Air Defence Forces; and Navy.

The Ground Defence Forces will be the largest arm of service, totalling approximately 50,000 men comprising 10 mechanised infantry brigades of two motor battalions each. There are also three independent motor rifle brigades, two mountain infantry regiments, an air assault brigade and two training brigades.

The joint Air-Air Defence Forces will have a strength of around 7,000 men, based on three air-to-air defence regiments. By the late 1990s, the Air element will comprise some eight squadrons of close combat support and tactical fighter-bombers, and a transport squadron. The Air Defence elements will comprise fighter units, surface-to-air gun/missile units, and air defence surveillance radar units. Initially much of the equipment and command and control systems were taken over from the former 19th Independent Air Defence Army.

Meanwhile, the conflict in Nagorny-Karabakh has claimed over 50 aircraft, including Mi-24 (attack helicopters), Mi-8 (support helicopters), Su-25 (close air support), MiG-25PB (reconnaissance, used as fighter-bombers), and L-29 (armed trainers) aircraft.

The Azeri Navy is based on that portion (25%) of the former Caspian Flotilla assigned to Azerbaijan under the terms of a CIS agreement initialled in March 1992 between Vice Admiral Lyashebnko of the Russian Naval Command and representatives from Azerbaijan (Maj Gen Kaziev), Kazakhstan, and Turkmenistan.

Officers from all services, including the Border and Internal Troops, are trained at the Baku Joint Armed Forces School. The Navy has retained a small facility from the former Caspian Naval School in Baku. In addition, many cadets and junior commanders are studying at Turkish military schools and the Military Academy in Ankara.

The conscription period in Azerbaijan is 17 months. However, evasion of the draft, especially through bribery, is widespread. There are periodic round ups of young men in the streets of Baku and other cities sent to fight on the Nagorny-Karabakh front.

MILITARY OVERVIEW

4.2 Doctrine & Strategy

The military reputation of the Azeris has never been held in high esteem, either by the Tsarist rulers or their Soviet successors. Azeri volunteer detachments were raised in the First World War 1914-17, and in the wake of the October 1917 Revolution Azeri formations were created both by the nationalist Azerbaijan Republic and the Azerbaijan Socialist Soviet Republic. Throughout the first decade of Soviet rule Azeri national units continued to be raised, but were finally disbanded in 1938. Following the German invasion of the Soviet Union in June 1941 some 40,000 Azeris volunteered for service in the Red Army, along with the 186,000 who served in the People's Militia. This was followed by the creation of three rifle divisions, along with other units. In all, some 250,000 Azeris served in the Red Army 1941-45. The wartime Azeri formations were disbanded in the postwar years.

The August 1991 declaration of independence was followed by the creation of the first Azerbaijani Defence Ministry by Presidential Decree on 5 September 1991; a National Defence Council was set up on 29 September under the Chairmanship of Ayaz Mutalibov. The first Azerbaijani armed forces were created by Decree of 9 October; on 10 October 1991 the Supreme Soviet voted to place the 4th (Baku) All Arms Army under Azerbaijani control and to recall 140,000 Azeris estimated to be serving elsewhere throughout the Soviet Union.

Following a December 1991 Azerbaijani-Russian Agreement, the first Russian units began to withdraw, spearheaded by the 366th Motor Rifle Regiment (based in Stepanakert), alleged by the Azerbaijanis to have supported the Armenians in Nagorny-Karabakh. By early 1993 all 60,000 Russian (CIS) troops were to have left Azerbaijan.

In the following weeks the Azerbaijani Supreme Soviet debated and approved the following military legislation: Laws 'On Defence,' 'On the Status of Servicemen,' 'On Military Service,' 'On the Armed Forces,' and 'On Service Pensions.' At the same time the functions of the Defence Ministry, together with the fundamental aspects of a 'non-nuclear,' 'peaceful' and 'defensive' military doctrine were laid down.

From the very beginning the dismal military performance in Nagorny-Karabakh, together with internal political dissension, had a disruptive effect on the cohesion of the Azerbaijani High Command. From September 1991 to August 1993 there were no fewer than nine Defence Ministers; in the same period the post of Chief of the Main (General) Staff changed hands four times.

The first Defence Minister was Lt Gen Valeg Barshatly, a 65-year old former Soviet Ground Forces Commander, and Head of the Baku Higher All-Arms Command School. It was his task to advise and handle the negotiations regarding the future of the 4th All Arms Army (Baku), and those formations and units of the 19th Independent Air Defence Army located on Azeri territory. It was hoped that men and materiel from both commands would help toward the creation of Azeri Armed Forces. Inevitably, Barshatly's task was compounded by the conflict in Nagorny-Karabakh.

In December 1991 Barshatly, accused by the radicals and nationalists of "dragging his feet" and incompetence, was replaced by another Azeri officer, Col Tadzhaddin Mekhtiev. He survived barely a month, and was replaced in mid-January 1992 by Col Vakhid Musaev. His appointment coincided with yet another military disaster, and on 25 February Musaev was replaced by Maj Gen Takhir Aliev. He was eventually to be a victim of the internal political strife, and on 18 March Aliev made way for Maj Gen Rakhim Kaziev, one of the few Azeri officers to salvage a reputation and survive the 1992 political turmoil.

Eventually made a scapegoat following the January-February 1993 reverses in Karabakh, in late February Kaziev in turn was replaced by Maj Gen Dadush Rzaev, a former Airborne Troops commander. Despite renewed Azeri determination to halt the Armenian advances in Karabakh, and possibly due to allegations of corruption, further senior military heads rolled: Rzaev in June, and his two successors Maj Gens Satar Abiev and Vakhid Musaev in August and September respectively.

MILITARY OVERVIEW

The next Defence Minister was Maj Gen Mamedrafi Mamedov, whose appointment was approved in September 1993. Despite Azerbaijani failures in and around Karabakh he initially retained Aliev's support. Both he and the Chief of the General Staff Maj Gen Nureddin Sadykhov succeeded in instilling the armed forces with a sense of direction, but he fell victim to the continued failures in February 1995, when he was suddenly sacked.

Since the establishment of the Azerbaijani armed forces in September 1991 the High Command has consistently failed to establish an effective national defence force, despite the ongoing inter-ethnic tension, and 'nationalisation' of large quantities of former Soviet military hardware, much of it of doubtful quality. The principle threat comes from internal political feuding; the principle weakness of the Azerbaijani armed forces remains lack of suitable experienced senior officers of sufficient calibre and leadership quality.

Speaking in August 1992 former President Elchibey outlined the "new structure" of the Azerbaijani Army. The armed forces would comprise 50% volunteers and 50% conscripts.

Azerbaijan's armed forces have continued to apply basic Soviet military operational art and doctrine to the Karabakh conflict. There has been no opportunity to develop any revision of this doctrine.

Azerbaijani forces amended their strategy in the fighting with Armenia over control of Karabakh in February 1994, to increase the use of air power. New deliveries of Su-25 close air support aircraft and Mi-24 attack helicopters were reported the previous month. The Azerbaijanis had been concentrating on infantry assaults backed by multiple rocket launchers and tanks in 1992-93. The 1994 strategy appears to have reverted to the former Soviet army doctrine which has been described as "aerial artillery support to frontal assault."

4.3 Strategic Weapons

Azerbaijan has no strategic weapons on its soil and has no policy nor funding to obtain them.

4.4 Declared Policy

Azerbaijan signed the (Nuclear) Non-Proliferation Treaty in 1992. It is understood that government policy remains to have conventional weapons of self-defence only.

4.5 Ballistic Missiles

Azerbaijan has no ballistic missiles in its inventory.

4.6 Nuclear Weapons

Azerbaijan has no nuclear weapons in its inventory and no published plans to acquire them.

4.7 Biological Weapons

Azerbaijan has no biological weapons in its inventory and no published plans to develop or acquire them.

4.8 Chemical Weapons

Azerbaijan has been accused by Armenia of employing non-persistent chemical weapons during the Karabakh conflict.

4.9 Assessment of Covert Programmes

There is no evidence of covert programmes for strategic or non-conventional weapons development.

Jane's SENTINEL
THE UNFAIR ADVANTAGE

IRAN

COUNTRY PROFILE

0.1 MAJOR CHARACTERISTICS

Iran is bounded in the north by the Caspian Sea, Armenia, Azerbaijan and Turkey; in the east by Afghanistan, Turkmenistan and Pakistan; in the south by the Gulf of Oman and the Persian Gulf (so called by Iran and the UN, but the Arab Gulf to Arab littoral states); and to the west by Iraq. It was known as Persia until 1935.

The country is mostly arid and barren tableland surrounded by mountain chains, rising to almost 6,000 m. in the north of the country. The capital is Tehran, located in the north, with a population estimated to be over 6,042,000.

0.2 Economy

Iran's economy is largely oil-based, with up to 90% of export revenue coming from crude petroleum. Agriculture and services account for most of GDP and employment. Industrial diversification has proceeded slowly. Although the economy is still heavily state-controlled, over half of the labour force work in the private sector.

The economy was badly hit by the Iran-Iraq war, which damaged the oil industry, but ambitious expansion plans are now underway. Iran is experiencing great difficulty in upgrading its infrastructure and providing an acceptable standard of living for its people. Poor and confused economic management has hampered economic recovery.

Under a liberalisation programme initiated by President Rafsanjani the economy has achieved respectable growth rates. However, the liberalisation programme spurred imports, fuelled inflation, led to the ballooning of foreign debts and caused hardship among the population. The new Five Year Development Plan has less ambitious targets and Iran has already managed to improve its foreign trade balance, cut its government budget deficit and improve agricultural output. The export exchange rate in mid-1995 was 3,000 Iranian Rials (IR) to US$ 1.

0.3 Government & Politics

The highest executive and legislative bodies in the Islamic Republic are the elected President, currently Ali Akbar Hashemi Rafsanjani, and the Islamic Consultative Assembly (Majlis). All legislation is subject to the approval of a Council of Guardians of the Constitution which ensures accordance with Islamic principles. Appointment of and decisions by the government and judiciary are subject to the final approval of the spiritual leader (Wali Faqih), currently Ayatollah Ali Hoseini Khamenei. The President's powers are further limited by factionalism in the Government and the Majlis as well as by competing centres of power outside the formal governmental structure, often leading to contradictions and confusion.

THREAT — EXTERNAL

1.1 GENERAL OVERVIEW

TERRITORIAL DISPUTES
Iraq, UAE

RESOURCE DISPUTES
Iraq, Kuwait

NEIGHBOURS — FORCE LEVELS

	Tanks	*Armred. Vehicles*	*Combat Aircraft*	*Maj. Naval Vessels*
Afghanistan	1,200	1,960	45	none
Armenia	194	607	7	none
Azerbaijan	310	935	97	5
Bahrain	180	286	24	6
Iraq	n/a	n/a	206	5
Kuwait	368	274	52	2
Oman	89	118	30	4
Pakistan	1,900	800	350	19
Qatar	24	238	13	3
Saudi Arabia	405	2,810	252	17
Turkey	3,928	4,054	573	32
Turkmenistan	820	1,201	941	none
UAE	160	826	124	10

Since the end of the war with Iraq tensions on Iran's borders have increased, forcing Tehran to seek improvements in the capability of its military machine. The aftermath of the Gulf conflict led indirectly to a threat from the UN-imposed Kurdish autonomous zone in Iraq, which in turn gave encouragement to Iran's Kurdish minority in the north. The situation is complicated by Turkish incursions into northern Iraq which heighten Iranian fears of Ankara's regional ambitions. Turkey is a member of NATO and a close ally of the USA and as such is seen as a powerful threat not only to Iran's borders but also to the country's internal stability.

Iraq's defeat in the Gulf conflict has certainly delayed any attempt by Saddam Hussein to revive the two countries' border dispute. Nonetheless, Tehran expects future claims to be made by Baghdad in its effort to secure access to the Persian Gulf.

