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ARMY AVIATION IN OPERATION JUST CAUSE

BY

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ARMY AVIATION IN OPERATION JUST CAUSE

AN INDIVIDUAL STUDY PROJECT

BY

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ARMY AVIATION IN OPERATION JUST CAUSE

I. INTRODUCTION

It should be the duty of every soldier to reflect on the experiences of the past, in the endeavor to discover improvements, in his particular sphere of action, which are practicable in the immediate future.

B. H. Liddell Hart
Thoughts on War, 1944

The months leading to the U.S. military action in Panama were filled with great uncertainty and anxiety for not only the people of Panama, but for the leaders and men and women of U.S. Army South. In the two years leading up to action, there were several distinct periods which took on special characteristics. There were seemingly endless weeks and months filled with minor to major crisis. From the pre-election propaganda, to the post election beatings; from the school bus incident, to the unsuccessful coup attempts, to the killing of Marine Lieutenant Paz; one crisis blended into the next. Typically, while units were still catching their breath from the last potentially disastrous incident, tensions would mount to yet another plateau as the next incident occurred.

On 20 December 1989, US forces executed Operation JUST CAUSE in the Republic of Panama. The mission had four objectives: protect US citizens; ensure the safe operation of the Panama Canal; support democratic institutions in Panama; and apprehend

Manuel Noriega.¹ Before the operation was complete, some 27,000 US soldiers, sailors, Marines, and airmen would be committed to the largest contingency operation since World War II.²

In a very complex operation, 27 targets were struck simultaneously by a combined force of US Army Rangers, paratroopers, light infantrymen, Navy SEALS (sea-air-land teams) and Marines, supported by helicopters, attack aircraft and light armored vehicles. Almost unanimously, observers hailed Operation JUST CAUSE as a near perfect example of the "surgical" military strike--the "quick win"--sought by military planners, required by political leaders and endorsed by the American public. The full use of the capabilities of the Army's newest member of the combined arms team--ARMY AVIATION--contributed greatly to the success of Operation JUST CAUSE. Numerous articles and papers written about the operation have neither fully depicted the role played by aviation, nor the extensive preparation that culminated in this highly successful operation. This paper will present the story of Army Aviation in Operation JUST CAUSE.

II. THE BACKGROUND AND PRELUDE

No triumph of peace is quite so great as the supreme triumphs of war. The courage of the soldier, the courage of the statesman who has to meet storms which can be quelled only by soldierly virtues--this stands higher than any quality called out merely in time of peace.

Theodore Roosevelt
Speech at the U.S. Naval War College
2 June 1897

THE CRISIS: 1988 - 1989

To many Americans, including many in the Armed Forces, US military involvement in Panama started with the deployment of forces from Fort Bragg and other stateside posts to conduct Operation JUST CAUSE in December 1989 and January 1990. In reality, the military was deeply involved from the beginning of the crisis in mid-1987. For years the United States Southern Command (USSOUTHCOM) and thousands of members of the various service components have been living and serving in what has been called--the "Tropical Paradise". During the crisis period, the activities, sacrifices, and contributions of those serving proudly in Panama were often overshadowed by other world events, such as the US Presidential election in 1988, events in Eastern Europe--particularly taking down the Berlin Wall--and the Tiananmen Square demonstrations. These events often dominated

the headlines. US military activities in Panama connected with Noriega, his drug involvement, and the crisis attending his corrupt regime faded from the public attention. Meanwhile, U.S. citizens in Panama were mistreated, and Noriega's problems were creating a tense situation there. Largely unnoticed by the American public, the Reagan administration substantially increased U.S. troop strength in Panama in early 1988.³

The sacrifices and contributions of thousands of family members and their soldiers, sailors, airmen, and Marines were virtually overlooked. In February 1988, after Noriega was indicted by two federal grand juries in Florida on drug-related charges, the Panamanian Defense Forces (PDF) engaged in a systematic campaign to harass U.S. forces and their families: they stopped them in their cars for no reason; they interfered with troop movements; and on occasion they assaulted soldiers and family members.⁴ It was often a "major drill" for a wife to go to the local commissary. Wives would often be stopped and harassed by the Panamanian Defense Forces (PDF); occasionally the PDF would take the groceries. Among thousands of instances of harassment, one of the most notable was the PDF stopping and boarding 21 Department of Defense school buses filled with hundreds of young school children. The PDF brandished loaded automatic weapons and detained the children. After a few hours of negotiations, the buses and traumatized children were released.⁵

In late February 1988, Noriega ignored an attempt by President Eric Arturo Delvalle to fire him. Then on 16 March, Noriega survived a coup attempt. Noriega charged that the US military was involved in these activities. As a result, the relations with the Panamanian Defense Forces had reached low ebb.

Accordingly, the U.S. drew up a new Panama Canal Defense plan--*ELABORATE MAZE*. It assumed a hostile PDF. The in-country forces--primarily of the 193d Infantry Brigade--were insufficient to provide the required security. As the threat to American lives, property and interests in Panama increased, President Reagan deployed augmentation forces (1300 soldiers and Marines) to assist the in-country units with the mission of security enhancement.

These additional forces, which deployed on 5 April 1988, included the 16th Military Police (MP) Brigade (Bde) headquarters from Ft Bragg; 59th MP Battalion (Bn) from Ft Meade; 118th MP Bn from Ft Bragg; a Marine rifle company from the 6th Marine Expeditionary Brigade (MEB) at Camp Lejeune; an aviation task force (TF-HAWK) from the 7th Infantry Division (Light) (consisting of elements of the 3d Battalion, 123d Aviation, and an attack helicopter company composed of elements of the 2d Squadron 9th Cavalry, Ft Ord); and approximately 150 Air Force Security Police.⁶ These units helped reduce crime on US military posts and harassment of US citizens.

This augmentation caused command and control to become an issue.⁷ Joint Task Force PANAMA was activated on 9 April 1988

by General Frederick Woerner (CINCSO) to provide a headquarters for directing military operations in Panama. Nearly all US military organizations in Panama were placed under the operational control of JTF-PANAMA, commanded by Major General Bernard Loeffke, the commander of United States Army South (USARSO). JTF-PANAMA's mission was to protect American lives and property, conduct joint training and exercises and draft contingency plans.⁸

JTF-PANAMA provided an excellent opportunity for joint training in a crisis environment. In his School of Advanced Military Studies Monograph, Major Brad Mason, one of the aviation leaders in Panama at this time, described the forward presence operations environment in which the units were operating as "the fine line between peace and war."⁹ The crisis cooled in the fall of 1988. Hence many of the security enhancement forces were returned to the States, except the aviation forces (TF HAWK) and one MP battalion.

THE ELECTION--MAY 1989

In May of 1989, Noriega allowed free elections to be held thinking that the PDF could rig the elections if the results were close. This was not the case! The elections were closely watched by international observers including former U.S. President Jimmy Carter. Noriega was soundly defeated, despite rampant vote fraud. He declared the election void and retained power. This resulted in a series of demonstrations and a brutal

attack on newly elected Vice President Billy Ford. This violence was seen on TV around the world. As the situation looked like it was again going to get out of hand, President Bush deployed more troops to Panama in April 1989.

The build up, code-named *NIMROD DANCER*, deployed several units to Panama: a brigade headquarters and a light infantry battalion from 7th Infantry Division at FT Ord; a mechanized infantry battalion (M113) from 5th Mech Division, FT Polk, LA; and a Marine light armored infantry company equipped with light armored vehicles (LAV-25s). Their presence not only increased security but also pre-positioned units called for in the contingency plans.¹⁰

OPERATION BLADE JEWEL--Personnel Drawdown

In addition to sending security forces to Panama, President Bush directed an emergency drawdown of dependents and that all military families and personnel be moved from downtown Panama City to US military installations or returned to the States and a corresponding tour length curtailment of sponsors. In what became called--Operation BLADE JEWEL--the purpose was to reduce the number of family members in country; thus it served as a partial non-combatant evacuation operation (NEO).

Personnel were selected to return to the States based on their originally scheduled departure dates (DEROS). The first category of soldiers were permitted to depart early with their families. Families in the next category would return to the

States, but the service members remained in Panama to complete an adjusted tour. This quickly implemented policy produced much frustration, resentment, and confusion, especially since people were often given very short notices to depart. Sometimes they could not even take their family pets or arrange to ship their cars. Within a four to six week period in the early summer of 1989, 1-228th Aviation suffered a devastating hemorrhage of its most experienced personnel. All of this adversely impacted on combat readiness. The mission was to get the families out as quickly as possible. Some critical personnel were evacuated and other critical personnel were so distracted by the departure of their families that they did not attend to their duties. Even though not a surprise, a significant increase in use and abuse of alcohol was noted during this time. The turbulence was absolutely devastating to combat readiness."

Had all things remained equal, had the status quo been left undisturbed, the 1-228 Avn could have been expected to perform with flying colors in the first test of aviation in combat since Grenada in October 1983. Fate, however, would step in to create a perfect plan for potential failure by gutting the battalion of all but a few seasoned personnel.

Critical losses were evident in all functional areas. Aviation maintenance organizations, experienced aircrews, and standardization were hit very hard; some were slow to recover. Without a doubt, evacuation activities conflicted critically with readiness. The only immediate relief was to accept many

inexperienced recent flight school graduates. Some units would have nearly 50% Warrant Officer 1s (WO1), just out of flight school. It was a quick fix with a price tag. Commanders were forced to thrust junior, inexperienced people into situations and levels of responsibility far above their pay grades and responsibility.

JTF PANAMA TASK ORGANIZATION

With the arrival of the NIMROD DANCER forces, JTF-Panama organized three Task Forces: (1)TF ATLANTIC, under command of the Brigade Commander from 7th ID, consisted of the 7th Inf Div light infantry battalion and operational control (OPCON) of the Jungle Operations Training Battalion (JOTB) and units deployed for training. (2)TF BAYONET consisted of the 193d Infantry Brigade with its organic 5th Bn, 87 Inf (Light) (Ft Clayton) and 1st Bn, 508th Abn Inf (Ft Kobbe). Attached to the brigade was the 4th Bn, 6th Mechanized Inf (from 5th INF DIV, Ft Polk). TF BAYONET's area of responsibility (AOR) included the East bank of the canal. (3)Marine Forces-Panama (MARFOR) assumed responsibility for the West bank of the canal, including external security of Howard AFB--a huge task. To assist in this mission, USARSO's 536th Heavy Combat Engineer Bn, commanded by LTC Peter Topp, was placed under the operational control of MARFOR.¹²

TASK FORCE EAGLE

Initially, the two aviation battalions, TF HAWK and 1-228 Aviation, reported directly to JTF-Panama. However, in an effort to streamline coordination, and improve standardization and safety, TF-EAGLE was established 3 August 1989 as a major subordinate command of JTF-PANAMA. The commander of TF-EAGLE was the commander of 1-228 Aviation.¹³

TABLE 1

TASK FORCE - EAGLE TASK ORGANIZATION (3 Aug 89)

1-228 AVN:

HHC/1-228 AVN	3 C-12 F/W
	2 UH-60 CINC Hawks

A/1-228 AVN	15 UH-60 *
-------------	------------

* 2 UH-60s atch from 9th ID

B/1-228 AVN	14 UH-1H
	8 OH-58A
	8 CH-47C

C/1-228 AVN(Avn Intermediate Maintenance) AVIM	1 UH-60
ORF	3 CH-47C
ORF	2 UH-1H

214th Medical Evac DET	6 UH-60
------------------------	---------

Task Force HAWK

CO(-)/3-123 AVN (ASLT)	15 UH-60
------------------------	----------

ATK HEL CO	7 AH-1E
	4 OH-58

TASK FORCE HAWK

TF-HAWK originally deployed with C Co (UH-60 Assault), 3-123 Avn, and an attack helicopter company composed of elements of the 2d Squadron, 9th Cavalry, along with a "slice" from the Aviation Intermediate Maintenance Company. The Task Force consisted of 60 pilots and 180 support soldiers, commanded by LTC Frank Dodge. Task Force HAWK deployed as an Emergency Deployment Readiness Exercise (EDRE) for a short duration exercise. They had no time for detailed planning and coordination. When it was determined the deployment was for an extended period of time, the commander, staff and units began to rotate with the remainder of the 7th Inf Div Aviation Brigade on a 90-day schedule. The schedule was devised so the companies would rotate in 45-day cycles to provide continuity.

The major challenge was locating adequate maintenance and living facilities. The host unit, 1-228 Avn, was already crowded and suffering from a shortage of space that was exacerbated by the arrival of TF HAWK. Thus, the Task Force personnel were forced to move several times as a result of the temporary nature of facilities. At best, the soldiers always lived in crowded open bay barracks, and the maintenance area and aircraft parking areas were not any better.

To provide parking space for some of the aircraft, an athletic field on FT Kobbe was fenced with concertina wire and named the "Corral". Others, normally 3 UH-60s, were permanently located at FT Sherman on the Atlantic side. The Task Force moved

to FT Sherman in the Spring of 1989. However, at the on set of the rainy season, the aircraft began sinking in the mud. As a result, the main portion of the Task Force relocated to Ft Kobbe and Howard AFB.