The collapse of the Soviet Union and the emergence of newly independent republics on Iran's northern borders have made it necessary for Tehran to develop relations with Azerbaijan and Turkmenistan. Despite sharing religious affinities, Iran cannot guarantee the security of its northern borders. Iran lost a C-130 transport aircraft in February 1994, shot down in error by Armenian forces who thought the Moscow-Tehran flight was engaged in a spying mission. Iran has expressed intense concern at the possible spill-over of the Armenia-Azerbaijan conflict.

The renewed civil war in Afghanistan has induced millions of Afghan refugees to take refuge in Iran. Tehran's relations with Kabul are complex - for many years Iran supported various factions of the Mujahedin who were loosely united against the Najibollah regime but who have now returned to inter-tribal warfare. The instability in Afghanistan not only makes Iran's eastern borders insecure but also poses the risk of civil war spreading into Iran itself.

Iran views the current agreements between the AGCC and the Gulf conflict coalition allies (USA, UK and France) as a potential threat to the stability of the Gulf. Tehran sees these agreements as providing a foothold in the region to the Western allies, who it perceives as remaining hostile to Iran. The acceptance by the AGCC states of this status quo has led to a marginalisation of Iran's regional influence.

The recent massive arms expenditure undertaken by AGCC states, particularly Saudi Arabia and Kuwait, has also given Iran cause for concern. As Iraq is now incapable of effective military action, Iran sees little need for the arms build-up and interprets it as a threat to itself.

1.2 Current Border Disputes

Iraq. There seems little likelihood of the dispute in the neck of the Gulf or along the Shatt al-Arab waterway being solved in the next few years. UN monitors watch the border area but the dispute is long-standing and Iraq has only dropped its claims as a result of its temporary strategic inferiority.

UAE. The Abu Musa incident, in which sovereignty between Iran and UAE was at issue, illustrates the problem in analysing Iran's true intentions. At the end of 1992 Iranian Revolutionary Guards seized control of the island and expelled some UAE schoolteachers.

THREAT — EXTERNAL

It may well have been that local Iranian officials acted without authority from Tehran and the Iranian Government felt that it could not, for domestic reasons, easily disassociate itself from their actions, but it could also equally have been an official Government-inspired incident designed to remind the Gulf Arabs of Iran's presence. Iran has declared that it is ready and willing to resolve the dispute over sovereignty of the Abu Musa and Greater and Lesser Tunb islands in the Strait of Hormuz.

However, Iran has spoken with different voices on the subject. On the one hand it has called for dialogue and it appears to be supplying Sharjah with oil, as specified in the 1971 agreement that divided Abu Musa between the two states; on the other it has fortified the islands and told the AGCC Governments that they are lucky Iran is only pressing its claims to these islands and not also to Bahrain, subject of a long-standing Iranian claim.

1.3 Resource Disputes

There is the potential for a resource dispute between Azerbaijan and/or Turkmenistan over rights in the Caspian Sea. Iran decided to support the Russia view of oil rights in the Caspian Sea, agreeing that treaties made in the Soviet era apply.

Iraq. There is a dispute over the fishing and other economic rights in the disputed coastal area on the joint border. No plans have been published for taking this matter to international tribunal.

Kuwait. There is also a dispute over fishing rights with Kuwait but it is understood that both sides have officially agreed a new median line.

1.4 Assessment

However pragmatic President Rafsanjani may be, he is not entirely master of Iran and foreign policy is not decided by a single person or group. Indeed, it is often subject to domestic rivalries, bad management and opportunism.

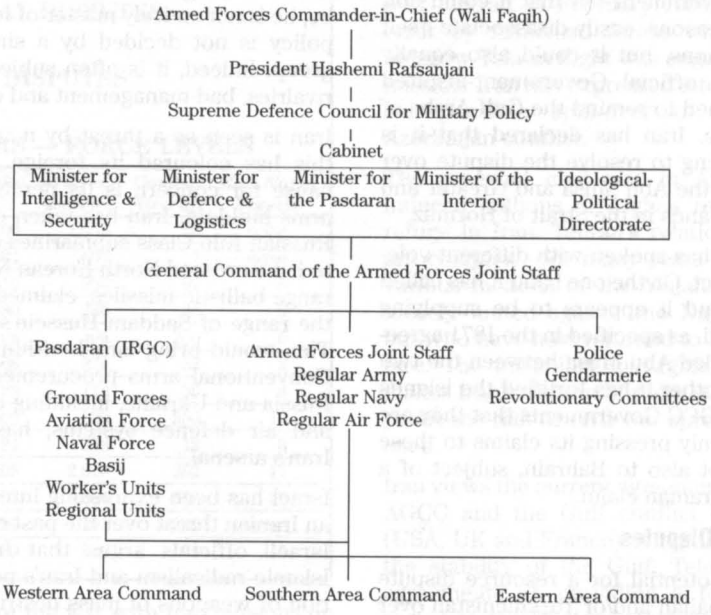
Iran is seen as a threat by many nations and this has coloured its foreign relations. One cause for concern is its perceived extensive arms build-up. Iran has taken delivery of two Russian Kilo Class submarines and is believed to have ordered North Korean Nodong-1 short-range ballistic missiles, claimed to have twice the range of Saddam Hussein's SS-1 'Scud B.' This would bring Israel within range of Iran. Conventional arms procurement from China, Russia and Ukraine, including combat aircraft and air defence systems, has strengthened Iran's arsenal.

Israel has been expressing intense concern at an Iranian threat over the past couple of years. Israeli officials argue that Iranian-inspired Islamic radicalism and Iran's possible acquisition of weapons of mass destruction pose the key security threat to their state. The possibility of an Israeli pre-emptive strike on Iran cannot be ruled out.

According to Washington, the threat of a nuclear-armed Iran causes it most concern. It has been reported that North Korea has been paid US$ 600 million by Iran for the further development of the Nodong missile, in order to deliver a nuclear or chemical warhead capability. These allegations have been made but never proved, however. Whether or not they are true, Washington is likely to keep up the pressure on Iran. In the run-up to the Iranian parliamentary elections and the American presidential elections in 1996 there is a risk that either side may escalate the confrontation.

MILITARY OVERVIEW

Fig 1. **Chain of Command**



2.1 ORGANISATION

TOTAL STRENGTH
515,000 (estimated, 1995)

The Iranian armed forces are supported by 350,000 conscripts. These young men are compelled to serve for 24 months. In addition, there are between 300,000 and 400,000 veterans of the Iran-Iraq war. It is expected that men will serve in the reserves until aged 60. There are seven million men of conscription age.

Personnel from the Ideological-Political Directorate (IPD) are to be found at all levels of command in the armed forces and they have an independent reporting chain through the religious establishment to the Commander-in-Chief. The IPD has five sub-directorates at each level of command from division to battalion:

- The Research & Development department considers complaints from political branches of the directorate and examines the suitability of officers for sensitive positions in the armed forces
- The Training department is responsible for the Islamic curriculum, co-ordination with the religious authorities and the publication of religious texts
- The Construction department co-operates with the population and civilian authorities in rebuilding the country in battle damaged areas
- The Public Relations department co-ordinates communication with the armed forces and organises military prayer meetings
- The Propaganda department publishes Islamic tracts for the armed forces and has the responsibility for radio and television programmes promoting the Islamic Revolutionary ethos

MILITARY OVERVIEW

Staff branches in the regular armed forces are:

J1 — Personnel

J2 — Intelligence

J3 — Operations

J4 — Logistics

J5 — Liaison

J6 — Judge Advocate

J7 — Ideological-Political Directorate (IPD)

J8 — Inspector General, Special Office for Procurement

In the J3 Section, the Operations role is divided into 11 sections for the planning and co-ordination of military operations: Ground Forces, Army Aviation, Chemical Troops, Artillery Troops, Engineer Troops, Air Force, Navy, Naval Aviation, Pasdaran, Basij, Gendarmerie and National Police.

The Special Office for Procurement controls and co-ordinates procurement of military supplies through the Ministry of the Pasdaran, Ministry of Commerce and Foreign Trade, Ministry of Defence and the Central Bank of Iran.

2.2 Doctrine & Strategy

Iran's armed forces are in the midst of a reorganisation, re-structuring and modernisation programme intended to repair the damage of over zealous political/religious changes made after the 1979 revolution. Performance of the regular forces and the Pasdaran was criticised in a report to the National Security Council in 1989.

As a result of the changes, the regular forces now have the responsibility for the territorial integrity of the country and the Pasdaran has gained cultural and military roles.

The Pasdaran's cultural role is to safeguard the achievements of the Islamic Revolution. Its military role is to support the regular forces when required. Pasdaran officials oversee the Basij (volunteer force) which provides military training and organisation for all civilians. In the event of conflict, the Basij provides the vast bulk of reserve forces.

2.3 Assessment

The Iranian armed forces are just capable of ensuring territorial integrity against any outside incursion. However, the equipment inventory, national economy and the general state of readiness and training of the armed forces allow nothing more. The country is a regional power but will certainly not become a regional super power for as long as the economy remains weak. Iran does not have the ability to allocate the US$ 100 billion necessary to fund a comprehensive nuclear programme and to upgrade conventional military equipment.

2.4 Strategic Weapons

Details of the Iranian Government's strategic military programmes have always been difficult to obtain and verify.

Iran insists that, although it has in the past itself been the victim of aggression several times, it has no territorial ambitions and has no desire to acquire nuclear weapons technology.

Tehran dismisses all weapons of mass destruction as fundamentally anti-Islamic. Washington believes Iran's actions belie these protestations. On 8 February 1994, Iranian Air Force Day, Ayatollah Khamenei stated that Iran did not seek weapons of mass destruction; President Rafsanjani had opened a factory for the development and manufacture of long-range artillery ammunition at an unknown location in Iran the day before.

2.5 Ballistic Missiles

While discussing the status of missile production in Iran in November 1987, a Government Minister, Mohsen Raiiqdust, stated that "at present we are copying 'Scud B' missiles. A factory for its production is being completed and there are no problems as far as the manufacture of the missile is concerned."

Although this statement was somewhat premature, it clearly indicated that Iran was determined to commence a ballistic missile programme and that it was devoting significant resources to that end. On 12 December 1987 the head of the War Information Headquarters, Kamal Kharrazi, indicated that Iran would soon achieve self-sufficiency in the manufacture of advanced missiles.

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Progress with the programme was relatively steady and during 1988 Iranian officials claimed that the 'Scud B' had entered production. On 11 April 1988 Brigadier General Mohammad Jalali stated that "two missiles with ranges of 130 km and above are being manufactured by the Defence Industries Organisation." One was the Mushak-120 (an indigenous 120 km range weapon), the second was the North Korean variant of 'Scud B'; this was confirmed three days later by the First Deputy Minister of Defence, who said "we have succeeded in manufacturing missiles with a range of 320 km." This figure coincides with the standard range of the North Korean 'Scud B,' which is slightly greater than that of the standard Soviet 'Scud B' (280 km).

It is more likely that Iran assembled North Korean 'Scud B' missiles using given components, rather than manufacturing them itself.

Iran launched its first North Korean 'Scud B' in January 1988. Full-scale ballistic missile attacks on Iraqi targets followed in February. In the 52 days from 29 February, approximately 532 rockets and missiles were launched by both sides; Iran launched 339 missiles — 80 'Scud B,' 253 Oghab and six Mushak-120. This bombardment reduced the Iranian inventory to less than 20 'Scud B' missiles. It is believed that these weapons were armed with chemical warfare agents as systems of last resort and were therefore held in reserve.

By 1990 Iran had reorganised its ballistic missile programme into two distinct components. The first remained centred around efforts to assemble and manufacture the North Korean 'Scud B' and later the 'Scud C' (range 800 km). The second is the partnership with China's Norinco to re-design and manufacture M-Class missiles with ranges from 800-1000 km.

Iran and China signed a number of co-operation agreements in 1988 for M-Class missile technology to be transferred to Iran to develop missiles with performances comparable to the Iraqi Al-Hussein (600 km) and Al-Abbas (900 km) missiles. Provision has been made for the training of Iranian engineers and technicians and the assistance of Chinese advisers.