Commanders of Task Force HAWK rotations were LTC Frank Dodge, LTC Frank Taddonio, LTC Paul Sutterland, LTC Howard Borum, LTC William Durbin, LTC John Plant, and LTC Howard Borum (2d rotation).

SAND FLEAS, PURPLE STORMS, AND CONTINGENCY READINESS EXERCISES

Expanded missions were assigned to JTF-PANAMA with the additional forces, and a series of operations to exercise US "freedom of movement" treaty rights were planned and conducted. These highly provocative operations were referred to as *SAND FLEA* and *PURPLE STORM* exercises. *SAND FLEA* operations were normally conducted by a single service; they consisted of missions ranging from as simple as a truck convoy from one end of the canal to the other, or a 2-3 aircraft NVG air assault to installations jointly occupied by PDF and U.S. forces.¹⁴ *PURPLE STORMS* involved larger joint exercises. Both types of operations kept units on the "fine line between peace and war" and were conducted with live ammunition, door guns mounted, and bullet proof vests on aircrew members.

Aviation provided a unique capability to Commander, JTF- PANAMA -- the capability to immediately respond and conduct show of force and freedom of movement exercises without being harassed and knee jerked by the PDF.¹⁵

Major General Marc Cisneros

When ground forces were conducting exercises, they would often be stopped by the PDF or groups of civilians. The PDF were able to convert these instances into propaganda on local TV by showing tapes and saying "Hey, look what the Gringos are doing to us," but they were unable to counter Army Aviation exercises.

During these exercises, Aviation units demonstrated the full range of aviation capabilities and flexibility--air assaults, show-of-force operations with AH-1 Cobras, command and control, reconnaissance, and resupply missions. TF EAGLE planned, coordinated, and executed a *PURPLE STORM* operation with Air Force A-37 fighter support. In this operation--*HEAVY HAWK*--four UH-60 aircraft equipped with extended range fuel systems--flew a circuitous route around the Western end of Panama to demonstrate US resolve to operate throughout the entire country and to over fly and conduct reconnaissance of highly sensitive PDF training facilities. The A-37s provided escort and back-up radio relay.

After MG Marc Cisneros took command of USARSO on 23 June 1989, several *SAND FLEA* operations and at least one *PURPLE STORM* operation took place each week. This kept aviation fully committed. Other major out-of-country SOUTHCOM missions were carried out concurrently, including the deployment of two CH-47Cs

to Ecuador in August 1989 to recover a DC-3 airplane which crashed in the Andean Mountains.

In July 1989, JTF-Panama initiated a series of readiness exercises called *Contingency Readiness Exercise* (CRE). These automatic response exercises tested the readiness of JTF-PANAMA elements to execute assigned contingency missions. The 1-228 Aviation had the standing mission to air assault the 1st Battalion, 508th Airborne Infantry, from Ft Kobbe to secure the U.S. Military family housing area on Ft Amador on the east side of the canal, which was jointly occupied by the PDF 5th Infantry Company. These missions were so thoroughly preplanned, coordinated, and rehearsed that execution could be called like a football play--"34 FLEX"--audibles could be called at the line of scrimmage. 1-228 Avn could make use of it's entire fleet of cargo and utility aircraft to accomplish the mission. Everyone knew what to do without having a detailed operations order and briefing.

TF-HAWK had the standing mission to support Task Force-ATLANTIC. The normal mission was to air assault a platoon/company to Madden Dam or into the city of Gamboa. Madden Dam was strategically critical since it provided the drinking water for Panama City and the back-up water supply to operate the "above sea-level" canal during the dry season. Gamboa was primarily a Panama Canal Commission Housing area for which the US was responsible for defending.

THE COUP ATTEMPT - 3 October 1989

Activities and events did not slow down as General Maxwell R. Thurman assumed command of US Southern Command from General Fredrick Woerner on Saturday, 30 September. About an hour after the change of command, a UH-60 Medevac helicopter assigned to 214th Medical Detachment crashed approximately one quarter mile off Kobbe Beach in the Pacific Ocean, with one fatality.¹⁶

On Monday morning, 0400 hours 2 October 1989, elements of JTF PANAMA were briefed on the threat of "internal unsettlement" in the PDF and planned initial positioning of forces to protect American lives and property. The plan was code-named Operation TROJAN. It called for moving a company of the 1-508 Airborne Infantry to Fort Amador, using the deception of taking physical training (PT) on the causeway. Aviation assets were prepared to conduct air assaults, command and control, and attack missions. As it turned out, the coup attempt did not occur on the second of October, but on the following day. TF-EAGLE provided OH-58s and UH-60s for reconnaissance and command and control; and A and B Companies, 1-228 Avn, demonstrated the flexibility and versatility of aviation by using a combination of UH-60s, CH-47s, and UH-1s to air assault the 1-508 Abn Inf "Red Devils" into Ft Amador.¹⁷ Attack Teams from TF HAWK provided aerial escort for the Department of Defense School buses which were unable to take the children home until 1900 hours.¹⁸ Again, Army aviation units displayed unusual flexibility and capability to respond on short notice.

AVIATION TRAINING

Shortly after the Coup attempt, the operational tempo (optempo) increased as unit Mission Essential Tasks lists were reviewed and revised and new training programs were implemented to incorporate USCINCSO training guidance. General Thurman met with all commanders and command sergeant majors down to battalion level on Saturday afternoon, 21 October, to talk about his philosophy and guidance. He directed that all sergeants first class and higher see his video tape "Implementing FM 25-100, Training the Force" by 1600 hours Sunday (the next day). However there was only one copy of the tape in country.¹⁹ It was copied and distributed to all units by Sunday morning.

Aviation training for 1-228 Avn was oriented primarily toward individuals and crews. Priority was on re-building the critical skills and experience degraded during the "BLADE JEWEL" personnel drawdown. Basically, the organization was rebuilt from scratch. Aviation crews were "battle rostered" and the same crewmembers flew together as often as possible to enhance the training process. This difficult training task was conducted along with routine day-to-day aviation support requirements, assignment of up to 50 personnel a day for guard duty, and with the around-the-clock requirement to conduct "immediate reaction" (one hour notice) platoon air assaults (3 UH-60s). This "standby" mission required six crews per 24-hour period. Thus, the sequential "crawl, walk, run" training process was performed simultaneously with all phases in progress each day.

The majority of the *SAND FLEA* and *PURPLE STORMS* were conducted in daylight so they could be seen by the most people for greatest psychological impact. However, this did not facilitate gaining and maintaining night vision goggle proficiency.²⁰ Opportunity training was coordinated with the infantry forces and Jungle Training School whenever possible. However, more often than not, the aircraft were flown empty while crews gained valuable night vision goggle experience.

Task Force HAWK was not faced with the same training challenges as the 1-228 Avn. They had no dependents in country and were spared the *BLADE JEWEL* turbulence. During their one and a half years in country, they had gradually reduced the number of crews in Panama to 10 UH-60 crews and 5 AH-1 crews. The remainder were on stand-by at Fort Ord to deploy as required. All crews were completely combat qualified and NVG qualified/proficient prior to departing Ft Ord for their rotation.

The soldiers in TF-HAWK lived a tough and demanding life. For example, after a 90-day rotation to Panama, the soldiers would return to Ft Ord to deploy to the National Training Center (NTC), at Fort Irwin, CA, or to the Joint Readiness Training Center (JRTC), Fort Chaffee, AR, and then assigned the next rotation to Panama. There were only two UH-60 companies, 1 cavalry squadron (8 AH-1), and 1 attack battalion (21 AH-1) in the 7th INF DIV. Thus, at any one time, 50% of the Division's lift assets were in Panama. However, only one of the Division's nine

infantry battalions was in Panama. Meanwhile, the eight battalions at Ft Ord were demanding premium aviation support for their own training requirements from the remaining UH-60 company. Many TF HAWK soldiers joked that they "were PCS to Panama and two times a year went TDY to Ft Irwin or Ft Chaffee." Even though the living and maintenance conditions for TF HAWK soldiers were deplorable, LTC Howard Borum, the TF HAWK commander during JUST CAUSE, said that "the soldiers loved to come to Panama and even considered it a vacation just to get away from FT Ord, the NTC and JRTC."²¹ Those with wives and children may not have agreed. But, needless to say, they all sacrificed family and quality of life while serving in the 7th Inf Div at that particular time.

The 1-228 Avn aircrews conducted Dunker (underwater egress training) and Helicopter Emergency Escape Device (HEEDS) training at Jacksonville Naval Air Station. HEEDS is a supplemental supply of air (a mini-SCUBA system); it provides two and one-half to five minutes of air in order to enable crew members to escape a submerged aircraft. Once trained, a person is current for three years. DUNKER and HEEDS training was absolutely essential, since most aircraft flights in Panama are over water, and it returned major dividends during the 30 Sep 89 UH-60 Medevac Helicopter accident. Three of the crew members were able to escape from the submerged aircraft but the fourth drowned.

1-228 Avn crews were scheduled to attend the Synthetic Flight Training System (SFTS) once each year, normally at Hunter Army Airfield, GA. Later pilots were scheduled for SFTS training

twice annually as a result of the unpredictable marginal weather patterns in Panama, the lack of accurate weather forecasts, and the lack of compatible instrument approach facilities. Even though the training was expensive, it provided essential training on emergency procedures which could not be practiced in the aircraft and allowed the majority of the aircraft flying hours to be flown on directed missions and collective training in preparation for combat.

REORGANIZATION OF THE 1-228 AVIATION - 15 Oct 89

In the midst of the *BLADE JEWEL* drawdown, *SAND FLEA* and *PURPLE STORM* exercises, other training activities, guard duty, and other requirements, the 1-228 Aviation underwent a major reorganization on 15 Oct 89. Major changes re-designated and reorganized C Company (AVIM) to E Company, 228th Aviation, and transferred it to the 193d Support Battalion, 41st Area Support Group. The reorganization added approximately 75 personnel to the unit MTOE. Aviation maintenance was not as efficient under the 193d Support Bn, which often had conflicting goals and objectives. Task Force EAGLE no longer enjoyed a unity of effort in the AVIM maintenance area, and this proved to be catastrophic when aviation maintenance contact teams were sent from CONUS during JUST CAUSE.

Another area in the reorganization removed the CH-47C Chinooks from B Company and activated C Company as a CH-47D company. However, the new D-Model Chinooks had been grounded

worldwide for extended periods, which delayed the fielding process. This created a major readiness impact since many trained and experienced Chinook crews had been moved out of Panama under *BLADE JEWEL*, and CH-47D pilots were not being trained at Ft Rucker to backfill the battalion's shortages. For example, the company was authorized 5 commissioned officers, but only one was assigned; further, it had only about 50% of authorized CH-47 warrant officer pilots.

The UH-60 CINC Hawks (specially modified aircraft to support USCINCSOUTH) were moved from HHC to A company. A Company also received two rebuilt aircraft from CONUS to replace two aircraft damaged in an April 1988 training accident, and the two UH-60s from 9th Inf Div were returned to Ft Lewis. A Company now had 17 UH-60s, including the CINC aircraft. The three C-12 airplanes were moved from HHC to B Company (Command Aviation Company). Additionally, many of the past maintenance personnel problems were fixed on the new authorization documents; for example, B company had not been previously authorized any UH-1 repairmen in the Aviation Unit Maintenance Platoon (AVUM).

The new MTOE also fixed other problems. The 1-228 Avn, for example, had previously been the 210th Avn Bn, which was formed as a collection of ad hoc units over time as the mission required. When the unit designation was changed to 1-228 Avn in October 1988, the Unit Identification Codes (UIC) were not changed on the MTOEs; so each company had a unique UIC and was required to submit company level Unit Status Reports (USR). The

new authorization documents gave the Battalion a normal "parent unit" UIC, which allowed the submission of one battalion level USR.²²

Additionally, in an effort to improve aviation safety in the theater, the 195th Air Traffic Control Platoon was relocated to Panama from Fort Bragg.

RENEWED PERSONNEL DRAWDOWN

In October 1989, a second round of personnel drawdowns and tour curtailments was initiated. Some referred to it as *BLADE JEWEL II* (or *Son of BLADE JEWEL*). This reduction of personnel seemed to be more organized, since readiness was an issue. Again, the reduction was based on DEROS dates; however swaps could be made between families scheduled to depart and those remaining, based on readiness considerations. Company commanders had to make the "tough calls" and decisions on who went and who stayed. If a problem could not be corrected at company level, then it was addressed at battalion level. Additionally, some soldiers were directed to take their families to the states and return unaccompanied to complete their tour. Some officers, including company commanders, sent their families to CONUS to help meet the quotas that were placed on the battalion. Again, as during the previous drawdown, there was a large personnel turnover and loss of experience. 1-228 Avn had 650 personnel and 250 families in country in May 1989; 25 families remained by Thanksgiving 1989.²³

CONTINGENCY PLANNING Oct-Nov 89

Operational security (OPSEC) was a key consideration in the initial contingency planning with XVIII Airborne Corps. This was demonstrated by the command and staff of XVIII Airborne Corps attending planning meetings in civilian clothes. The JTF PANAMA Operation *BLUE SPOON* was the basic planning document; it was modified through several meetings held at FT Bragg and in Panama in the October-November 1989 time frame. The Panama meetings were as covert as possible; only personnel with a "top secret" clearance and a "need to know" participated. The author attended these, plus a number of coordination meetings and commanders' tactical seminars which were held with XVIII Airborne Corps, JTF PANAMA, and other participating headquarters in late October, November, and December 1989. During the first coordination meeting with LTG Carl Stiner and the XVIII Airborne Corps staff, the author briefed him in detail on the status of in-country Army Aviation forces and issues requiring attention.