Equipment and technical aid needed for the infrastructure required to design, test and produce such missiles — including manufacturing equipment and test range instrumentation — was obtained from Western Europe and North America.

It is believed that by the end of 1990 launch range and test facilities for M-Class missiles had been completed near Semnan, about 175 km east of Tehran. By 1991, several reports emerged indicating that Iran had tested at least two new missiles at Semnan, one with a range of at least 700 km and the other with a range of 1,000 km or more. These new missiles are believed to be the results of the Chinese-Iranian programme.

In January 1991 the Tehran Government announced the first production of ballistic missiles, although it is now clear that initial agreements with North Korea were completed in 1985. It is understood that this referred to Iranian versions of the SS-1c 'Scud B' (300 km range), a programme undertaken with Chinese or North Korean assistance. Reports in September 1992 claimed that an 800 km range version was under development. This is believed to refer to 'Scud C.'

The Nazeat (Iran-130) short-range, road-mobile battlefield ballistic missile entered service in 1990. Nazeat 10 (an improved Soviet FROG-7) has associated support vehicles, all based on Mercedes-Benz chassis.

Japan Defence Agency officials have spoken of North Korean Nodong-1 short-range ballistic missiles being sought by Tehran and that they believe purchases of the improved Nodong-2 (range 1,300 km) are included in the current budget. Nodong-1 and 2 are capable of carrying nuclear, chemical and biological warheads. Additional Nodong-1 short-range ballistic missiles are thought to be on order from North Korea.

2.6 Nuclear Weapons

Iran's nuclear weapon ambitions have never been proved, but statements by senior regime officials and clerics have laid emphasis on this line of research. For example, in 1991 Ayatollah Mohajerani, described by Mohaddessin as one of President Rafsanjani's deputies, said: "since the enemy has atomic

MILITARY OVERVIEW

facilities, Islamic countries must be armed with the same capacity."

Mohammad Mohaddessin of the National Council of Resistance of Iran (NCR)'s Foreign Affairs Committee believes that the Iranian nuclear programme began in 1985, when an embryonic development by the Shah abandoned in 1979 was re-activated. Recent press speculation in Europe has alleged that there are over 500 Iranian students studying nuclear physics in Western European universities at post-graduate level.

The Iranian Revolutionary Guard Corps (IRGC) is responsible for overseeing these developments and Mohaddessin claims that transfer of dual-use technologies from Argentina, China, France and Pakistan has assisted the development programme. In 1992 Tehran signed a civilian nuclear power agreement with the Russian Federation to assist in the development of two 440 megawatt reactors. Apparently, a Calutron-type uranium enrichment plant has been obtained from China.

Bandar Abbas Project. Work is carried out on the integration of nuclear systems with ballistic missiles.

Bushehr Project. Damaged in the Iran-Iraq war and currently under re-construction.

Darkhovin Site. The country's dual-purpose nuclear site in southern Iran, currently under construction (with Chinese assistance). It is 55 km north-east of Abadan.

Gorgan Project. Located on the shores of the Caspian Sea, this site will be used for nuclear reactor development.

Isfahan Project. The centre of the nuclear industry, having its own reactor and a Chinese neutron-sparker. The site is 40% complete and includes underground facilities.

GAMA Energy Centre. Located in north-east Iran, at Banab. No further details are available.

Moalem Kelayeh Project. Located at Qazvin, 120 km north-west from Tehran. In order to keep its purpose secret, this facility uses no foreign expertise.

Yazd Project. Built underground close to a uranium extraction site in 1989-90, its purpose is unknown.

Although President Rafsanjani may well, for sound economic reasons, be trying to present Iran to the rest of the world as being reasonable and only concerned with its own security and prosperity, he is not in complete control and there are more extreme elements in Iran.

Washington believes that if Iran acquired weapons of mass destruction and the means to deliver them, it would pose a significant threat to the stability of the Gulf area. It is likely, American analysts say, that a nuclear-equipped Iran would seek to reverse the Saudi and OPEC policy of low oil prices and perhaps seek revenge on the Saudis and the Gulf Arabs for their support of Iraq in the 1980-88 war.

Israel is most certainly very concerned. In May 1993 it extracted assurances from Beijing that ballistic missile technology was no longer being transferred to Iran.

CIA Director Robert Gates, head of the US intelligence agency under President Bush, has stated publicly that there is evidence that Iran is involved in acquiring both nuclear and chemical weapons. He claimed that if Iran's attempts to buy components from Kazakhstan, Hungary, the UK and Germany are successful, it will have a nuclear weapon early in the next century.

The International Atomic Energy Agency (IAEA) is not able to confirm that a nuclear weapons programme is underway. Evidence from resistance groups could, of course, be self-serving and unreliable.

Iran, while acknowledging that it is involved in the development of nuclear power facilities, dismisses claims that this development is concerned with nuclear weapons. It views these claims as an attempt to justify the massive arms sales which the USA is making to the other Gulf states, where expenditure on arms is far greater than it is in Iran.

Iran's economic position remains weak and Government officials say that their priority is the repair of the country's ravaged infrastructure and the development of the domestic economy.

MILITARY OVERVIEW

2.7 Biological Weapons

UN and US sources say that Iran has yet to develop a serious biological weapons production capability but Mohaddessin believes that biological weapons research is being carried out at one site.

Razi. this is the Government's serum and vaccine production centre at Karaj, to the north-west of Karaj, on the Qazvin-Hessarak road.

2.8 Chemical Weapons

Robert Gates claims that Iran already has up to 2,000 tonnes of chemical weapons which include choking, blister and blood agents.

Mohammad Mohaddessin of the NCR, based in Iraq, says, "our experts believe that Tehran will produce modern chemical weapons in the late 1990s ... in 1991, German intelligence services reported that Iran was in possession of a blueprint ... used to build the Rabata chemical arms (sic) plant in Libya."

The NCR claims that, using technology gleaned from various sources in China, Germany and North Korea, the IRGC, which appears to have control of strategic weapons, could adapt chemical warheads for the country's ballistic missiles of the 'Scud' family. According to Mohaddessin, the Iranian chemical weapons programme is under the direct control of President Ali Akbar Hashemi Rafsanjani, with senior development and production personnel reporting directly to him.

The Government department responsible for all chemical development facilities is the Engineering Research Centre of the Construction Crusade (Jahad-e-Sazandegi).

Bandar-Khomeini. this chemical production complex in the south-west of Iran was set up during the Iran-Iraq war to provide chemical agents for battlefield use. It is managed by the Razi Chemical Corporation, which although co-located with the Petrochemical Industries Establishment of the Oil Ministry, is nevertheless independent.

Isfahan. about 45 km from the city, the Poly-Acryl Corporation's commercial plant has been developed into a major chemical weapons production facility.

Karaj Programme. a chemical weapons site about 14 km from Tehran, in the direction of Karaj. Mohaddessin claims that Chinese engineers and technicians have been involved in the site's development.

Marvdasht Centre. the mustard gas production facility for the IRGC during the Iran-Iraq war, situated in Fars Province.

2.9 Assessment of Covert Programmes

The present members of the 'nuclear club' (USA, Russia, France, China and the UK) will have to accept the fact that nations of the size and power of Iran will eventually have access to nuclear weapons. It would be entirely rational for the Iranian Chief-of-Staff to conclude that the interest of his country would be well served by Iran either having its own nuclear deterrent or by establishing a climate in which others believe Iran to be in possession of such a deterrent.

Given the large number of Iranian casualties suffered in the Iran-Iraq war, Iranian possession of nuclear weapons would almost certainly rule out any further conventional warfare between the two nations and could, arguably, enhance Iran's security. It is also just conceivable that the military could be pressing ahead with nuclear research without the full knowledge of their political masters.

2.10 Inventory Strategic Weapons

Type	*Role*	*Qty.*
FROG-7	Battlefield Rocket System	250
Oghab	Battlefield Missile	200
Shahin-2	Battlefield Missile	250
Nazeat/Iran 130	Battlefield Missile	500
SS-1c 'Scud B'	Ballistic Missile	200
SS-1d 'Scud C'	Ballistic Missile	150

Note:
Iran is also working with North Korea on the Nodong-1 programme; it is possible that the project is called Tondar 68 in Iran.

Data estimated correct at 1 August 1995.

DEFENCE SPENDING

3.1 DEFENCE EXPENDITURE

	1991	1992	1993	1994	1995
US$ billion	3.2	5.8	2.0	2.3	2.5
IR billion	391	528	368	4,020	7,000

Note: The 1990 and 1991 figures are official, converted at official rates of exchange. Iran's inflation and security laws have made it difficult to identify the exact spending regimes, but the above figures are believed to be an accurate representation of budget/expenditure.

Data estimated correct at 1 August 1995.

DEFENCE SPENDING
= US$ 35 per capita (1994)
= 5.57% of GDP (1993)

Note: These figures are calculated with Iranian governmental figures and should be taken with caution.

True military spending is estimated at US$ 18 billion in 1990 and US$ 14.5 billion in 1991. US$ 35.5 billion is expected to be spent over the next four years, including funding for the development of nuclear weapons. NCR estimates give the budget at US$ 19 billion in 1991 and US$ 14.5 billion in 1992. Official figures from the Iranian Minister of Defence in February 1993 were US$ 750 million for 1993.

Iran's Deputy Naval Forces Commander, Rear Admiral Abbas Mohtaj, has confirmed that Iran spent US$ 10 billion on military equipment, rebuilding facilities and personnel costs over the 1990-4 period. The National Council of Resistance of Iran maintains that Tehran does not account for its spending in a recognised fashion and that defence spending by all ministries amounted to US$ 14.5 billion in 1992 alone.

3.2 Defence Equipment Requirements

Iranian Defence Minister, Akbar Torkan, said in a February 1993 interview that his defence budget for 1993 was US$ 750 million. US analysts have insisted that US$ 2 billion is necessary to fund the defence equipment acquisitions identified by the US CIA. Torkan said that his budget had to finance force improvements and that such a sum was certainly not sufficient for funding the massive arms increase which Western analysts had accused Iran of making.

Torkan identified the following priorities: spare parts, spare parts and more spare parts.

The Iranian equipment inventory still shows a majority of US and Western equipment, especially in the air force and naval inventories. Much of this equipment is non-operational because of the spares situation and although Iran is now capable of manufacturing some spare parts domestically, access to US manufacturers would solve many problems. It is possible that Iran will make a public assurance to the USA regarding the non-development of nuclear weapons in return for a spare parts deal — especially combat aircraft and naval radar parts.

Iran's first priority must be to defend its borders. Given the current state of its armed forces it will take some considerable time before an effective defensive capability can be achieved.

According to a statement made by US Navy Secretary Sean O'Keefe in late 1992, Iran's planned military expansion ... "is not yet constituted for high-intensity warfare," and the air force still had difficulty in maintaining its aircraft readiness on a day-to-day basis. The Iranian military, he added, was not committed to sustained operations of its high-technology weaponry.

3.3 Land Forces Requirements

Priority has been given to procuring defence equipment to secure national boundaries and to establishing a firm logistical base for the maintenance of existing equipment. Battlefield equipment procurement has included up to 300 T-72/T-80 main battle tanks from Russia and Ukraine. Other armoured fighting vehicle requirements include infantry combat vehicles, long-range howitzers and close-range air defence missiles.

A domestically developed main battle tank was seen for the first time in August 1994. Revolutionary Guards Corps armoured units are said by Iranian television to have received their first production batch of the locally built main battle tanks, designated the T-72Z. Initial reports that the Zulfiqar was a development of the T-72 chassis and the T-80 main armament and fire control system may, in fact, have been correct (despite later doubts). In December 1994 Brigadier Ahad Dadbin, the land forces

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commander, said the Zulfiqar's 30-month development phase had been completed and that the tank was in production.

There is some speculation that there are two main battle tank programmes currently in hand in Iran - the Zulfiqar (based on Western technology) and the T-72Z (based on the alleged 1990 transfer of technology agreement between the Soviet Union and Iran).

Although US sources confirm that the last 1,500 T-55A(P) series main battle tanks from Polish production lines were destined for Iran, there is no independent confirmation that they have been delivered.