Army aviation training is complex and its many nuances often confuse more than educate. To avoid this confusion when briefing aviator status, the term "COMBAT CREWS" was developed to explain aviation NVG crew status. By definition, a Combat Crew is assigned to a Flight Activity Category 1 (FAC 1) position, has achieved Aviator Readiness Level 1 (ARL1) training status, and is NVG proficient. The COMBAT CREW terminology was accepted. Everyone understood that the number of combat crews represented the maximum number that could fly safely at night under NVGs.

This designation simplified a complex issue and was used for aviation capability reporting for the remainder of Operation JUST CAUSE.

During the first planning meeting with LTC Stiner, the author requested the following additional resources to enhance the capability to sustain extended 24-hour a day combat operations: five complete CH-47 crews (pilot, copilot, crewchief, and flight engineer), five UH-1 crews (pilot/copilot), three UH-60 Medevac crews (pilot, copilot, and medic) and ten UH-60 doorgunners. Additionally, aircraft repair parts and secure radio equipment were also requested. COL Robert Seigle, Commander, XVIII Airborne Corps Aviation Brigade, immediately identified CH-47 crews from the 2d Battalion, 159th Avn, located at FT Bragg and Hunter Army Airfield. The pilots had not been flying for several weeks due to the CH-47D grounding. In fact, one of the augmentee pilots had not flown since he departed Panama and the 1-228th Aviation in May as a result of BLADE JEWEL. To regain currency, the augmentee crews conducted a quick re-familiarization in the CH-47C model aircraft immediately prior to deployment with the Army Reserve Chinook company in Olathe, Kansas. The detachment, under the command of CPT Kurt Fedors, arrived in Panama on 7 November and immediately began integration into C/1-228 Avn aircrew training program. The C Company "Sugarbears" had only been activated three weeks earlier (15 October); it was critically short of office and maintenance space, and personnel. Authorized company strength was 125

personnel, but only 55 were assigned; so the augmentation personnel were essential to conducting sustained combat operations.

A/1-228 AVN had crew chiefs and other maintenance personnel trained as door gunners. However, not enough were available to provide two per aircraft on large air assaults, day after day without adversely impacting the aircraft maintenance status. The 82d Airborne Division learned in Grenada (Operation *URGENT FURY*) that "trained and experienced" doorgunners are absolutely essential. Since that operation, additional personnel have been routinely assigned to the UH-60 companies to serve as doorgunners. Doorgunners from the 82nd Airborne Division arrived on 10 November with TDY orders indicating assignment to the Jungle Operations Training Battalion to serve as OPFOR. Due to operational security (OPSEC), they were not informed at Ft Bragg what their real mission would be in Panama. This created a problem upon arrival, because they thought they had been "kidnapped" by 1-228 Avn.

Even though UH-1 and UH-60 Medevac "augmentation" crews were requested in October, they were not sent until 20 and 23 December respectively. This prevented meaningful training and orientation, so the pilots were paired with 1-228 Avn pilots for employment.²⁴

Task Force WOLF

During the first JTF SOUTH coordination meeting, Gen Stiner briefed his strategic intent: He would use M551 Sheridan tanks and AH-64 Apaches to provide additional "surgical" firepower. During the second meeting he briefed that JCS had approved the pre-positioning of the Apaches and Sheridans. 1-228 Avn accepted this as notice to be prepared to host and house the Apache unit. That task was made easier when Gen Stiner and MG Johnson, Commander, 82d Airborne Division, personally coordinated the use of Hangar 1 at Howard AFB with the Air Force. The plan was to keep the Apaches in the hangar and to fly them only at night to remain as covert as possible. Additionally, members of the unit removed the 82d Abn patches from their uniforms and wore the BDU hat instead of the beret.

Two vacant family quarters at Ft Kobbe were provided for the unit personnel; rental cars were used for their transportation. As part of Operation ELOQUENT BANQUET--B Company (Task Force WOLF), 1st Battalion (AH-64), 82 Aviation, 82d Airborne Division arrived on 15 November with 53 personnel under the command of CPT Stuart Hamilton. Task Force WOLF consisted of 6 AH-64 Apaches and 3 OH-58C Kiowas. Battalion Commander LTC Donald E. Vinson was helpful in convincing the "kidnapped" door gunners that they were in the right place and doing the right thing.

LTC Vinson had received a "warning order" in early October to be prepared to deploy to Panama, and he conducted three covert coordination visits to Panama prior to deployment. His Apache

pilots were also able to use the AH-64 Combat Mission Simulator (CMS) at Ft Bragg to replicate some of the tasks required for the contingency mission.²⁵

TASK FORCE AVIATION

During the first JTF SOUTH coordination meeting, in October, the decision was made to bring the 7th Infantry Division Aviation Brigade Commander (COL Douglas Terrell) and staff on-board as the commander and staff, Task Force AVIATION. This was a badly needed move, since the aviation battalions in Panama had insufficient personnel and equipment to establish a brigade headquarters. The additional knowledge, experience, and help was essential as preparation for combat continued. Several key members of the Aviation Brigade staff were covertly deployed to Panama to assist in developing the aviation plan. MAJ Jim Kelly, Task Force Aviation S3, made several trips from FT Ord to FT Bragg to Panama to coordinate the aviation plan with various ground commanders. MAJ Tom Schatte, the S4, played a key role in coordinating aviation combat service support, especially the effort to establish two Fuel System Supply Points (FSSP) with 350 GPM (gallons per minute) capacity pumps. One FSSP (20,000 gal capacity) was established at Vernado Drop Zone just to the west of Howard AFB. The second FSSP (20,000 gal capacity) was established at the Range 16 complex on the west side of the canal and to the north of Howard AFB. COL Terrell and his staff were augmented by newly arriving personnel for the future activating

128th Aviation Brigade. The TF AVIATION signal officer coordinated acquisition of equipment and established a fully functional TOC with secure communications in the 128th Brigade (Provisional) Headquarters building. The Assistant S3, CPT Kevin Gibbons, coordinated a detailed Army Airspace Command and Control (A2C2) plan, incorporating the existing air route structure in Panama. The plan was de-conflicted with Special Operations Aviation (TF 160), artillery, and the Air Force. Final coordination took place during a conference in late November, at Bergstrom AFB (Headquarters, 12th Air Force, SOUTHCOM's Air Force component). This yeoman's effort produced the final plan.

The 4th Battalion, 228th Aviation was scheduled to activate in Honduras in January 1990. This unit was to be assigned to the newly forming aviation brigade in Panama, and as a result, there were a number of personnel in Panama in-processing and awaiting movement to Honduras. These personnel played a critical role in supporting aviation combat operations. For example, the mechanics were incorporated into aircraft maintenance teams supporting B Company, 228th Aviation; and LTC David Pickett, the battalion commander designee, even flew a UH-60 in the H-hour and D-day assaults and during follow on operations. These personnel truly earned the 4-228 Aviation motto "Born Under Fire."²⁶

CARTEL BOMB THREATS

In late November, a report surfaced that Noriega and the Colombian Drug Cartels were planning to use car bombs to attack

American facilities in Panama. XVIII Airborne Corps commanders and staff were in Panama for a planning conference at this time, and Gen Thurman directed the activation of JTF SOUTH with the responsibility for all defensive measures. Security was increased at all posts, and 1-228 Avn was directed to be prepared to air assault an infantry company in 30 minutes.

B Company, 5th Bn, 87th Infantry was detached and placed under the direct command of TF BAYONET (CDR, 193d Infantry Bde, COL Mike Snell). The aircraft for the contingency were repositioned to FT Clayton, their crews armed and ready. The crews were billeted in B Company's Day Room. Rehearsals were flown on occasion, including test firing of doorguns. After several days, just prior to Thanksgiving, the Cartel bombs were removed from Panama ending the threat. We walked "the fine line between peace and war" for months. It was tough on the crews and families, but they were all professionals, real heroes.²⁷

UH-60 SAFETY OF FLIGHT MESSAGES

Maintaining aircraft at the end of a long supply chain is difficult, even when everything is going good! But, it was a continuous struggle to meet the DA Maintenance goals when flying 20 hours per aircraft per month. The difficult became impossible when two different UH-60 safety-of-flight messages (89-11 and 89-12) in mid December required an inspection of oil cooler splines. Of 17 UH-60s in A/1-228 Avn, ten required detailed inspections and five oil coolers were found to be unserviceable. Massive

controlled substitution was conducted to get the optimum number of aircraft in a flyable status. Even so, with other maintenance requirements and aircraft in phase maintenance, A Company entered the operation with only 9 operational aircraft. The exact number needed to execute the plan. MG Cisneros, Commander USARSO and JTF PANAMA, requested assistance from Army Material Command, and they responded by sending a C130 to the depots and factories to obtain the needed repair parts. Because of this herculean effort on the part of many people at AMC and AVSCOM, the parts arrived on 20 December 1989!

REHEARSALS

The CONUS based units rehearsed in the States while units in Panama conducted "off-set" rehearsals in similar terrain. Several rehearsals were scheduled, but some were cancelled due to weather and maintenance problems. In Operation JUST CAUSE, Tom Donnolly, et al, reported that

"Most elaborate were the aviation rehearsals. Night after night the helicopters flew. They did not go toward their actual objectives, but flew representative distances and representative legs, allowing the planners to confirm where they should establish forward area refueling points..." ²⁸

Tom Donnolly, et al, also say-

"Of continuing concern was the shortage of highly qualified helicopter pilots and gunners within USARSO units. Stiner's plan relied heavily upon pilots' ability to fly extended and repeated missions using night vision goggles, keeping tight formations in air assaults with helicopter running lights completely blacked out. Because of the Pentagon's stated rotation policies, and the traditionally low priority of SOUTHCOM, there was a severe need for experienced pilots to fly these demanding missions. Pilots and crewmen were gradually being sent to Panama on temporary duty, but the moves were taxing the Army's small pool of senior flight warrant officers." ²⁹

This quote is only partially correct. The five CH-47 crews deployed to Panama in November certainly did not "tax the...pool of senior flight warrant officers." In fact, three of the ten Chinook pilots were lieutenants and captains. All 1-228 Avn UH-60 and UH-1 aircraft flown during H-hour NVG air assaults and D-day operations were flown by the 1-228 Aviation "Winged Warriors", permanently assigned to Panama.

While, individual company commanders were aware of their "piece of the pie," they were not "read in" on the entire operation. Detailed plans were made and reviewed. Commanders and flight leaders wearing civilian clothes and driving POVs and rental cars, conducted LZ reconnaissance, and aerial photos were obtained and carefully studied.

COL Keith Kellogg, Commander, TF ATLANTIC, assigned three complex H-hour air assault missions to the infantry battalion currently attending the Jungle Operations Training Course. During the weeks prior to JUST CAUSE, this included a battalion

from 7th Inf Div, a Marine infantry battalion, and the 3-504 Abn Inf battalion, which arrived in Panama on 10 December. The air assaults were rehearsed with each battalion upon their arrival. The Marine battalion arrived during the Cartel bomb threat and was air moved from Howard AFB to Ft Sherman by CH-47 helicopters due to the urgency of the situation and an "underlap" in forces, since the 7th Inf Div battalion had departed.

The 3-504 Airborne Infantry from FT Bragg, commanded by LTC Lynn Moore, arrived in country on 10 December 1989 to conduct Jungle Training. Air Mission Conferences were held and *SAND FLEA* operations/rehearsals were conducted, beginning on 14 December, with air assaults into the town of Gamboa. In addition to training the crews, the helicopter rehearsals were intended to totally disorient and confuse the PDF with false alarms. Eventually, they would disregard the heightened flying activity.

HOLIDAY LEAVES

USARSO published a liberal leave policy for the Holiday period. USARSO units had been in a "pressure cooker" for two years. Personnel turbulence, restrictive PMLs (personnel movement limitations), departures of families, involuntary extensions, cancelled leaves, high pressure training and operations--all of these circumstances had made extraordinary demands on our personnel. Each commander managed his unit's leave. Even so, despite the percentages of personnel who could be on leave IAW USARSO policy, he had to ensure his unit could

meet combat mission requirements. All of this was difficult since "the train was moving" and personnel desiring to take leave were required to make reservations and purchase airline tickets far in advance. As many people as possible were granted leave or travel to CONUS to re-settle their families as directed under the personnel drawdown. Personnel re-settling families were given 10 days TDY.

Below are key 1-228 Avn personnel on leave, TDY or not assigned on 16 December:

S1	C Co Commander
S2	A Co Operations Officer
S4	A Co Standardization Off
Bn Avn Maint Officer	
B Co Commander	

These were critical shortages, but the Staff NCOs and other temporary fill-ins performed in a superb manner.

THE TRIGGER EVENT

On Friday, 15 December, Noriega declared himself "Maximum Leader" of Panama and that "Panama was in a state of war with the US." He thereby apparently gave his subordinates the green light to harass Americans.