In April 1994 the Government of the Czech Republic announced that it had refused to endorse export licences for armoured vehicles to be sent to Iran. In addition, Prague has decided to prohibit all new battlefield equipment servicing agreements with the Tehran Government.

3.4 Land Forces Modernisation

Most of the battlefield equipment which entered service during the time of the Shah requires replacement but it appears that the procurement priority in Iran is currently to buy new or locally develop new materiel, rather than upgrade existing stock.

3.5 Air Force Requirements

The highest priority is for air defence missile systems and combat aircraft, linked to a sophisticated command and control system. Recent purchases of MiG-29 aircraft will go some way towards rectifying this problem but financial constraints limit the modernisation programme.

It is understood that Iran has developed in-flight refuelling, using a converted Boeing 707 airliner. No details have been given of the requirement.

US intelligence sources are often quoted as saying that Iran has a long-term agreement with Russia, and possibly Ukraine, for the procurement of a range of combat and transport aircraft. There are reports that Iran has acquired MiG-31 and Su-27 interceptors but so far no proof has been offered.

Bell Helicopter Canada has supplied five civilian helicopters to Iran after agreeing a settlement of a 15-year-old dispute at the International Chamber of Commerce. Iran received the helicopters - four Bell 212 and one Bell 206L-4 LongRanger - together with spare parts, in 1994.

In March 1995 the Indonesian Government confirmed the transfer of seven NAS-332 twin-engined helicopters, built under a Eurocopter licence, to the Iranian oil industry, with the comment "everyone knows these helicopters cannot be armed." The statement came less than 24 hours before the Abu Dhabi Government announced that it had acquired the Eurocopter military version of the Super Puma (known as the Cougar), with the Exocet missile.

3.6 Air Force Modernisation

Iran purchased surplus F-5A/B airframes and spares from Vietnam in 1991 but full-scale modernisation of the fleet is not expected because of Western embargoes. Iranian engineers are currently developing a series of upgrade packages using Russian technology.

3.7 Naval Requirements

A great deal of emphasis has been placed on Iran's purchase of Kilo diesel-electric submarines from Russia. Although this has changed the balance of maritime power in the Gulf, it will be some time before the effects of the purchase are felt — operating submarines and training crews is no simple matter. China is supplying up to 10 Hegu class fast attack craft (missile) but Tehran and Beijing are in dispute about whether these warships should be newly built or be transferred from the PLA Navy. This dispute continued in 1995; however, five new Chinese-built strike craft have been delivered to the Iranian Revolutionary Guard Corps, according to Vice Admiral Douglas Katz. The Hegu fast attack craft (missile) were delivered as deck cargo aboard a Chinese merchant ship. They are to be fitted with anti-ship missiles in Iran, probably later at Bandar Abbas. Iran is said to be negotiating for the more sophisticated C-802 missile with the Chinese.

Iranian naval development officials have com-

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pleted the sea trials and weapons tests with the first Kilo class submarine and it took part in naval exercises during 1995. Among the systems which were successfully tested were wake-homing torpedoes. Iran has also replaced the defective Russian-designed batteries for its electric motors with systems from India built to European specifications. A third Kilo is required soon, if it has not already arrived.

3.8 Naval Modernisation

Iran plans a complete upgrade of its ageing surface fleet, with technological additions necessary for operations in a hostile environment being made. Without such an upgrade Iran will not be able to exert any form of real and sustained maritime power projection in the Gulf region.

3.9 Assessment

Given present political restrictions Iran will not be capable of procuring Western equipment. Even in the unlikely event of a shift in political feeling towards the West, Iran does not have the economic ability to fund modernisation programmes for all three armed services at Western prices. In early 1993 the Iranian Central Bank stopped payment for all letters of credit for Government purchases issued more than six months previously. In February 1993 the Iranian Finance Minister acknowledged that his Government was having difficulty in meeting interest payments on US$ 30 billion worth of foreign debt, the majority of which had been used to fund military programmes. No Western defence manufacturer would want to be involved in doing business in this financial environment.

3.10 Procurement History

During the late 1980s the Soviet Union engaged in a series of transactions with Tehran but Russian successors in Moscow have been less keen to strengthen relationships by supplying weapons than the communists were five years ago.

F-6 combat aircraft suppliers include China, North Korea and Egypt. Iran expressed interest in late 1992 in joining China and Pakistan in their collaborative NAMC/PAC K-8 Karakorum jet trainer programme for the co-production with Iran Aircraft Industries of an initial batch of 25 aircraft for air force use. Further progress with this project appeared unlikely, however, in view of the K-8 aircraft's high US component content, including its Garrett TFE731-2 turbofan and Bendix/King avionics. In early 1993 an Iranian delegation visiting Beijing was reportedly negotiating the planned purchase of up to 100 Shenyang F-8 II all-weather interceptor and ground attack aircraft. This Mach 2 delta-wing fighter was to have had a US radar and nav/attack avionics installation. The US veto on arms exports to China imposed following the 1989 Tiananmen Square massacre has instead forced it to incorporate relatively unsophisticated indigenous systems.

About 20 Mil Mi-8/17 Hip C/H medium support helicopters were delivered from the Soviet Union between 1981 and 1991. Several were bought on the open market from the Siberian Wheat and Commodity Exchange, Kharkov, in 1991.

Since 1990, technicians and engineers from the following nations have been actively involved in Iranian military research and development, most without the knowledge of their respective Governments; Argentina, Brazil, China, Germany, North Korea, Pakistan, Russia, Switzerland and Ukraine.

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3.11 Major Conventional Military Procurement

Designation	*Equipment Type*	*Qty.*	*Origin*	*Delivery*	*Manufacturer*
Kilo	Submarine	1	Russia	1995-96	Malachite
Hegu	Strike Craft	6	China	1995	CSSC
Type 69-II	Main Battle Tank	6	China	1995	Norinco
Type 69-II	Main Battle Tank	6	China	1994-95	Norinco
T-72M	Main Battle Tank	200	Russia	1994	various
T-72S	Main Battle Tank	20	Ukraine	1994	Kharkov
M46	Field Artillery	100	Russia	1994	various
D-30	Field Artillery	300	Russia	1994	various
Igla	Manportable SAM	100	Russia	1994	various
Strela 3	Manportable SAM	100	Russia	1994	various
Mi-17	Utility Helicopter	12	Russia	1994	Kazan (Mil)
MiG-29	Combat Aircraft	48	Russia	1993-94	Moscow MiG
Mi-24	Attack Helicopter	n/a	Russia	1993-94	Rostvertol
Su-24MK	Strike Aircraft	24	Russia	1993-94	Sukhoi
Hegu	Missile Craft	10	China	1993-94	CSSC
Red Arrow 8	Anti-tank Missile	100	China	1993-94	Norinco
PC-7	Training Aircraft	15	Swiss	1993-94	Pilatus
MiG-23BN	Combat Aircraft	n/a	Ukraine	1993	MAPO
MiG-27	Combat Aircraft	n/a	Russia	1993	MAPO
Kilo	Submarine	2	Russia	1992-1993	Malachite
HQ-2B	SAM System	4	China	1992	CPMIEC
AB 212	Support Helicopter	12	Italy	1992	Agusta
BK 117A-3	Support Helicopter	20	Germany	1991	Eurocopter
MiG-29	Combat Aircraft	4	Russia	1991	MAPO
HQ-2B	SAM System	48	China	1991	CPMIEC
T-55	Main Battle Tank	300	CSFR	1991	Martin
T-72	Main Battle Tank	100	Russia	1990-91	various
MiG-29	Combat Aircraft	14	Russia	1990	Moscow MiG
MFI-17	Basic Trainer	25	Pakistan	1990	PAC
MiG-29UB	Combat Trainer	12	Russia	1990	Moscow MiG
Tucano	Advanced Trainer	25	Brazil	1989-90	Embraer

Note:
More than 110 Iraqi combat aircraft were interned in Iran during the Gulf war. At least four MiG-29 fighters have been pressed into Iranian Air Force service.

Data estimated correct at 1 August 1995.

DEFENCE PRODUCTION

4.1 PRODUCTION OVERVIEW

Iran now claims self-sufficiency in a number of important sectors. There are at least 10 battlefield missile development programmes in progress and first exports were expected to begin in 1993, under the auspices of the Defence Industries Organisation (DIO).

The defence industry has evolved through a number of distinct phases, starting with the establishment of the Military Industries Organisation (MIO) in the early 1960s. Since then, a small domestic industry has developed, producing machine guns and rifles under licence from Germany and manufacturing explosives, mortar rounds and small arms ammunition. Other workshops assemble helicopters and vehicles from imported kits.

By the late 1970s, the industry had started to manufacture ordnance such as grenades, rocket launchers, artillery rockets, light artillery rounds and gun barrels. The Islamic revolution and the subsequent exodus of foreign technicians and specialists almost destroyed the ability of the MIO to operate and defence manufacturing suffered greatly from the lack of available management ability.

The Iran-Iraq war, coupled with the Western arms embargo, provided the impetus for the reorganisation and expansion of the defence industry. In 1981 the Government gathered all military production facilities under the umbrella of the newly formed Defence Industries Organisation (DIO). DIO's director reports directly to the Minister of Defence, although the Supreme Defence Council has ultimate responsibility for all DIO activities.

During the period 1981-1987 defence industry underwent a dramatic expansion and by the end of the period it was able to demonstrate an ability to manufacture a very wide range of equipment.

Most infantry weapon requirements and artillery ammunition up to 155 mm calibre are manufactured locally. Some spares for high technology equipment and its associated test equipment are also manufactured.

According to Akbar Torkan, Defence Minister, Iran now produces the majority of its infantry weapons requirements, but he has stated that "we are not skilled in the production of navy and air force equipment." Iranian technicians have mastered reverse engineering and the repair and maintenance of some extremely sophisticated Western equipment, including the US HAWK SAMs and TOW systems.

The navy claims an ability to repair the gas turbine engines of major warships and to have the capability for constructing midget submarines.

The Iranian Revolutionary Guards Corps (Pasdaran) has its own defence industry for the manufacture of NBC equipment, anti-tank rockets (Shahin 1), grenades, 120 mm mortars and associated ammunition. In 1988 Pasdaran Industry announced that it had developed and tested a new armoured personnel carrier, called Boraq. This is believed to be the 4x4 front-engined vehicle which was displayed in Tehran the following year.

Iran's defence equipment export drive was signalled by the country's first presence at an international arms fair — IDEX '93 in Abu Dhabi (UAE). Previous customers were thought to be restricted to Sudan and irregular forces in other Arab countries.

A domestically produced main battle tank, the creation of which was announced in March 1994, is apparently another step in Iran's effort to develop a domestic defence industry. The new tank has been named Zulfiqar, after the sword of Ali, a legendary Islamic hero. It is described by the Pasdaran Construction Crusade as an "advanced tank" of superior manoeuvrability and speed.

In 1992, the now-defunct Russian export agency Oberonexport came to an agreement with the Pasdaran Construction Crusade to transfer certain technologies for the T-72 and T-80 to Iran in exchange for oil products to the value of US$ 7.8 billion.

Recent high-level discussions between Ukraine and Iran indicate that technology transfer deals are still being discussed, but the feeling in Kiev is that too much has already been given away. There is some doubt that Iran has been paid off new tank and other conventional weapon deliveries (about US$ 1.5 billion).

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In 1992 there were at least 240 major state-owned plants producing military equipment in Iran and an estimated 12,000 privately owned workshops manufacturing defence-related products. In an official statement of November 1994 the Iranian Government asserted that defence industry conversion is working and that by 2000, the Defence Industries Organisation (DIO) will have converted 75% of its industry to civilian production.

In October 1994, the Majis (Parliament) allowed the Defence & Logistics Ministry to allocate staff and equipment to the civilian sector for the first time. Programmes on which they can work are limited to the establishing of engineering, laboratory and computer software research, development, design and manufacturing facilities. According to legislation apparently passed on 28 September 1994, the Majis has not given the Ministry and DIO carte blanche for construction and service industries. The new law requires Supreme Leader and Commander-in-Chief Ayatollah Khamenei's blessing for such development.

Official figures support the Ministry's bid for more freedom saying that 45% of the former DIO's military work is now geared to civilian uses.

Work on the Nodong-1 series of ballistic missiles (a joint programme with North Korea), the new main battle tank, armoured personnel carriers and weapons of mass destruction have not been affected by the defence conversion programme. It is understood that these are now under the control of the Pasdaran (Iranian Revolutionary Guards Corps) rather than the Defence & Logistics Ministry.

Some observers in the region have expressed concern that Iran has increased its procurement of high technology machine tools threefold during 1994. Tehran is expected to sign deals worth US$ 110 million for computer-aided design and manufacture (CAD/CAM) this year, according to one French production equipment specialist. The inference is that this equipment will be used for the development of more than just civilian products. "We can see a parallel with Iraq's dramatic procurements of machine tools in the early 1980s and we all know what happened after ..." said the specialist.

4.2 Major Defence Manufacturers

Armament Group Industries
Sepah Islam Avenue
10th Km, Karaj Special Road
Tehran, Iran

DIO Communications Industries Group
Pasdaran Avenue
Aghdasieh Street
Tehran, Iran

DIO Marine Industries Group
PO Box 15875-1836
Pasdaran Street
Tehran, Iran

Missile Industries
DIO Group of Companies
PO Box 13185
1543 Tehran, Iran

Mostafa Abdi-Hamid Tabatabaci Damarani
DIO Ammunition Industries Group
Pasdaran Street
Tehran, Iran

4.3 Repair Facilities

Iran has developed a close working relationship with Pakistan Ordnance and other defence equipment development and repair facilities in Pakistan. It is understood that Chinese battlefield equipment is maintained via the Norinco contract with Pakistan Ordnance. Two MiG-29 combat aircraft, flown to Iran by defecting Iraqi Air Force pilots, have been sent to Pakistan for evaluation in what is seen as growing co-operation between Tehran and Islamabad.

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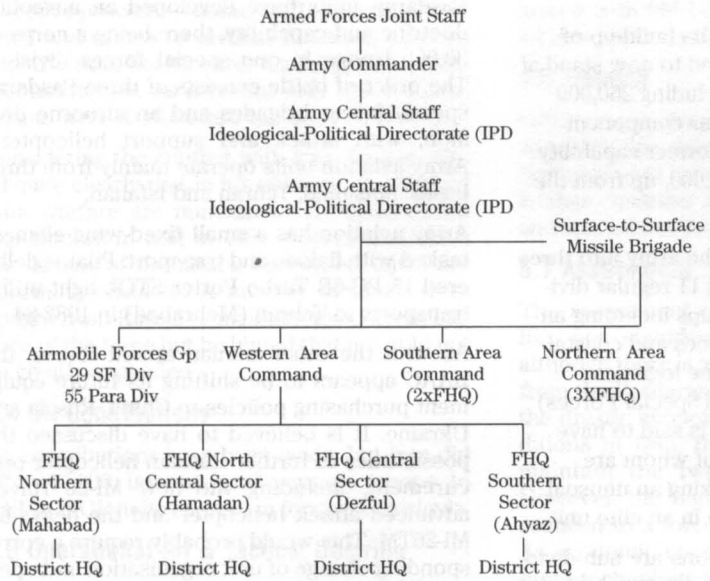
Fig 1. **Chain of Command — Army**



Notes:

FHQ = Field Headquarters. There will be some Pasdaran involvement at almost all levels of command, in addition to the involvement of the IPD.

Army aviation elements are under the command of the three area commands and allocated to FHQs as required. It is understood that headquarters locations have not been changed since the Iran-Iraq war.

Over 75% of the front-line manpower strength of the armed forces is believed to remain in the Western Area Command. It is assumed that there are three to five district headquarters per operational sector.

Formation Designations
23 Commando Division
28 Mechanised Division
84 Mechanised Division
18 Armoured Division
81 Armoured Division
88 Armoured Division
30 Infantry Division
40 Infantry Division
58 Infantry Division
64 Infantry Division
77 Infantry Division
23 Special Forces Division
55 Parachute Division

Fig 2. **Chain of Command — Armoured Division**

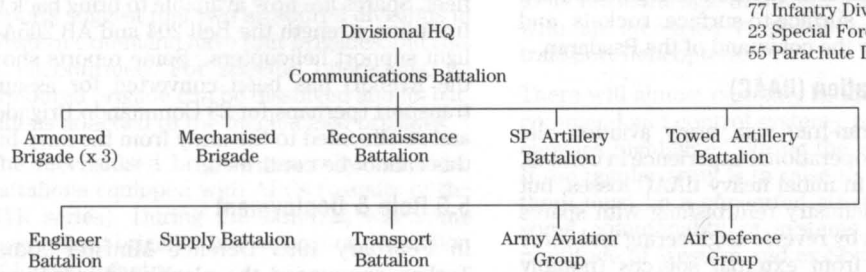
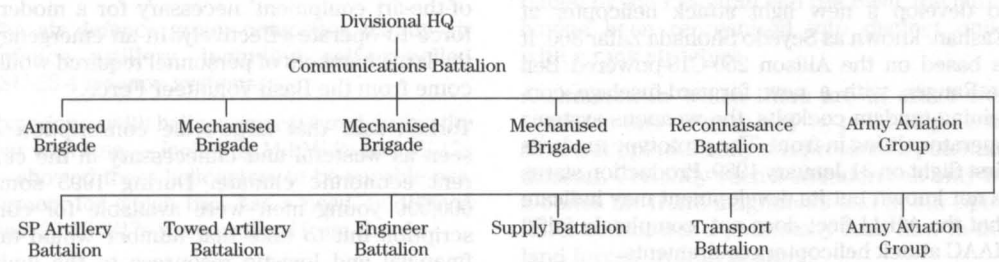


Fig 2. **Chain of Command — Mechanised Division**



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5.1 ORGANISATION

The Iranian Army continues its build-up of manpower, which is estimated to now stand at 345,000 men and women, including 250,000 conscripts. In 1994 the regular component began to regain some of its former capability by raising its strength to 320,000, up from the total of 300,000 of 1993.

The order of battle divides the army into three army-level headquarters and 11 regular divisions, with independent groups including an airborne brigade, special forces and coastal defences. There is at least one logistics brigade. The 23 Commando (Special Forces) Division, formed in 1993-94, is said to have 5,000 trained personnel, all of whom are believed to be regulars, marking an unusual move to full professionalism in an elite unit.

The regular armoured divisions are sub-divided into three brigades. There are two brigades within the airborne forces and four special forces brigades within the division.

Field artillery is divided into five regiment-sized groups, with surface-to-surface rockets and missiles under the command of the Pasdaran.

5.2 Army Aviation (IIAAC)

During the Iran-Iraq war, army aviation elements gained operational experience in combat. This resulted in initial heavy IIAAC losses, but with Iranian industry refurbishing with spares manufactured by reverse engineering and some procurement from external sources (notably Pakistan), force levels were maintained.

By 1988 Iran was reportedly able to field about 80 Bell 206s, over 150 AH-1Js and nearly 200 Isfahan helicopters. In 1989 plans were revealed to develop a new light attack helicopter at Kashan, known as Seyedo Shohada Zafar 300. It is based on the Allison 250-C18-powered Bell JetRanger, with a new forward-fuselage containing tandem cockpits, the weapons systems operator sitting in front. The prototype made its first flight on 31 January 1989. Production status is not known but its development may indicate that the AH-1J fleet does not completely fulfill IIAAC attack helicopter requirements.

Since 1990 the Iranian Army and integrated Pasdaran units have developed an airmobile doctrine and capability, there being a corps of 30,000 troops in one special forces division. The order of battle consists of three Pasdaran special forces brigades and an airborne division, with attack and support helicopters. Army aviation units operate mainly from three bases, Mashhad, Tehran and Isfahan.

Army aviation has a small fixed-wing element tasked with liaison and transport. Pilatus delivered 15 PC-6B Turbo Porter STOL light utility transports to Tehran (Mehrabad) in 1982-84.

As with the other Iranian armed forces, the IIAAC appears to be shifting its future equipment purchasing policies to China, Russia and Ukraine. It is believed to have discussed the possibilities of further Russian helicopter procurement, including the new Mi-28 Havoc advanced attack helicopter and the heavy-lift Mi-26TM. This would probably require a corresponding change of unit organisation and operating procedures to the less flexible models.

Several types have been returned to service in 1994-95, including the fixed-wing transport fleet. Spares are now available to bring back to front-line strength the Bell 204 and AB 205A-1 light support helicopters. Some reports show the RH-53D has been converted for assault transport (perhaps for 23 Commando Brigade) and re-allocated to the army from the navy but this cannot be confirmed.

5.3 Role & Deployment

In February 1993 Defence Minister Akbar Torkan announced the planned development for the Iranian armed forces from 1995: 200,000 regular troops are to be employed as the first line of defence and the regular army will maintain a pool of experts able to operate the 'state-of-the-art equipment' necessary for a modern force to operate effectively. In an emergency, the large numbers of personnel required would come from the Basij Volunteer Force.

Torkan said that large-scale conscription is seen as wasteful and unnecessary in the current economic climate. During 1993 some 600,000 young men were available for conscription but to take that number would tax financial and logistic resources to the limit.

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During peacetime, conscription is therefore a selective process — some draftees going to the army and others to civilian functions such as construction, health care, teaching and village reconstruction. As a result, only 250,000 conscripts were drafted into the army in 1993-94.

Considering the conflict with Iraq, Torkan stated quite clearly that in his opinion, "the days of tank warfare are numbered." He believes US experiences in Iraq in 1991 showed that since the advent of the attack helicopter, tanks are becoming obsolete. A number of tanks were bought from Russia to maintain the current balance of the force but he hinted that it would not be greatly expanded.

5.4 UN Contributions

No contributions have been made, but Iran did offer 10,000 infantry and support troops to UNPROFOR in its mission in former Yugoslavia.

5.5 Operational Art & Tactical Doctrine

Normally each Iranian armoured brigade has three battalions, each with approximately 55 tanks. There is evidence that the Iranians try to keep tanks of one type in a brigade. Some reports suggest that two armoured divisions in Western Command have four brigades, but this is unconfirmed. For specific operations, an armoured brigade can be dissolved and its battalions attached to the mechanised brigades.

The mechanised brigade generally has three battalions equipped with APCs (usually of the BTR series). During the Iran-Iraq war some mechanised brigades had at least one battalion of lorried infantry.

The army aviation group is special to task and could include one squadron of light attack helicopters, one squadron of light/medium support craft and one squadron of utility helicopters.

The air defence group comprises mainly air defence artillery, including self-propelled ZSU-23-4 weapon systems.

Experience with helicopters captured during the war with Iraq — including Mil Mi-8s and Mi-17s — showed these helicopters to be capable performers for which Iran has a need. In 1990 at least 20 Mi-8/17s were ordered from Russia.

A relatively small number of Mi-24 'Hind Ds,' armed with 9M-14M (AT-3) 'Sagger' wire-guided anti-tank missiles, were also flown.

5.6 Training

Officers are trained at the Tehran Military Academy. Specialist courses are taught at Shiraz (infantry and armour), Tabriz (signals) and Isfahan (missiles and army aviation). Airborne and special forces are trained at Shiraz.

5.7 Assessment

The assessment of the Iranian armed forces has not significantly changed since 1993, although there is a noticeable shift of emphasis from the Pasdaran to the regular army. Despite the drastic economic, political and social conditions in Iran, the country will continue to maintain the two land force components. However, the regular army is expected to be reduced to a force numbering 250,000 or less. As economic conditions allow, it will become more technology-based and more mobile, with an ability to sit well behind screen positions, rapidly reinforcing threatened areas where necessary. The Iranians will probably attempt to increase the size of the army aviation force, with an increased emphasis on attack and transport helicopters.