US units had trained hard and long under the most extreme physical and mental conditions. USARSO personnel were glad to get the opportunity to attend the USARSO Christmas formal on Saturday, 16 December, at the Fort Amador Officers Club.

After the meal and during the entertainment, MG Cisneros apologetically and calmly announced that shots had been fired

near the La Comandancia (PDF headquarters) and that a US serviceman had been shot. He asked the soldiers to return to their place of duty and prepare for a CRE. He advised the wives to go home and stay inside. The soldiers went to work. In many cases, they did not return home until the end of December.

AH-64s and OH-58s were immediately launched to provide reconnaissance of the routes into Panama City from Rio Hato and Ft Cimarron. Aircraft were prepared to move the 1-508 Abn Infantry to Fort Amador, and a UH-60 picked up MG Cisneros at Ft Amador, conducted a recon of Panama City, and carried him to Fort Clayton. On Sunday, 17 December, Task Force Aviation was formally activated and assumed operational control of all conventional aviation forces. Plans and execution checklists were reviewed with flight leaders, final details were tended. At 2400 hours, the author was notified by Southern Command to clear out Hangar 3 for use of the Special Forces and TF 160, which were to begin arriving by 0500 18 December. The battalion had been through this same procedure during the 1988 crisis period, 1989 elections, and during the Cartel Bomb Threats. We were aware that the contingency called for 1-228 Avn to give up Hangar 3. However, this further exacerbated the space problem and significantly distracted from performing aircraft maintenance for B and C Companies, 1-228 Avn.

On Monday, 18 December, 1-228 Avn began moving the UH-1s and CH-47s to Ft Sherman. Also the UE-60s were moved to the "Harvest Bare" field across from Kobbe Elementary School in order to

provide parking space on the ramp for arriving Army and Air Force Special Operations Helicopters and preposition 1-228 Aviation aircraft for imminent combat operations.

All the pieces were in place. The 1-228th "Winged Warriors" and other aviation units were ready to accomplish the mission. Intensive aircraft maintenance was on-going around the clock to ensure maximum aircraft available. Finally, Command Sergeant Major Howard and the company First Sergeants were insuring all force protection measures were understood and being properly carried out.

III. OVERVIEW OF OPERATION JUST CAUSE

It was the largest, most sophisticated contingency operation conducted over the longest distances in the history of the U.S. Armed Forces. It succeeded because of tough young soldiers, sailors, airmen, and Marines.²⁹

LTG Carl Stiner
29 December 1989

THE THREAT

PANAMANIAN DEFENSE FORCES³⁰

Ground Forces:

- o 2 Inf Battalions
- o 10 Independent Companies
- o Cavalry Squadron
- o 38 Armored Cars
- o Special Forces

Air Forces:

- o 38 Fixed wing A/C
- o 17 Helicopters
- o Air Defense weapons
to include ZPU-4s

Navy:

- o 12 vessels
- o Naval Inf Company

Paramilitary:

- o Dignity Battalions
 - o Other leftist units
-

D-Day 20 December 1989

The President gave the "go ahead" to begin military operations on Sunday, 17 December 1989. D-Day was set for Wednesday, 20 December, with H-Hour at 0100.

COL Terrell, Commander Task Force AVIATION, briefed aviation commanders on the final plan, 1800 hours on 19 Dec, in the 1-228 Avn Conference Room at Fort Kobbe.³¹ Some of the critical items on his agenda were:

- o Company Commanders brief members of units at 2100 on the operation.
- o During the air assaults, do nothing different. If shot at, concentrate on maintaining formation with aircraft in front.
- o Crew rest is an absolute requirement. Watch mechanics to ensure they get rest also.
- o Fly the same as training--only difference will be aircraft being shot at. Need to address fact with crews that people will be shot, aircraft will go down.
- o Rules of Engagement (ROE): Crews must study them and know them cold. When in doubt about firing-DON'T. Use minimum force--shoot to disable. Protect aircraft and soldiers.
- o Ensure glint tape on all aircraft and on sleeves of uniforms. White poster paper in windows of all UH-1s and OH-58 to identify as friendly.³²
- o When all is said and done, our conduct will determine whether we are successful or not.
- o Maintain 100% accountability of all soldiers.
- o Will experience the thrill of leadership of soldiers in combat.
- o Just because we're shot at, safety does not go out the window. An accident is an accident.

Task Force AVIATION was ready!!!

JTF SOUTH MISSION AND TASK ORGANIZATION

JTF SOUTH MISSION

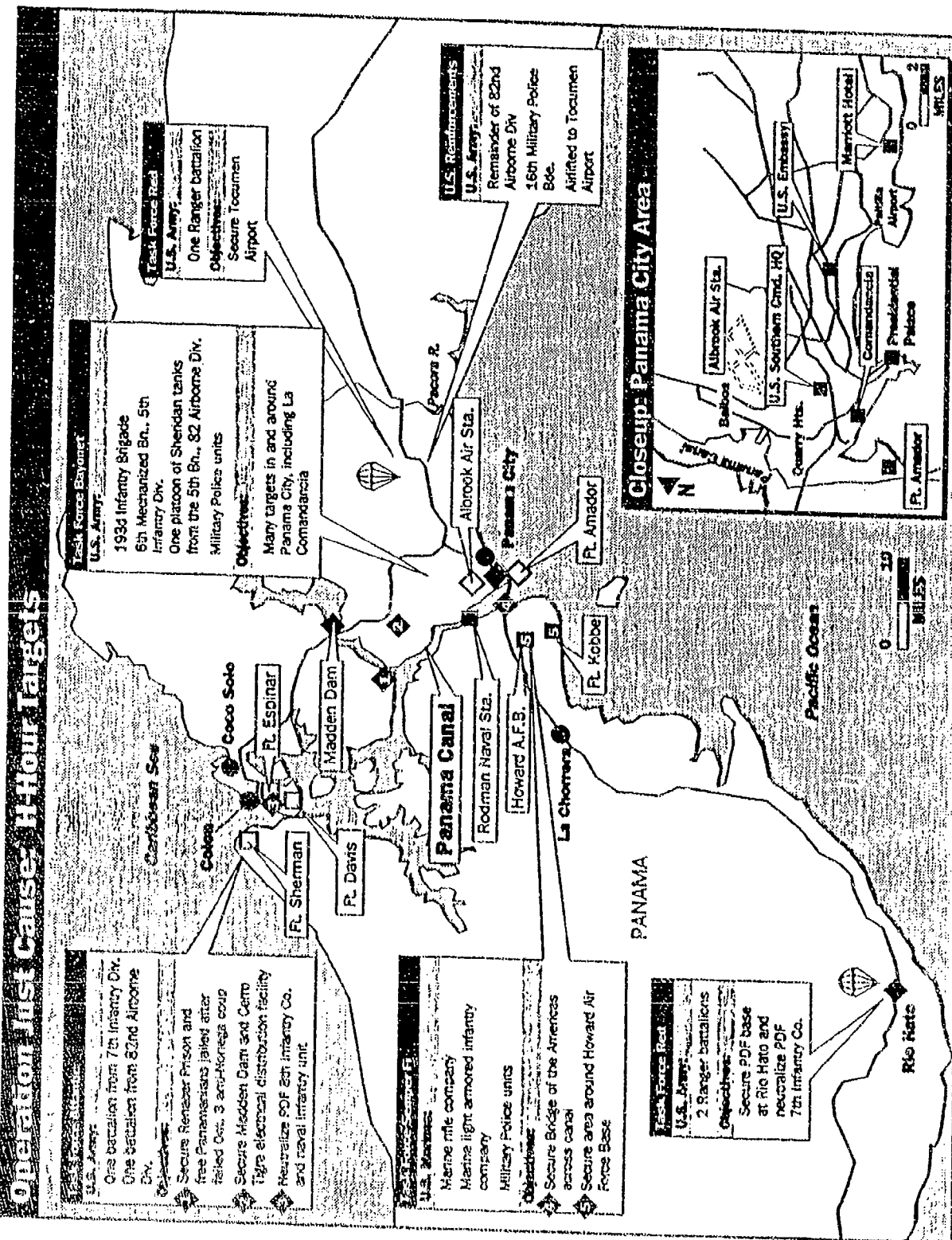
When directed, XVIII ABN CORPS, as JTF SOUTH, conducts operations in the JOA to protect U.S. lives, secure key sites/facilities, and neutralize PDF; prepare to restore law and order, and support installation of a U.S. recognized government in Panama. On order, redeploys as directed.

To accomplish this mission, LTC Stiner organized JTF SOUTH into 6 Task Forces for the initial assaults to "decapitate" Noriega's PDF leadership. The following is a brief discussion of organization and the primary missions for each Task Force.

Task Force BAYONET

Task Force BAYONET consisted primarily of USARSO's 193d Infantry Brigade, commanded by COL Mike Snell. Also attached to Task Force Bayonet were the 4th Bn, 6th Infantry from 5th Inf Div, Fort Polk, LA; a platoon of Sheridan tanks, 3-73d Armor, 82d Abn Div; and military police units. Task Force Bayonet also had its organic 1-508 Abn Inf and 5-87 Inf.

Primary objectives for Task Force BAYONET were: capture the LA Comandancia (PDF HQs), take down the PDF 5th Company and secure family quarters at Ft Amador, take down the Balboa DENI station, and provide security for the US Embassy. The 1-508 Abn Inf, commanded by LTC Billy Ray Fitzgerald, conducted an air assault of two rifle companies from Ft Kobbe into FT Amador at H-Hour.



The 5th Bn, 87th Inf, commanded by LTC William Huff, had the mission to secure the DENI police headquarters in Balboa and the PDF police headquarters at Ancon Hill.³³

Task Force ATLANTIC

Task Force ATLANTIC, commanded by COL Keith Kellogg, Commander, 2d Bde, 7th Inf Div; consisted of the 3-504 Abn Inf, 82d Abn Div, commanded by LTC Lynn Moore; 4th Bn, 17th Inf Regt, 7th Inf Div; a field artillery battery, and MP's.

The mission of Task Force ATLANTIC was to secure Colon, Madden Dam, Gamboa, El Renacer Prison, Cerro Tigre, Fort Sherman and Coco Solo. Task Force ATLANTIC had responsibility for the largest area of operations.³⁴

Task Force PACIFIC

Task Force PACIFIC was commanded by MG James Johnson, Commander, 82d Airborne Division, and consisted of 1st Brigade, 82d Abn Div, commanded by COL Jack Nix, and the 9th Regt, 7th Inf Div, commanded by COL David Hale.

The 82d Airborne airdropped on Torrijos/Tocumen Airfields and then conducted combat air assaults to secure Panama Viejo, Fort Cimarron, Tinajitas, and began pacification of Panama City.³⁵

Task Force SEMPER FIDELIS

Task Force SEMPER FIDELIS, commanded by COL Charles Richardson, consisted of Marine Forces Panama (Marine rifle

company and Marine light armored infantry company); USARSO's 536th Combat Heavy Engineer Battalion (LTC Peter Topp), and MPs.

The mission of TF SEMPER FIDELIS was to secure the Bridge of the Americas, secure the area around Howard Air Force Base, and block movement along the Inter-American Highway from the west.³⁶

Task Force RED

Task Force Red (75th Ranger Regiment), commanded by COL William "Buck" Kernan, conducted simultaneous H-hour parachute assaults on Rio Hato airfield and Torrijos/Tocumen Airport. The assault at Rio Hato was conducted by elements of the 2d Ranger Battalion, commanded by LTC Alan Maestas; and the 3rd Ranger Battalion, commanded by LTC Joseph Hunter, with elements of the 4th Psychological Operations Group, 1st Special Operations Wing, 160th Special Operations Aviation Regiment, 1-82 Avn Apaches, and F-117s. The assault on Torrijos/Tocumen Airfields was conducted by the 1st Ranger Battalion, commanded by LTC Robert Wagner, with elements from 4th Psychological Operations Group, 96 Civil Affairs Battalion, 1st Special Operations Wing, a 160th Special Operations Aviation Regiment.³⁷

Task Force BLACK

Task Force BLACK, commanded by COL Jake Jacobelly, commander Special Operations Command-SOUTH (SOC SOUTH), consisted of the 3d Battalion, 7th Special Forces, and elements from 4th Psychological Operations Group, 1st Special Operations Wing, 617th Special Operations Aviation Detachment, and aircraft from 1st Battalion, 228th AVN. TF BLACK conducted reconnaissance and

surveillance missions at Tinajitas, Fort Cimarron, and TV-2 (Cerro Azul), and secured the Pacora River Bridge, thereby preventing the PDF's Battalion 2000, stationed at Fort Cimarron, from reinforcing PDF facilities in Panama City.³⁸

Task Force GREEN

Task Force Green, commanded by MG Wayne Downing, consisted of Special Mission Units and elements from 4th Psychological Operations Group, 1st Special Operations Wing, and 160th Special Operations Aviation Regiment. TF GREEN conducted numerous special surgical operations critical to the success of JUST CAUSE. It had operational control of Task Force GATOR(4-6 Mechanized Infantry) for the H-hour attack on La Comandancia. TF GREEN also was assigned the risky mission to rescue American Kurt Muse from the Carcel Modelo prison.³⁹