There will almost certainly be an emphasis on command and control systems, to rectify deficiencies highlighted during the war with Iraq. If the regular army is to raise its effectiveness there must be a concerted attempt to ensure some commonality of systems. The current multitude of Western and ex-Soviet systems is a significant logistical, training and integration problem, and it will be difficult to raise standards while this situation prevails.

The manpower pool will probably be maintained by the Pasdaran and the Basij, the latter having been reorganised into distinct units with a rank structure.

A situation in which there are in effect two armies in one country may be politically desirable, but operationally it represents a potential disaster. Certainly such a situation can only be a bonus for Iran's neighbours and in our opinion it constitutes a potentially fatal flaw in the land forces' overall posture.

ARMY INVENTORY

6.1 Inventory: Armour

Type	*Role*	*Qty.*	*In Srv.*
Zulfiqar	Main Battle Tank	20	20
T-72M/S	Main Battle Tank	250	250
T-54/55	Main Battle Tank	250	250
Type 59	Main Battle Tank	250	250
T-62	Main Battle Tank	50	50
Type 69-II	Main Battle Tank	250	250
Chieftain Mk3/5	Main Battle Tank	40	40
M47M	Main Battle Tank	50	50
M48A5	Main Battle Tank	40	40
M60A1	Main Battle Tank	150	150
PT-76	Amphibious Light Tank	100	100
BRDM-2	Scout Car	50	50
Scorpion	Reconnaissance Vehicle	30	30
EE-9	Armoured Car	100	100
BMP-1	Infantry Fighting Vehicle	100	100
BTR-40 variants	Armoured Vehicle	200	150
BTR-50 variants	Armrd. Personnel Carrier	50	50
BTR-60 variants	Armrd. Personnel Carrier	230	230
BTR-152	Armrd. Personnel Carrier	45	45
M113A1	Armrd. Personnel Carrier	100	100
Half-track	Armoured Vehicle	100	100

Note: Press speculation of T-90 (export version of T-80) main battle tank deliveries to Iran from Russia and Ukraine cannot be confirmed. Some T-69-II tanks may be converted to fit the Pakistan 105 mm gun. There have also been reports of deliveries of 500 T-55A(P) main battle tanks from Poland and that the M47/M48/M60 US-designed vehicles have been withdrawn from service to be converted into Zulfiqar tanks. China has continued to deliver Type 62-II main battle tanks, allowing new armoured brigades to be formed. Data correct to 1 August 1995.

6.2 Inventory: Anti-Tank Weapons

Type	*Role*	*Qty.*	*In Srv.*
Shahin 1	Anti-Tank Missile	1,000	1,000
9K111 (AT-4)	Anti-Tank Missile	100	100
Red Arrow 8	Anti-Tank Missile	100	100
Dragon	Anti-Tank Guided Missile	30	30
BGM-71A TOW	Anti-Tank Guided Missile	250	250
Entac	Anti-Tank Missile	90	90
106 mm M40A1	Recoilless Rifle	200	200
75 mm M20	Recoilless Rifle	200	200
57 mm M18	Recoilless Rifle	150	150
3.5 in M20	Recoilless Rifle	50	50
RPG-7V	Rocket Propelled Grenade	490	490
RPG-22	Anti-Tank Rocket	200	200

Note: The DIO continues the development of Soviet clones, but has also been buying from China, Russia and Ukraine. The serviceability of US-made systems remains in doubt. Data correct to 1 August 1995.

6.3 Inventory: Artillery

Type	*Role*	*Qty.*	*In Srv.*
203 mm M110	Howitzer	18	8
203 mm M115	Howitzer	25	25
175 mm M1978	Self-Propelled Gun	30	30
175 mm M107	Self-Propelled Gun	25	22
155 mm M109/109A1	Self-Propelled Howitzer	120	120
155 mm GH N-45	Gun-Howitzer (towed)	90	90
155 mm M114A1	Howitzer (towed)	80	80
130 mm Type 59-1	Field Gun (towed)	50	50
130 mm M-46	Field Gun (towed)	500	500
122 mm 2S1	Self-Propelled Howitzer	50	50
122 mm D-30	Howitzer (towed)	400	400
122 mm Type 60	Gun	40	30
122 mm Type 54	Howitzer	40	25
105 mm M56	Pack Howitzer	20	20
105 mm M101A1	Howitzer (towed)	200	180
85 mm D44	Field Gun (towed)	100	80
75 mm M116	Howitzer	130	115
122 mm BM-21	Multiple Rocket Launcher	50	45
122 mm Type 81	Multiple Rocket Launcher	75	50
107 mm Type 63	Multiple Rocket Launcher	100	90
120 mm Soltam	Mortar	200	200
120 mm DIO	Mortar	500	500
107 mm M30	Mortar	200	150
81 mm DIO	Mortar	1,000	900
60 mm M19	Mortar	500	500

Note: Captured FH-77 and G5 towed artillery is being upgraded but has not been returned to inventory; Russia and Ukraine delivered substantial numbers of M46, D-30 and 2S1 systems in 1994-95. Data correct to 1 September 1995.

6.4 Inventory: Air Defence Weapons

Type	*Role*	*Qty.*	*In Srv.*
Strela-3 (SA-14)	Manportable SAM	200	200
Igla (SA-16)	Manportable SAM	100	100
Stinger	Manportable SAM	50	30
Strela-2M (SA-7)	Manportable SAM	250	250
HN-5A	Manportable SAM	200	190
RBS 70	Low-Level SAM	50	50
57 mm ZSU-57-2	Air Defence Gun	150	80
23 mm ZSU-23-4	Air Defence Gun	100	75
23 mm ZU-23-2	Air Defence Gun	300	280
85 mm M1939	Air Defence Gun	300	250
57 mm S-60	Air Defence Gun	200	190
40 mm Bofors L/70	Anti-Aircraft Gun	50	50
35 mm Skyguard	Anti-Aircraft Gun	100	24

Note: There appears to have been no change in the air defence inventory since 1994. Further co-operation with China is, however, expected to yield further systems. Data estimated correct to 1 August 1995.

ARMY INVENTORY

6.5 Inventory: Infantry Weapons

Type	*Role*
7.62 mm G3	Rifle
7.62 mm AKM type	Rifle
7.62 mm Dragunov	Sniper Rifle
5.56 mm M16A	Rifle
0.30 in M1	Rifle
9 mm Uzi	Sub-Machine Gun
9 mm H&K MP5	Sub-Machine Gun
9 mm Beretta M12	Sub-Machine Gun
7.62 mm MG1A1	Machine Gun
7.62 mm PK/PDK	Machine Gun
7.62 mm FN MAG	General-Purpose Machine Gun
12.7 mm Browning M2HB	Heavy Machine Gun
12.7 mm DShK	Heavy Machine Gun
40 mm M79	Grenade Launcher
30 mm AGS-17	Grenade Launcher

Note: Data correct to 1 August 1995.

6.6 Inventory: Army Aviation

Type	*Role*	*Qty.*	*In Srv.*
AB 205A1	Support Helicopter	40	40
AB 206A/B1	Liaison Helicopter	75	75
Bell AH-1J	Attack Helicopter	120	120
Bell 204	Support Helicopter	30	30
Bell 214A Isfahan	Support Helicopter	167	167
CH-47C	Med. Transport Helicopter	30	30
Mi-8/17	Support Helicopter	20	20
Mi-24	Attack Helicopter	10	10
Hughes 300C	Training Helicopter	5	5
Falcon 50	Jet Transport	2	2
PC-6B	Light Transport	10	9
Shrike Cmndr.	Light Transport	4	4
F27 Series 200	Medium Transport	2	2
Cessna 180/185	Liaison and Observation	10	10
Cessna 310	Liaison	10	10

Note: Data correct to 1 September 1995.

AIR FORCE

7.1 Organisation

Iran's air force continues to grow in strength and potential. Operational capability was reduced during the war with Iraq and as a result of Western arms embargoes on civil and military aviation equipment. Domestic industry is now being used to good effect to improve the inventory and judging by the number of arms embargo breaches which are being investigated in the European Union and USA, there is a continued need for new spares in Iran.

The US Pentagon estimated in early 1992 that only about 180 combat aircraft, including some 60 F-14 long-range interceptors and 120 F-4 and F-5 aircraft, remained in the IRIAF's active inventory, due to combat and accident attrition or spares shortages. It is now known from the 'Irangate' revelations that these shortages were alleviated to some extent by the clandestine transfer of US war material in the mid-1980s, including the supply via Paraguay of 23 additional ex-USAF F-4E Phantoms in 1984, aircraft spares and ex-US Army TOW anti-tank missiles in 1985.

For many years, however, Iran has evidently managed to overcome the worst effects of the US arms veto by employing its own manufacturing resources, according to the IRIAF commander, from extensive expansion of its military and defence industries and by obtaining spares from alternative sources. These sources include the Russian Federation, Ukraine, China and North Korea.

Itemised deliveries are virtually impossible to confirm but they are known to have included at least 72 F-7M Airguard versions of the MiG-21, with associated PL-2 and PL-7 air-to-air missiles, following earlier F-6 (MiG-19) deliveries. Iran also purchased 11 F-5E aircraft and spares, declared surplus by the Vietnamese Government, in mid-1991.

A major windfall for the IRIAF occurred in early 1991 with the unexpected arrival of over 100 Iraqi Air Force aircraft fleeing to avoid destruction by the coalition air offensive. These were stated by the Iraqi Foreign Ministry in April 1992 to comprise 24 Mirage F1EQ multi-role fighters, all 24 Sukhoi Su-24MK low-level strike aircraft, four MiG-29 Fulcrum advanced air superiority fighters, four Sukhoi Su-20 and 40 Su-22M swing-wing ground-attack aircraft, seven Su-25 strike-fighters and three MiG-23B, four MiG-23ML, four MiG-23BN and one MiG-23UM interceptor and operational trainer aircraft.

Iran refused to acknowledge the arrival of more than 22 of these aircraft, which Iraq claimed to include a further 33 civil-registered types; those belonging to Kuwait have been returned. It has become clear that most of the combat aircraft have been taken over for IRIAF use, although their current disposition and serviceability states are unknown. Evidence that the ex-Iraqi Su-22 ground-attack fighters are being flown in Iran was confirmed in early 1993 when one collided in the air with an Iran Air Tour Tu-134B at Tehran, killing more than 130 passengers. It is understood that at least one MiG-29 has been loaned to Pakistan for evaluation.

The IRIAF originally put into service three ex-Iraqi Dassault Falcon 50 light transports, but these were transferred to the army in 1994-95. It now uses F27 aircraft in the light transport role and is also assumed to have retained the 15 civil-registered Ilyushin Il-76 freighters. In early 1993 the former Chief-of-Staff of the Sudanese Army said that some of the ex-Iraqi combat aircraft, notably the MiG-23 and possibly the Su-25 aircraft, had been transferred to Sudan by Iran for use against the southern rebels. Major spares packages for the remainder, however, apart from the Mirage F1 planes, the status of which is currently uncertain, are believed to have formed part of the recent Iranian arms purchases from Russia and Ukraine. Additional MiG-23BN and MiG-27 aircraft appear to have been acquired.

Switzerland has apparenty been delivering additional PC-7 training aircraft since 1993; the current inventory stands at 45.

Personnel figures include 12,000 officers and other ranks allocated to air defence duties with missile and gun systems.

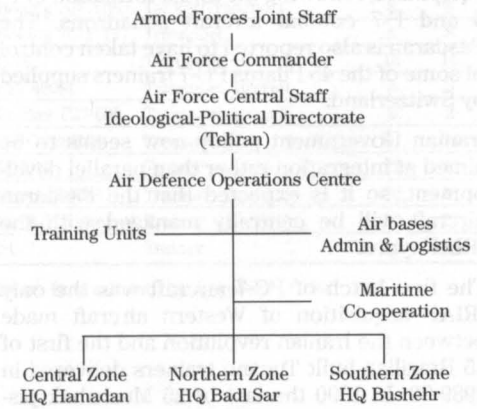
For the second time since the Iranian revolution the air force's commander has been killed in a flying accident in one of his own aircraft. Brigadier Mansour Sattari was killed on 6

AIR FORCE

January 1995 in an accident which apparently also resulted in the deaths of four generals and eight other military officers. According to the armed forces' Chief-of-Staff, General Ali Shahbazi, the officers had been flying from Shahid Babai air base in Isfahan to Tehran. The aircraft, the sole remaining Lockheed Jetstar B jet transport in the air force, crashed during an emergency landing. Because sabotage was suspected, several people were subsequently arrested. No result of the enquiry has been released.