COMMANDER'S GUIDANCE

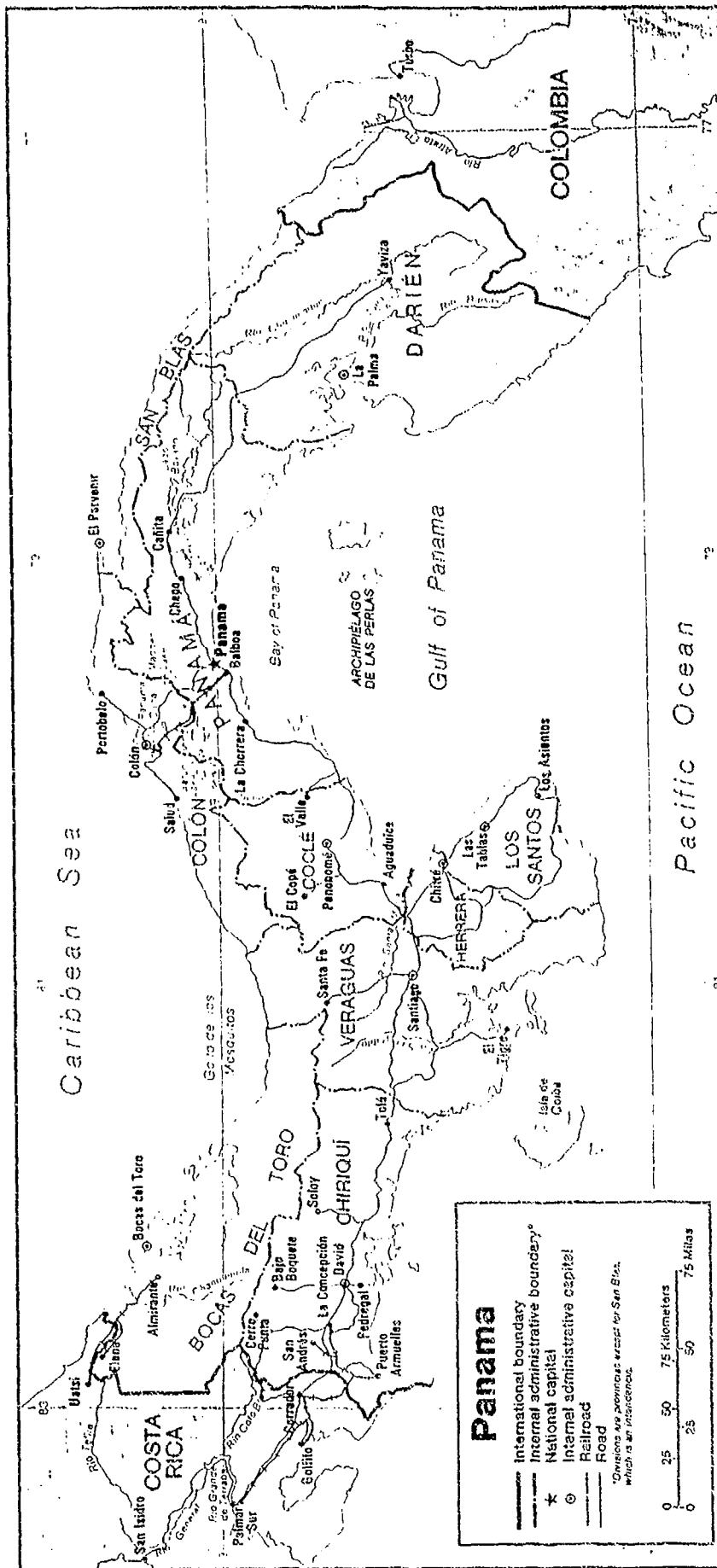
Commander's Guidance for Panama Campaign Planning provided to all TF Commanders was:⁴⁰

- o Conduct night operations.
- o Make a swift entry.
- o Strike 27 targets simultaneously.
- o Decapitate Noriega and PDF.
- o Observe RULES OF ENGAGEMENT: Minimum casualties and minimum collateral damage consistent with safeguarding American lives.

This guidance was key to the successes of D-day and afterwards. On D+1 the Panama Canal reopened for daylight operations and Task Force Bayonet began civil-military operations

in Panama City as the refugee situation became critical. At the same time, the Marriott Hotel, where hostages were being held, was secured. On D+2 the Panamanian Police Force was established, and all Army units now focused on civil-military operations in support of the democratic goals of Operation *PROMOTE LIBERTY*. Task Force Red negotiated the peaceful surrender of Penonome Prison, and operations began in western Panama to effect the surrender of remaining PDF units. By D+4, as combined U.S./Panamanian patrols began, Noriega sought sanctuary in the Vatican embassy. On D+14 he surrendered to U.S. forces.

Stabilization operations were conducted for the next several weeks in the outlying areas of Western and Eastern Panama to assist the new government to "stand up" and support the local governments and population in the restoration of normal operations.



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IV. AVIATION COMBAT OPERATIONS

...in Operation JUST CAUSE, we witnessed some of the most daring and gallant flying since soldiers first took to the air. ⁴¹

General Carl E. Vuono
Chief of Staff
United States Army

Task Force AVIATION Combat Operations

Task Force Aviation was the controlling headquarters for all conventional aviation. A detailed aviation operations order was written to supplement JTF SOUTH's OPLAN 90-2.

TF AVIATION MISSION

Deploy and conduct defensive combat operations to protect US lives and property, secure key Panama Canal sites and facilities, and on order, conduct offensive combat operations to neutralize the PDF and support installation of a US recognized government in Panama.⁴²

H-HOUR COMBAT OPERATIONS - 20 December 1989

The critical consideration for Task Force Aviation on conducting the H-hour missions was the number of NVG proficient crews (Combat Crews). All air assaults were conducted in a "seats out" configuration. Aircraft limits (ACL) were: UH-60 20 pax, UH-1 11 pax, and CH-47 50 pax. Aircraft were flown under "blackout" lighting conditions.

Elements of Task Force AVIATION conducted four simultaneous night vision goggle air assaults at H-hour to initiate Operation JUST CAUSE and help "break the back" of the PDF. These air assaults and the follow-on aviation operations will be described in the following pages.

TABLE 2

**TASK FORCE AVIATION
D-DAY TASK ORGANIZATION ⁴³**

--Task Force HAWK

o A/3-123 AVN (Aslt Co)	15 UH-60
o B/1-123(-)AVN (Attack Co)	5 AH-1E 3 OH-58C
o A/1-228 AVN (Aslt Co) (*E Co, 228 Avn UH-60 attached)	18 UH-60*

--Task Force 1-228 Aviation

o B/1-228 AVN (CAC)	15 UH-1* 8 OH-58A 3 C-12
o C/1-228 AVN (Medium Lift)	9 CH-47C*
o TM/B/1-123 AVN (Atk Team)	2 AH-1E 1 OH-58C
o 214th Medical Det	5 UH-60 Med

--Team WOLF

o B/1-82 AVN (Apache)	6 AH-64 3 OH-58C
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*ORF attached

1-508 ABN INF AIR ASSAULT

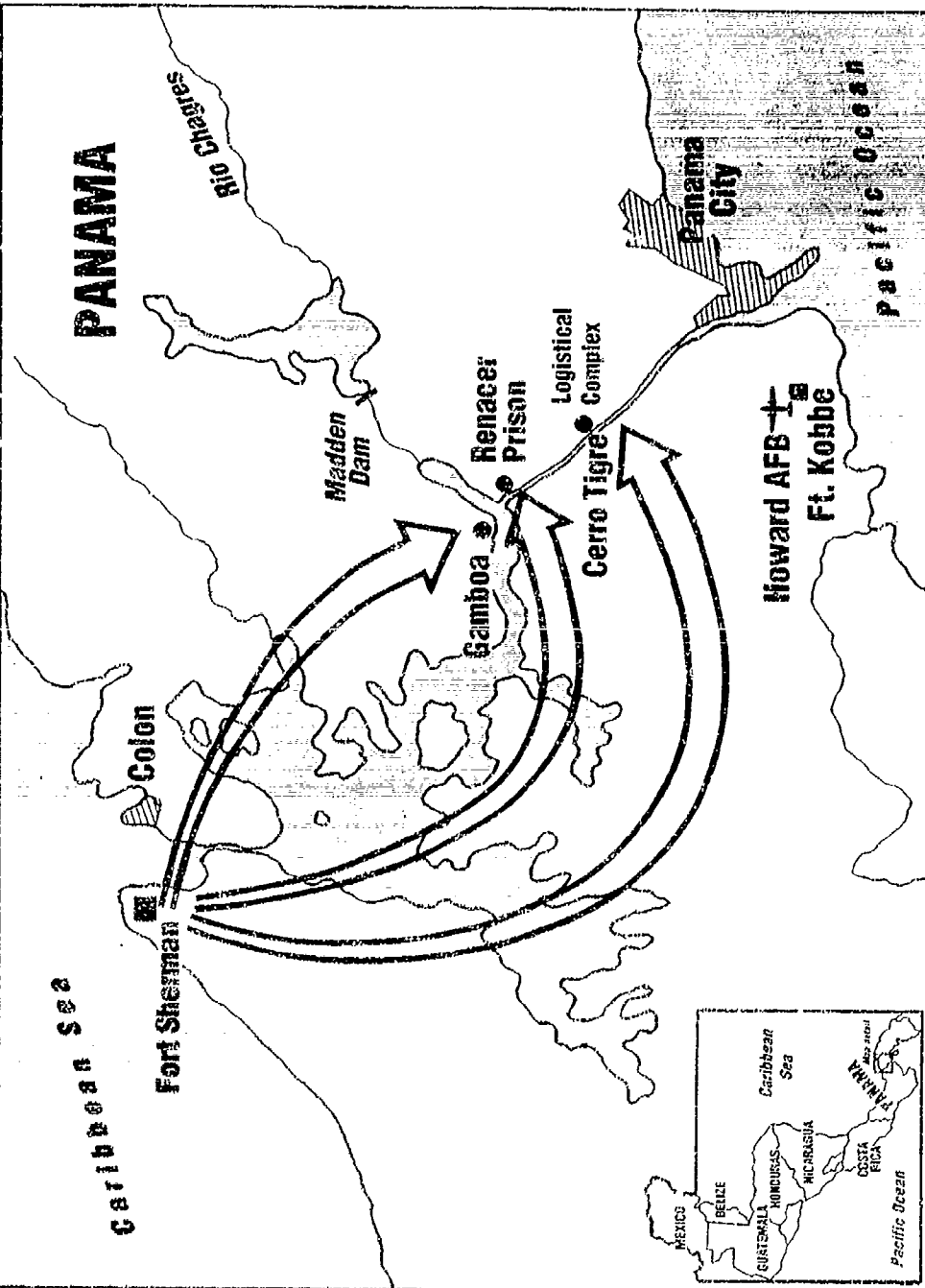
TF HAWK, commanded by LTC Howard Borum, augmented with A Company Talons (1-228 Avn), commanded by CPT Bradley J. Mason, supported TF BAYONET's air assault of A and B Co's, 1-508 Abn

Inf, from Fort Kobbe into Ft Amador.⁴⁴ This assault was conducted with 14 UH-60s making one turn, and seven aircraft making a second turn with sling loads of M102 howitzers and HUMMVs. Air assault security was provided with three AH-1 Cobras. For the first time in U.S. history, female pilots flew combat missions during this assault: Two Task Force HAWK UH-60 Blackhawk helicopters were flown by CW2 Debra Mann and 1LT Lisa Kutschera.

The soldiers loaded the aircraft at Fort Kobbe in the "Corral" and "Harvest Bare" aircraft parking areas. The LZ was the 8th fairway of the Ft Amador Golf Course, which is a large depression in front of the US "Colonels Row" family quarters. This was only about 800 meters from the Comandancia which was under attack by the infantry and AC 130 gunships. It was less than 200 meters to the PDF's 5th Company barracks.