The Iranian Government appointed Habib Baqai as the brigadier's successor as Commander-in-Chief of the Air Force. Brigadier Baqai has apparently been charged with increasing the air force's efficiency and "facilitating its all-round development." He is also tasked with improving "revolutionary and spiritual morale."

Fig 1. **Chain of Command**



Note: Air force operational zones and air defence operational zones appear to be identical. Data estimated correct to 1 January 1994.

7.2 Air Defence Forces

Current IRIAF aircraft procurement plans for Russian materiel follow initial contracts placed with the USSR which resulted in first deliveries of 14 MiG-29 aircraft in 1990. Taking into account the ex-Iraqi aircraft, orders for the further 48 MiG-29 Fulcrums now planned will increase the IRIAF total of the aircraft to around 66, plus 24 long-range MiG-31 Foxhounds. These will provide the basis of an effective interceptor force within Air Defence Command, backed by the Mirage F1, if the necessary spares and training can be obtained from France. The force order of battle is completed by the shorter-range Chengdu F-7M aircraft. This air defence force, plus the ground radars and surface-to-air missiles, such as the Chinese-supplied HQ-2J surface-to-air missiles, will be integrated into the national C3I system.

It is reported that the system will be enhanced during the late 1990s by the acquisition from Russia of two Beriev A-50 Mainstay airborne early warning aircraft. Iran has converted a Boeing 707-3J9C tanker/transport for SIGINT (signals intelligence) missions and to carry in-flight refuelling equipment, possibly derived from Israel. Reports that several Boeing 747F-131 airliners have also been converted to tankers have not been confirmed.

The air force has taken over responsibility for the I-HAWK batteries of the army and increased the number operational to 150.

7.3 Strike Forces

Iran is understood, although this has not been confirmed, to have ordered up to 12 Tu-22M-3 Backfire C long-range strategic bombers from Russia or Ukraine. These will join a force of 24 ex-Iraqi Su-24 aircraft, which former IRIAF C-in-C General Mansour Sattari claimed in February 1992 had been deployed for service with a smaller force of MiG-27 and Su-22 aircraft. This gives Iran a formidable strike capability. The first Su-24 pilots graduated in August 1994.

7.4 Maritime Capability

The IRIAF also has responsibility for maritime-reconnaissance and shore-based anti-submarine warfare, for which it operates two or three P-3F Orions and an RC-130 Hercules.

AIR FORCE

7.5 Operational Unit Locations

Base	*Location*	*Type*	*Unit*
TAB 1	Mehrabad	F-5E	squadron
	Mehrabad	F-7M	squadron
	Mehrabad	F-14A/MiG-29	squadron
	Mehrabad	C-130H/Il-76	squadron
	Mehrabad	Boeing 707/747	squadron
	Mehrabad	F 27/Falcon	squadron
TAB 2	Tabriz	F-4D/E	squadron
	Tabriz	F-5E	squadron
	Tabriz	F-7M	squadron
	Tabriz	C-130H	flight
TAB 3	Hamadan	F-6	squadron
	Hamadan	F-7M	squadron
TAB 4	Dezful	F-4D/E	squadron
	Dezful	F-5E	squadron
TAB 5	not identified		
TAB 6	Bushehr	F-4D/E	squadron
	Bushehr	F-7M	flight
	Bushehr	C-130H	flight
TAB 7	Shiraz	F-5E	squadron
	Shiraz	F-14A/MiG-29	squadron
	Shiraz	C-130H/Il-76	squadron
	Shiraz	F 27	flight
TAB 8	Isfahan	F-5E	squadron
	Isfahan	F-6	squadron
	Isfahan	F-7M	squadron
	Isfahan	F 27	flight
TAB 9	Bandar Abbas	F-4D/E	squadron
	Bandar Abbas	F-14A	detachment
	Bandar Abbas	F-7M	squadron
	Bandar Abbas	P-3F	flight
TAB 10	Chah Bahar	F-6	squadron
	Chah Bahar	C-130H/Il-76	flight
TAB 11	Aghajarin	detachments only	
	Ghale Morghi	Beech F33	
	Mushshak	PC-7, Tucano	Training School

7.6 UN Contributions

No contributions to UN operations have been made.

7.7 Assessment

Procurement and domestic upgrade plans mark a major change in procurement policy from Western to former Communist Bloc equipment. This will almost certainly require corresponding changes in tactical doctrines and unit organisation to Russian Air Force standards. The comparatively few remaining Western combat aircraft maintained in airworthy condition in IRIAF service are therefore likely to be progressively phased out over the next few years, during deliveries of their Russian/Ukrainian replacements.

The Pasdaran Air Force has an independent commander, appointed in January 1992. This force has been given priority to receive new equipment, following the initial formation of F-6 and F-7 combat aircraft squadrons. The Pasdaran is also reported to have taken control of some of the 45 Pilatus PC-7 trainers supplied by Switzerland.

Iranian Government policy now seems to be aimed at integration rather than parallel development, so it is expected that the Pasdaran aircraft will be centrally managed with the IRIAF types.

The first batch of PC-7 aircraft was the only IRIAF acquisition of Western aircraft made between the Iranian revolution and the first of 15 Brazilian-built Tucano trainers delivered in 1989-90. In 1990 the last of 25 Mushshak piston-engined trainers ordered for the Pasdaran from Pakistan were delivered. An evaluation batch of three had been delivered in 1988.

AIR FORCE INVENTORY

8.1 Inventory: Fixed-Wing

Type	*Role*	*Qty.*	*In Srv.*
H-6D	Bomber	6	6
Tu-22M	Bomber	4	4
F-7M	Combat Aircraft	65	65
Mirage F1EQ	Multi-Role Fighter	12	12
F-14A	Interceptor Fighter	30	30
F-4D/E	Multi-Role Fighter	50	50
MiG-23BN	Combat Aircraft	24	24
MiG-27	Strike Aircraft	24	24
MiG-29	Interceptor	48	48
MiG-29UB	Combat Trainer	18	18
F-5E	Combat Aircraft	65	65
F-5F	Combat Aircraft	8	8
FT-7	Combat Aircraft	5	5
F-6	Combat Aircraft	20	20
Su-20	Strike	2	2
Su-22M	Strike	35	35
Su-24MK	Combat Aircraft	20	20
Su-25	Close Air Support	7	7
P-3F	Maritime Patrol Aircraft	2	2
Boeing 707-3J9C	Tanker/Transport	8	8
Boeing 747F-131	Transport	8	8
Il-76	Transport Aircraft	15	15
F27 400M	Transport Aircraft	3	3
Fokker F27 600	Transport Aircraft	2	2
C/RC-130E/H	Transport	34	34
MFI-17	Trainer	22	22
Beech F33A/C	Trainer	26	26
EMB-312 Tucano	Trainer	22	22
PC-7	Trainer	45	45

Note: Data estimated at 1 September 1995.

8.2 Inventory: Rotary-Wing

Type	*Role*	*Qty.*	*In Srv.*
AB 206A	Liaison	2	2
AS-61A-4	VIP Transport	2	2
AB 212	Support/Utility	10	10
Bell 214B/C	Support	30	30
CH-47C Chinook	Support	2	2

Note: Data correct to 1 September 1995.

8.3 Inventory: Air Defence Systems

Type	*Role*	*Qty.*	*In Srv.*
I-HAWK	Medium Altitude Missile	150	150
Rapier	Low Altitude SAM	30	20
HQ-2J	Low-High Altitude SAM	60	55
Antey (SA-5)*	Medium Altitude SAM	n/a	n/a
2K12 (SA-6)*	Medium Altitude SAM	n/a	n/a
57 mm SZ-60	Automatic Anti-Aircraft Gun	50	35
40 mm M1	Automatic Anti-Aircraft Gun	40	20
40 mm L/70	Automatic Anti-Aircraft Gun	100	95
23 mm ZU-23-2	Air Defence Gun	250	250

Note: *Unconfirmed delivery. Data correct to 1 May 1995.

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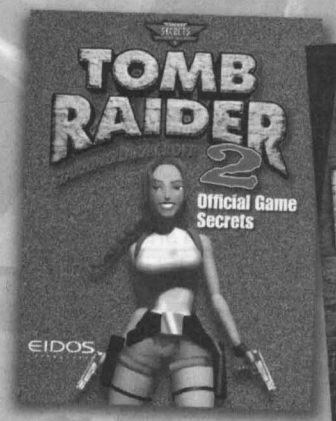

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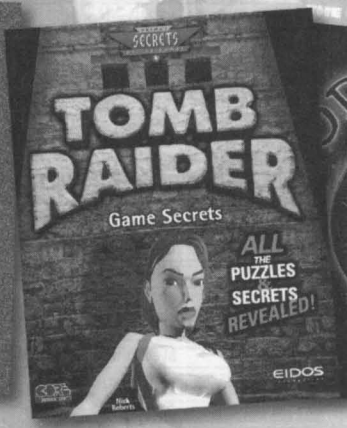

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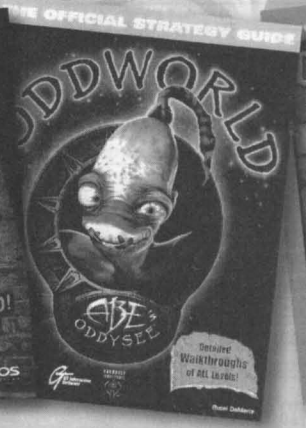

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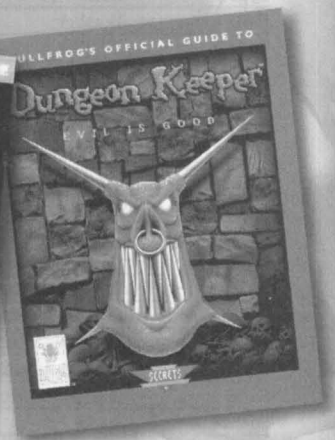

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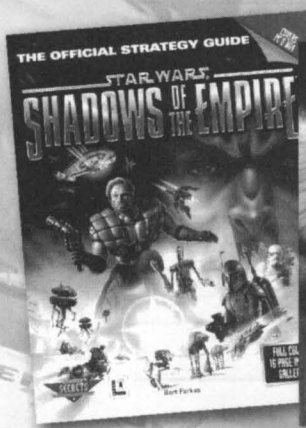

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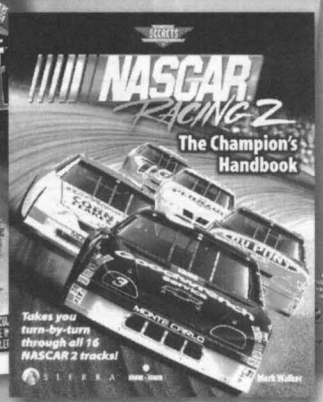

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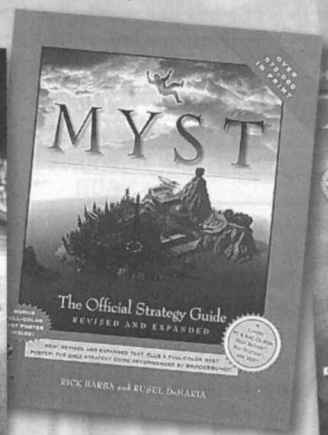

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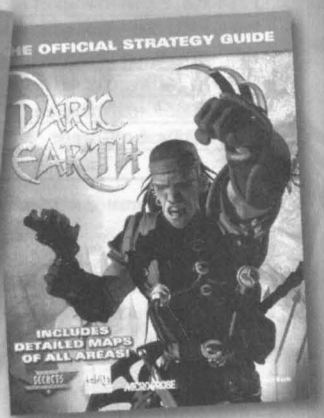