Numerous tracer rounds were directed against the flight elements. Although this ground fire was heavy, it was inaccurate. The PDF gunners obviously could not see the aircraft; they directed fire at sound of aircraft. The UH-60s took no hits during this mission. However CPT Alan Jones, the AH-1 Attack company commander, and WO1 Andrew P. Porter were flying an OH-58C that was hit by automatic weapons fire and crashed into the Panama Canal (vic PV 594877) during the sling load lift into the LZ.⁴⁵

TTC Atlantic Air Assaults



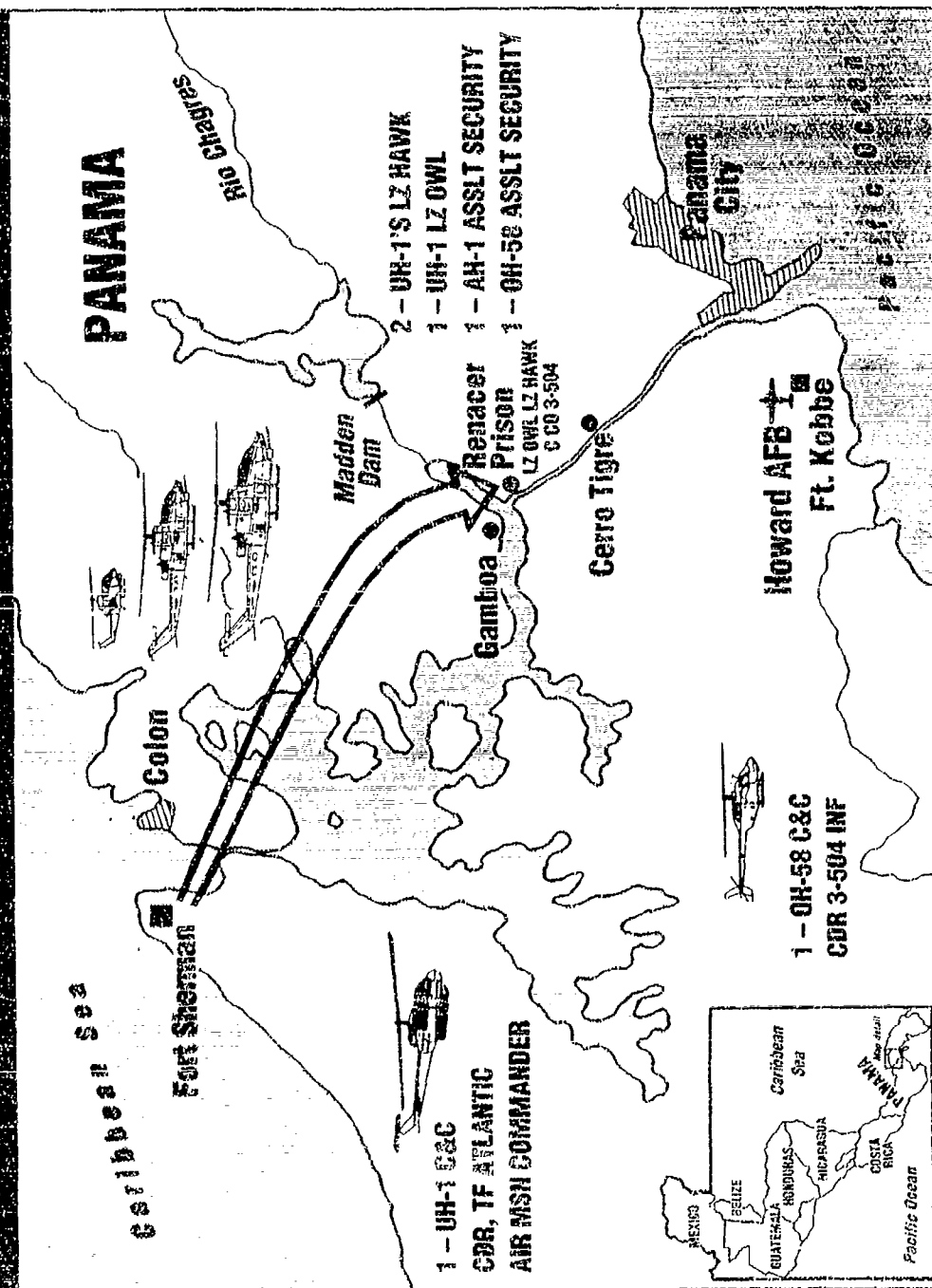
CPT Jones was able to get out of the aircraft and swim to the shore at Ft Amador; however his co-pilot, WO1 Porter, was killed. The OH-58 was not identified as missing until the pilot swam ashore and was rescued by members of the 1-508 Inf.⁴⁶ TF HAWK was notified at 0228 hours.

After completion of the 1-508 lift, The UH-60s flew to the FARP (FSSP) located at Range 16A (also called Empire) to refuel and laager until the 82d Airborne Division elements were in PZ posture at Tocumen Airport.

Task Force ATLANTIC

TF 1-228 Aviation, commanded by the author, with an Attack Team attached from TF Hawk, supported three simultaneous H-hour air assaults with TF ATLANTIC. The author served as the Air Mission Commander and flew in a console-equipped UH-1 with COL Kellogg, the commander of TF ATLANTIC, the S3, Fire Support Officer, and the 1-228 Avn S3 (MAJ Butch Muse). The ground force commander was LTC Lynn Moore, 3-504 Abn Inf, 82d Abn Div, who flew in an OH-58A from B/1-228 Avn, rather than a UH-1, since all crews were scheduled. In fact, the TF ATLANTIC C&C UH-1 was flown without NVGs (unaided) by the HHC commander, 1-228 Avn (CPT Bob Hein) and Major Felix Diaz, the B Company Operations Officer.

Renacer Prison Air Assault (H-Hour)



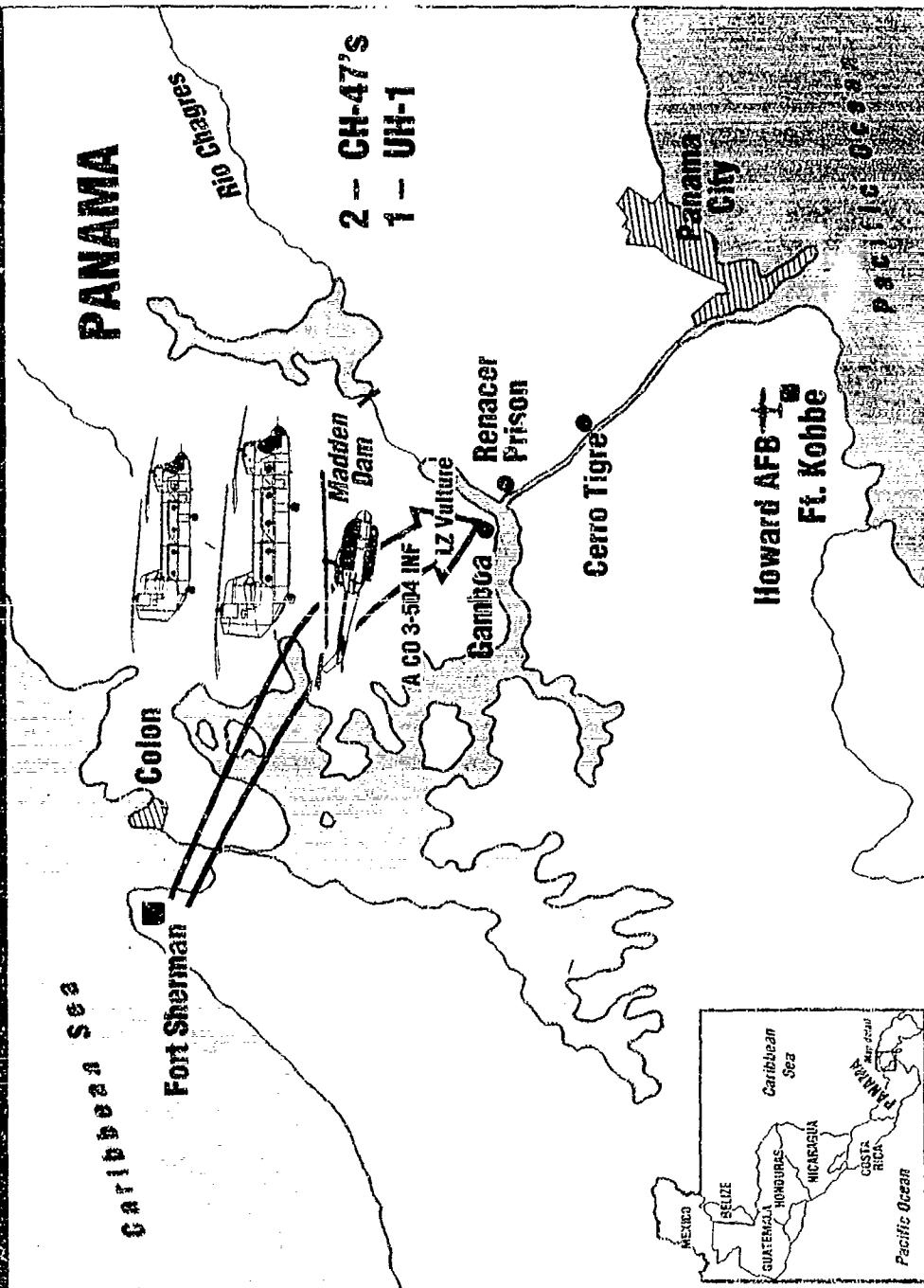
EL RENACER PRISON AIR ASSAULT

Perhaps the most daring air assault of JUST CAUSE was conducted on El Renacer Prison. At this site, many pro-democracy political prisoners, who were victims of Noriega's oppression, and members of the previous coup attempts were imprisoned. The air assault force was C Co(-), 3-504 Abn Inf, and the PZ was the Ft Sherman landing strip. During this assault two UH-1s from B Company (Jokers), 1-228 Avn, landed inside the tight confines of the prison compound (LZ HAWK), a third UH-1 landed just north of the Prison in LZ OWL (Gamboa Boat Ramp parking area). Simultaneously, two platoons were landed by LCM (landing craft) on the canal bank adjacent to the prison.

The assault was supported with 1 OH-58C and 1 AH-1 Cobra from TF HAWK. The Cobra engaged the prison guard barracks building with 20mm cannon and 2.75" rockets as the 2 UH-1s landed in the compound. The landing area was very confined; with prison buildings on three sides, and high tension power lines inhibited flight along the Panama Canal on the fourth side. The ground fire was intense, but the "blacked-out" UH-1s did not take any hits. The Cobra pilots later discovered a hole in a skid shoe.⁴⁷ Although a fire fight continued until daylight, the infantry rescued 64 prisoners unharmed.

Even though there had been several "off set" rehearsals for the lift aircraft, there had been no opportunities to rehearse the H-hour live fire operation with LCMs and Cobra escort.

Gamboa Air Assault (H-Hour)



GAMBOA AIR ASSAULT

The second of three simultaneous H-hour assaults conducted by TF 1-228 was the air assault of A Company, 3-504 Abn Inf into the town of Gamboa. The PZ was the landing strip at Ft Sherman, and LZ VULTURE (McGrath Field) was located near the center of Gamboa in the approximate center of the company's objectives.

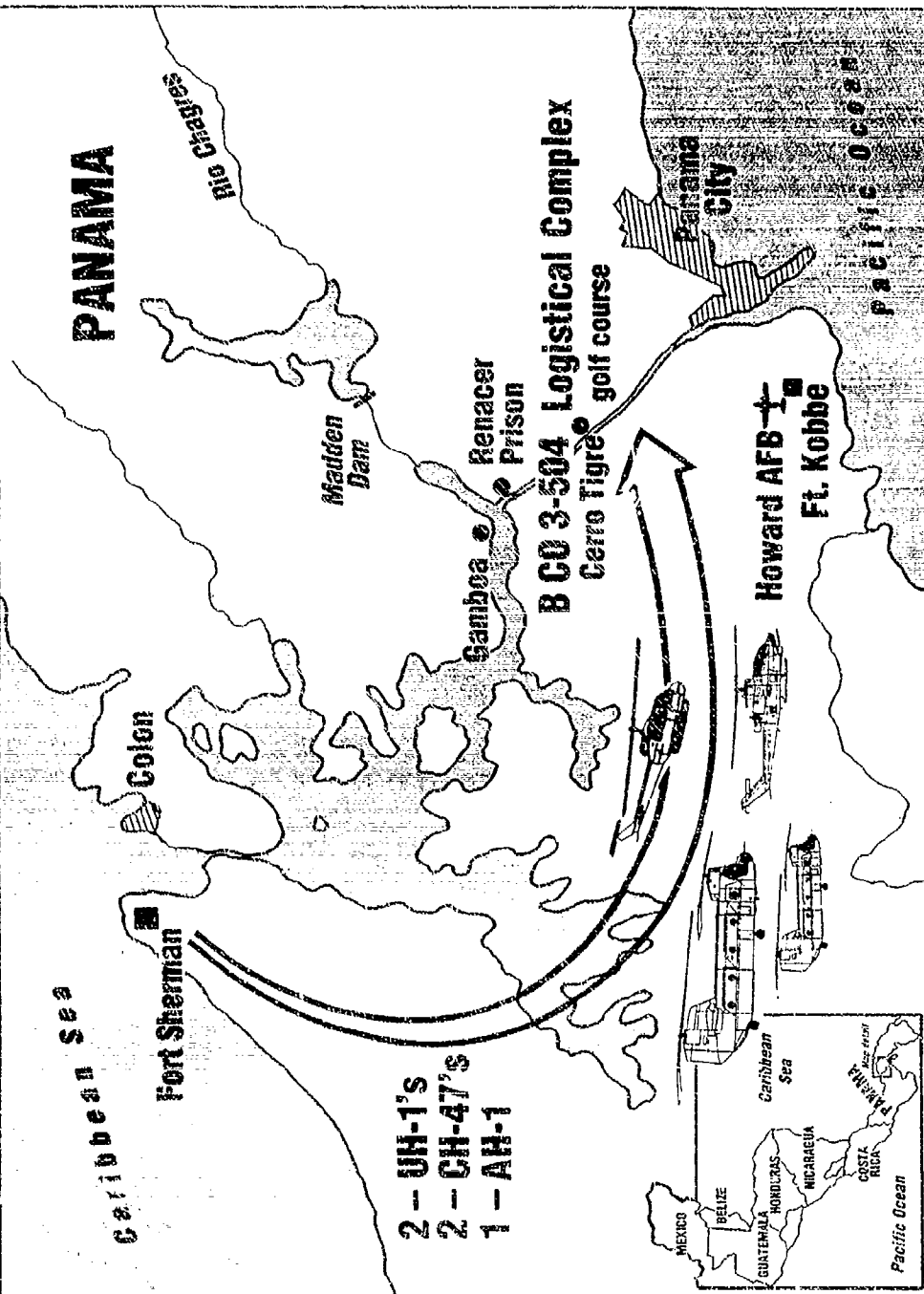
The air assault was conducted in one lift with one UH-1 from B/1-228 Avn and two CH-47s from C Company (Sugarbears) 1-228 Avn. The aircraft came under heavy ground fire when departing the LZ; however none of the "blackened out" aircraft were hit. All aircraft were configured "seats out" with the UH-1s carrying eleven soldiers and the CH-47Cs carrying fifty.

CERRO TIGRE AIR ASSAULT

The third TF 1-228 H-hour assault target was the Cerro Tigre PDF logistical complex. B Co, 3-504 Abn Inf, was air assaulted from Ft Sherman air strip to the golf course just south of the Cerro Tigre complex. The original LZ had been located inside the complex; however, it was changed at the last minute to reduce risk to the air assault task force when we learned that the PDF was aware of the invasion.⁴⁸

This assault was conducted with two UH-1s and two CH-47s, from B and C Companies, 1-228 Avn, supported with an AH-1 Cobra from TF HAWK. After the troops loaded the aircraft at Fort Sherman, the lead CH-47 went down with maintenance problems when the auxiliary power unit failed to start, causing the

Cerro Tigre Air Assault (H-Hour)



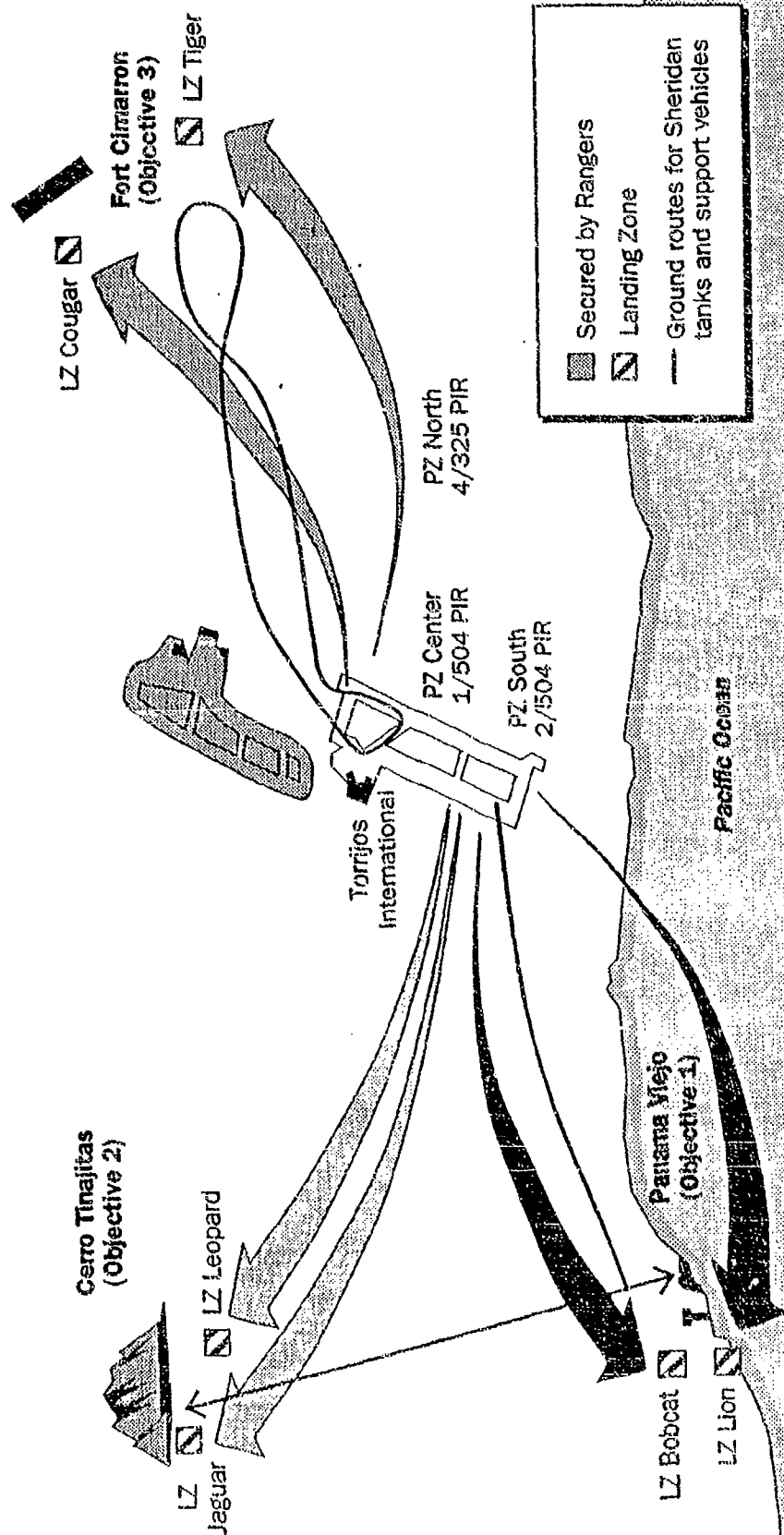
soldiers to move quickly to the "backup" aircraft. En route to the LZ, the weather was marginal with poor visibility caused by low clouds and fog. As a result, the two CH-47s had to detour off-course around the low clouds and arrived at the LZ about 5 minutes after the two UH-1s landed. This loss of synchronization could have been disastrous had the LZ remained inside the complex.⁴⁹ The AH-1 Cobra "prepped" suspected enemy bunkers north of the LZ (vic PV 550012) with 2.75" rockets prior to the assault force landing.⁵⁰ 1LT Clarence E. Biggs III offers an excellent description of the events that occurred at Gamboa, Renacer Prison, and Cerro Tigre, as seen from the soldier's perspective, in OPERATION JUST CAUSE: A Soldier's Eye Witness Account.

D-DAY OPERATIONS - 20 Dec 89

The "Joker" UH-1s supporting the TF ATLANTIC air assaults immediately began conducting emergency medical evacuation missions throughout the Task Force area of responsibility (AOR) for the remainder of the night. Approximately 25 personnel were medevac'd with the UH-1's. The UH-1s used the refuel facility at FT Sherman to reduce congestion at the other fuel sites.

Several Class I/V resupply and other air movement missions were flown during the remainder of the day. Mission coordination was extremely difficult because many missions were sent to aviation units without POCs, units, frequencies, call signs, grid locations, or mission numbers. Several aircraft were sent

82nd Airborne Air Assaults



Joanne Ostendorf and Cristina Rivero

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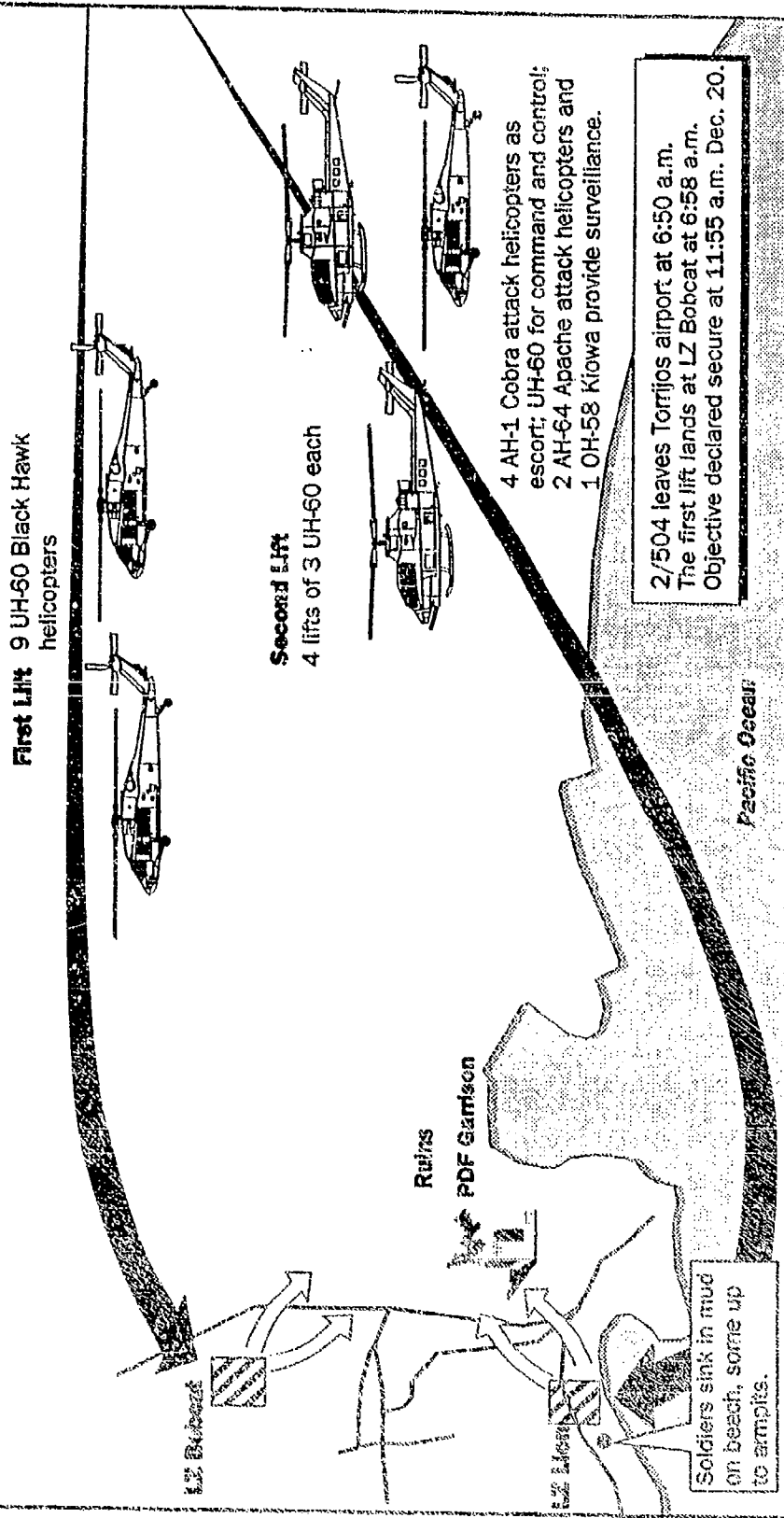
on missions with incomplete information resulting in some being "intercepted" and used by other units for their high priority missions. This problem was corrected by 22 December.

For example, a short fuse mission was assigned to fly the Department of Defense (DoD) Media Pool from Howard AFB to Ft Clayton. The mission requested a UH-1. When the aircraft arrived at Howard Base Operations, there were nearly 30 pax and thousands of pounds of equipment, including a satellite dish and other bulky media equipment. Obviously, the UH-1 could not perform the mission, despite the specific request for one. It took some time to get a Chinook crew briefed and aircraft moved to the Base Ops ramp. The Media Pool was not happy about the delay; however, the Chinook was seen by millions on TV in the States as it flew the Pool reporters to the different areas of interest.⁵¹

TASK FORCE PACIFIC (82d AIRBORNE DIV) AIR ASSAULTS ⁵²

Upon completion of the 1-508 Abn Inf (TF BAYONET) air assault into Fort Amador, the plan called for Task Force HAWK and A/1-228 to refuel and laager at Range 16A until the 1st Brigade, 82d Abn Div, jumped and assembled in PZ posture. The Rangers (TF RED) were scheduled to jump at Torrijos/Tocumen at 0100. The 1st Brigade, 82d Abn Div (TF PACIFIC), was to jump at 0145; planning allowed them 45 minutes to get into PZ posture. However, the 82d was delayed in taking off in North Carolina as a result of a major winter storm which "iced" the C-141 aircraft. Finally, the 1st Bde Task Force, consisting of the 1st and 2d Battalions of