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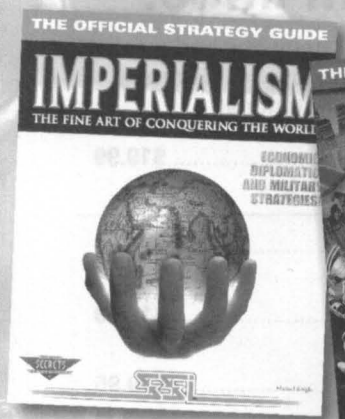

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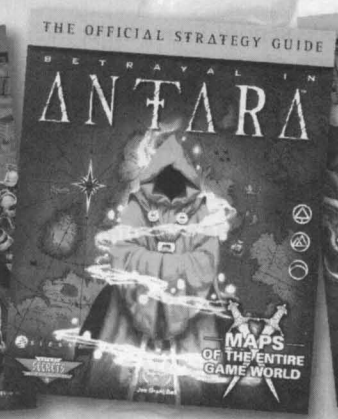

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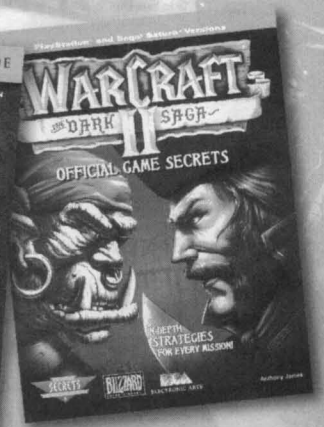

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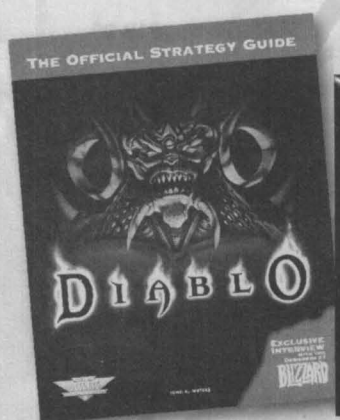

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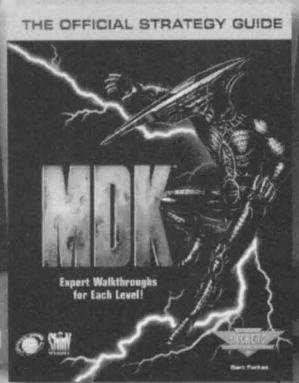

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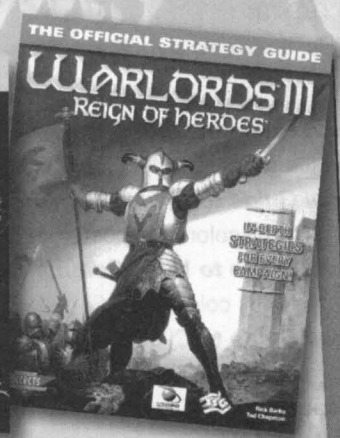

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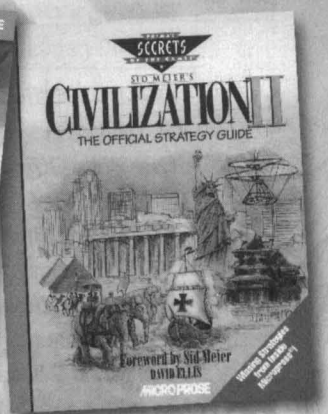

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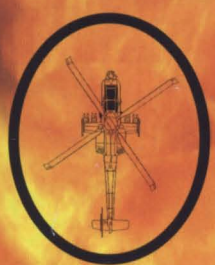

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Land Area	86,000 km²	*Army (troops)*	(estim.) 50,000
Population	7,472,000 (1994)	*Air Force*	7,000
Pop. Density	82 per km²	*Navy*	3,000
Time Zone	GMT +4	*Police*	50,000
Climate Zone	Continental	*Border Guard*	2,500
Annual Rainfall	10 cm	*Security Forces*	5,000
Ave. Temp.	27°C (July) 1°C (Jan.)	*Paramilitary*	22,000

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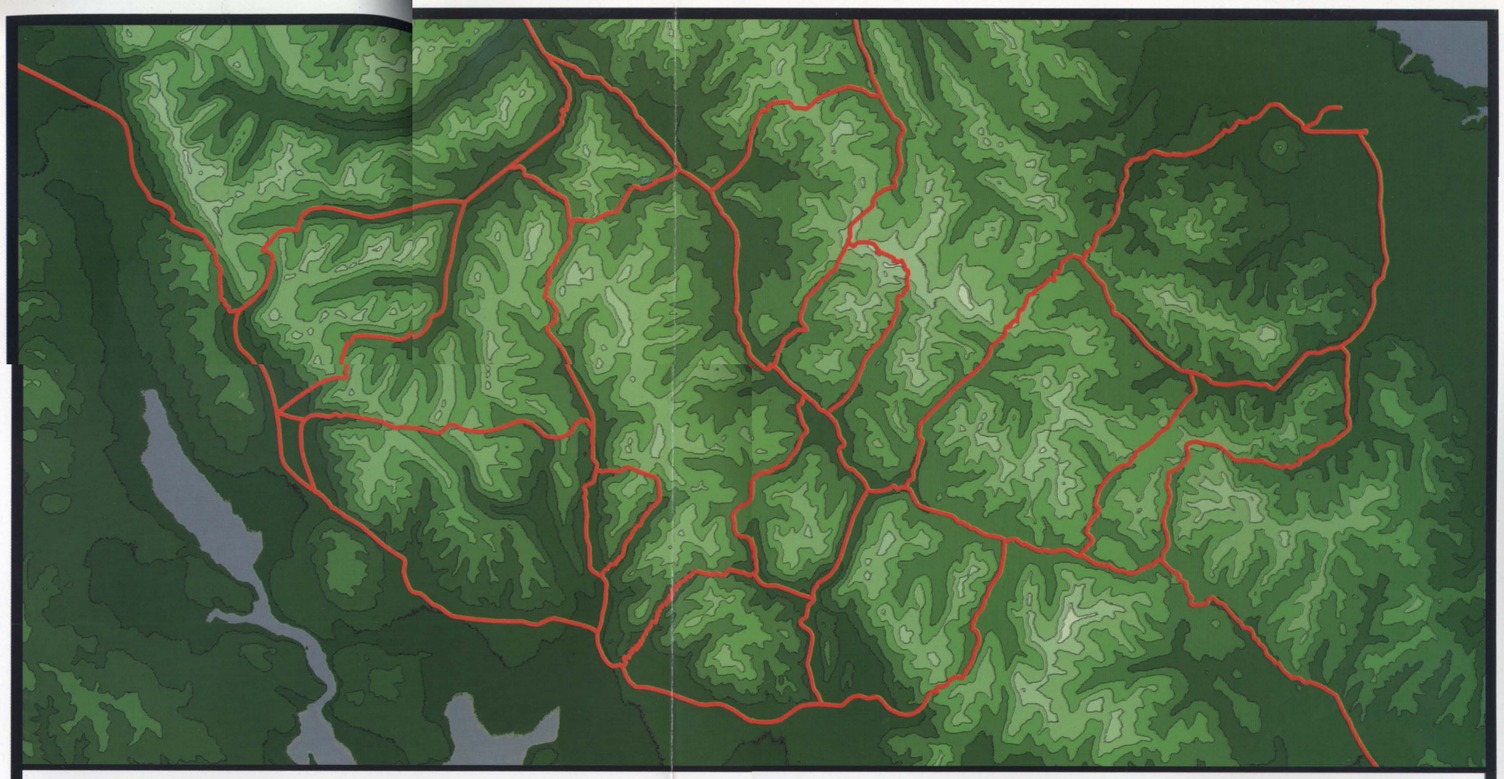
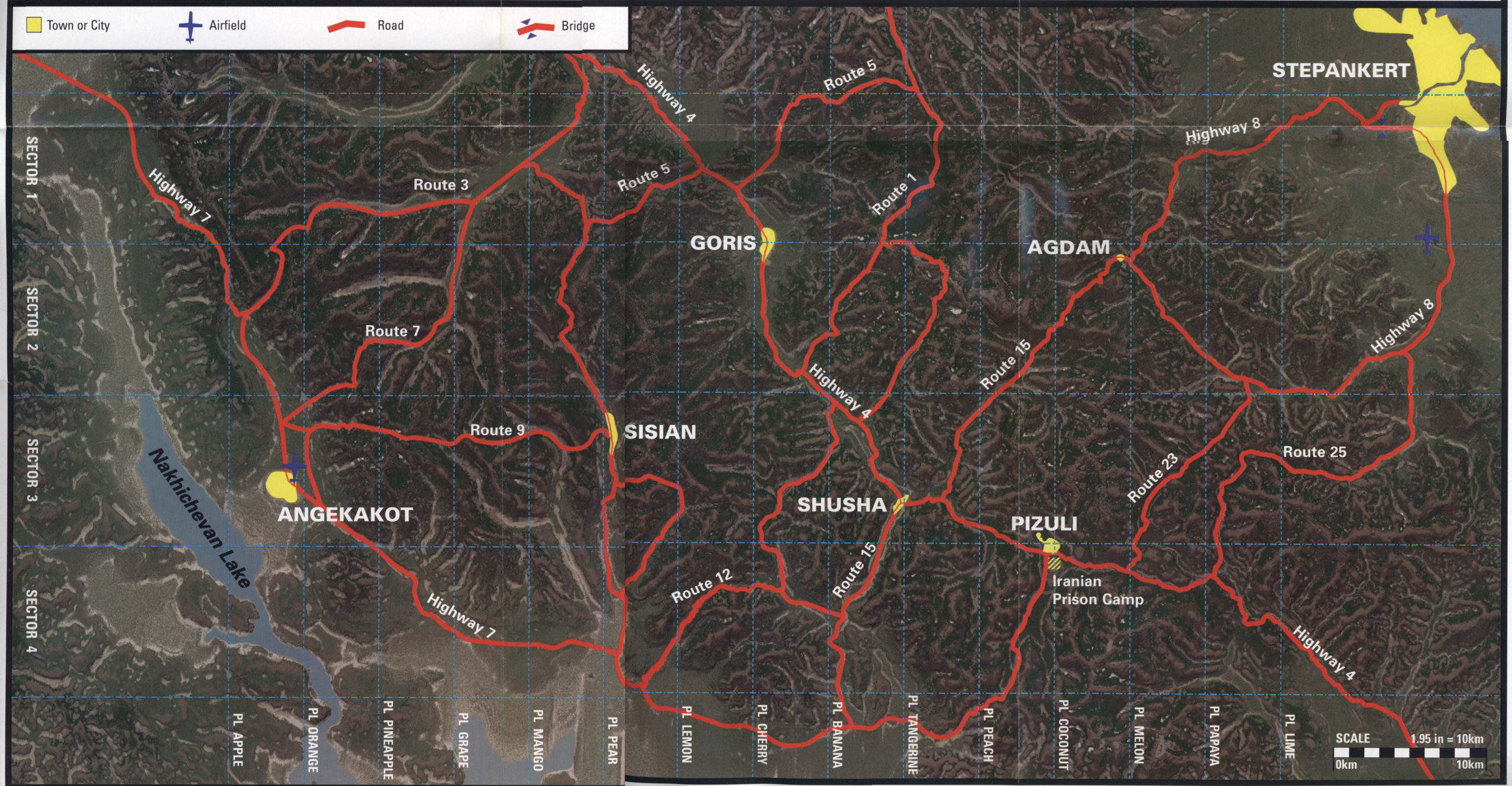


Contour Map of the Area

Water | ≤ 738 ft. | 739-1230 ft. | 1231-1723 ft. | 1724-2215 ft. | 2216-2706 ft. | 2707-3199 ft. | 3200-3691 ft. | ≥ 3692 ft.

Town or City | Airfield | Road | Bridge