Air Assault at Panama Viejo



Joanne Ostendorf and Cristina Rivero

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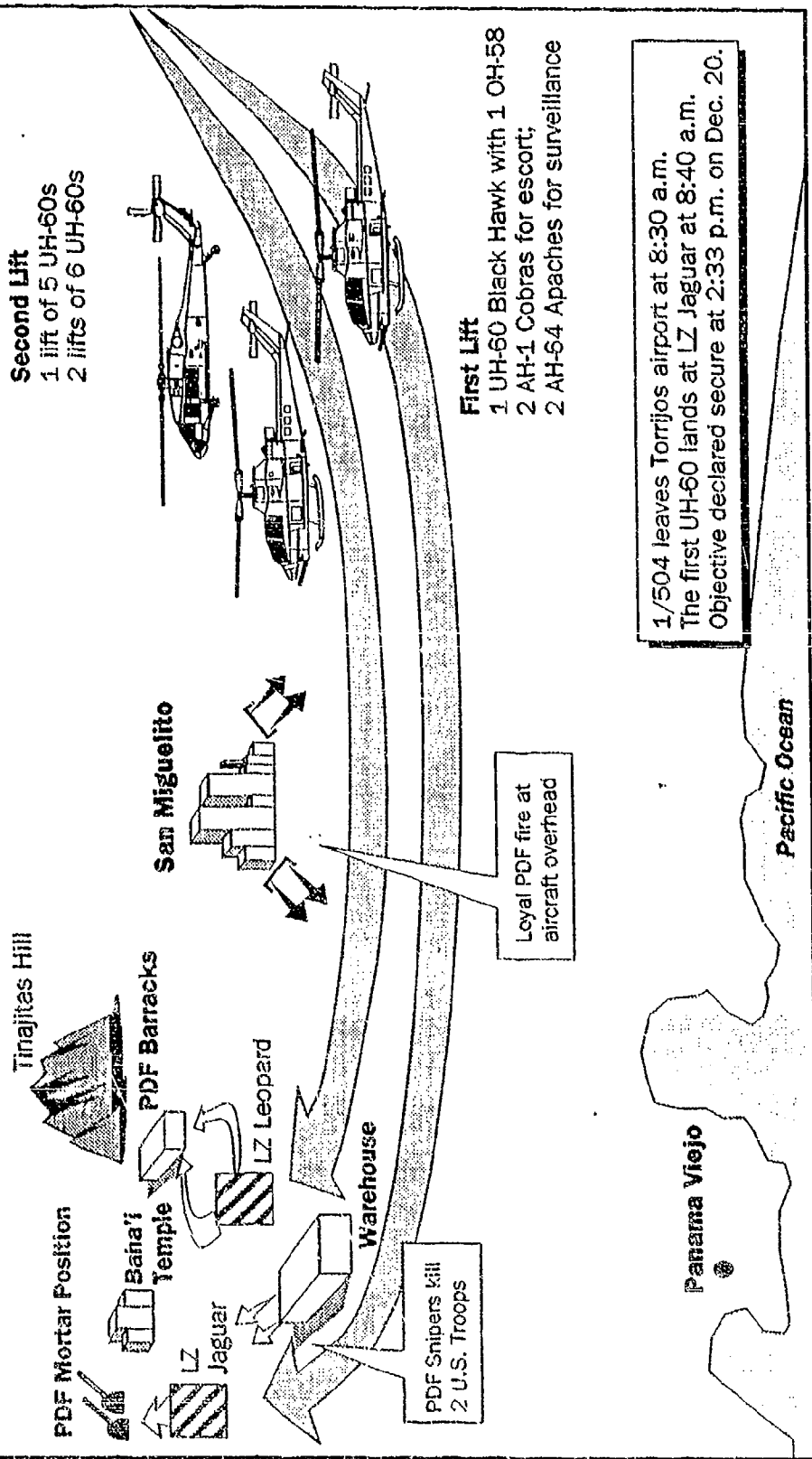
the 504th Parachute Infantry Regiment, and the 4th Battalion, 325 Parachute Infantry Regiment, made their parachute assault just prior to daylight on the morning of 20 December. It was nearly daylight when the UH-60s were called forward to the PZ at Tocumen, and the PZ was then covered with parachutes, so helicopter operations in the PZ were very hazardous.

AIR ASSAULT PANAMA VIEJO: 2-504 ABN INF

The first air assault for Task Force Pacific carried 2-504 Abn Inf into the area of Panama Viejo, near the ancient ruins of old Panama City. The PDF Barracks were estimated to house about 250 soldiers, including 70 UESAT (special forces) and 180 from the 1st Cavalry Squadron. Two LZs were used for the operation-- LZ BOBCAT 220 meters to the north of the barracks, and LZ LION along the coast just south of the barracks.

Eighteen UH-60 Blackhawks from Task Force HAWK and A(Talons)/1-228 Avn were used for the assault, with escort by four AH-1 Cobras and two AH-64 Apaches from Team Wolf. One of the Talon Cinc Hawks was used by COL Jack Nix as a C&C aircraft. It was flown by CW3 Jose Prieto and LTC Howard Borum, the air mission commander. The assault consisted of two flights of nine UH-60s each. Flight 1 was Shadow Flight (TF HAWK) and Flight 2 was Talon, supplemented with two Shadow UH-60s. The Talon flight departed the laager area at approximately 0610 and flew to the PZ at Torrijos International Airport. The assault commenced at

Air Assault at Tinajitas



Joanne Ostendorf and Cristina Rivero

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approximately 0650 hours. Talon Flight departed first for LZ Lion. The final approach to this LZ was seen by millions on CNN as the aircraft came in over the Bay of Panama and dropped some paratroopers off into what turned out to be treacherous mud flats. No hostile fire was encountered during the approach; however some small arms fire was reported from Panama Viejo as the aircraft departed. The doorgunners did not return fire, since hundreds of civilian spectators gathered around the site.

Some aircraft hovered over the paratroopers stranded in the mud to allow them to grab the wheels of the UH-60s to be pulled free. Additionally, some Panamanian civilians formed a human chain to aid others in getting out of the mud. The other flight (Shadow) went into LZ BOBCAT, overgrown with 8 foot high elephant grass. On departure, chinks 5 and 9 took heavy ground fire from small arms. One of these was flown by a female pilot.

All aircraft returned to the PZ. Two aircraft that received hits were taken out of action. One was hit in the intermediate tail rotor gearbox. The other was hit in the air starter system, so it would not crank for the 2d air assault.

AIR ASSAULT AT TINAJITAS: 1-504 Abn Inf

The second air assault for Task Force Pacific lifted the 1-504 Abn Inf into LZ LEOPARD near the PDF Barracks on Tinajitas Hill. The LZ was in a sloping ravine, crossed with electrical cables and poles, at the base of the hill about 750 meters from the barracks. This turned out to be the "hottest" LZ of the entire JUST CAUSE operation. Tinajitas was occupied by the PDF's

1st Infantry (TIGER) Company, and intelligence had reported the garrison was defended with 81mm and 120mm mortars. To make matters worse, the PDF on the hill could see the aircraft coming while they were miles away. LZ LEOPARD was large enough for only six UH-60s. One UH-60 took a mortar squad into LZ JAGUAR, located on the hill to the west near the Baha'i Temple, to support the attack on Tinajitas and prohibit the PDF from using the temple area high ground to fire mortars on Howard AFB.

Preparatory fires were ruled out because of the site's close proximity to civilians and the likelihood of collateral damage. On this issue, Tom Donnelly quoted MG Johnson, commander of the 82d Airborne Division and TF PACIFIC: "We put our soldiers at risk in order to minimize casualties and damage to the Panamanian people and their country."³

The assault departed the PZ at Torrijos Airport at 0815. A flight of six Shadow aircraft departed, followed by a second flight of three aircraft. Talon flight deployed six aircraft into LZ LEOPARD, and one aircraft took a squad into LZ JAGUAR. The assault was escorted by 3 AH-1s, two with the first Shadow flight of six aircraft and one with the flight of three. Heavy and accurate ground fire erupted in the vicinity of Tinajitas. The flights maintained strict flight and fire discipline. Many of the PDF soldiers were now in the shanty housing areas and standing among women and children. Scrupulously observing the rules of engagement, the Cobras and doorgunners held their fire when they did not have clear targets to shoot at. The lift

aircraft landed under heavy fire and dropped off the paratroopers.

CPT Tom Muir, A(Shadow)/3-123 Avn, Company commander and flight leader, was grazed by a round on the head, and one of the doorgunners from Shadow flight was hit in the arm. Three infantrymen in one aircraft were hit so seriously they were unable to get off the aircraft in the LZ and returned to the PZ. This provided quite an emotional shock to the paratroops waiting for the second lift in the PZ. There was no doubt this was not a training exercise!

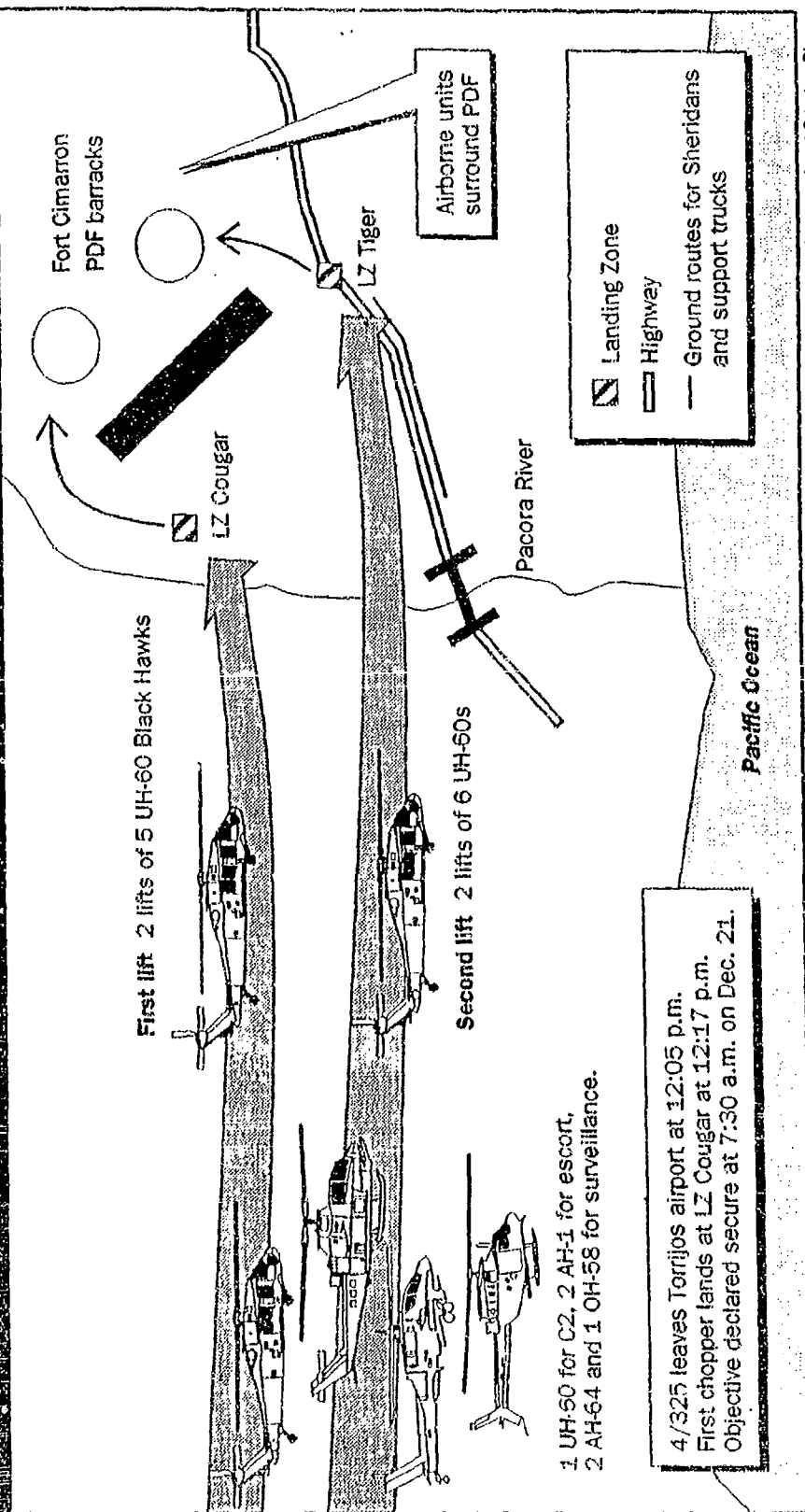
The mission required a second lift into the PZ; it was extremely hot the second time in. The second lift was made with one less UH-60, since CPT Muir's co-pilot flew him to Howard AFB for medical attention. During the second lift, virtually every aircraft was hit 8-18 times. Even so, these same crews now had to conduct a battalion air assault into FT Cimarron.⁵⁴

FORT CIMARRON AIR ASSAULT: 4-325 ABN INF

The last D-day battalion air assault for Task Force PACIFIC flew the 4th Battalion, 325 Abn Inf, from the Torrijos Airport PZ to Ft Cimarron, several miles to the north east. Ft Cimarron was the home to the highly trained and well equipped Battalion 2000. They were equipped with V-300 armored cars and were known to have ZPU-4 ADA weapons.

This mission was flown with 11 UH-60s, which made two turns each. Five aircraft used LZ COUGAR to the west, and six aircraft went into LZ TIGER along the highway to the south of Ft Cimarron.

Air Assault at Fort Cimarron



Joanne Ostendorf and Cristina Rivero

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They met with very little enemy resistance, since the aircraft landed out of direct fire range from the barracks area. The Fort Cimmaron battalion-size air assault was the last of four conducted by the same aircraft and crews in just over twelve hours. The first was the NVG H-hour assault into Ft Amador. In many hours of flying under the most difficult and demanding conditions, flight discipline had been strictly maintained. We experienced no recurrences like the Calivigny Barracks air assault during Grenada's URGENT FURY, during which three UH-60 aircraft flew into one another.⁵⁵

On 20 December 1989, Army aviation proved the combat safety of night vision goggles. No assault aircraft were hit during night operations. But the story was different during daylight hours. No one should question the safety of night vision goggles again: They work!! They contribute greatly to the tactical advantages of surprise, cover, and concealment.

TEAM WOLF APACHE MISSIONS

H-Hour Missions. Team WOLF was chopped to the Joint Special Operations Task Force (JSOTF) for the initial H-hour Ranger parachute assault at Rio Hato. They were successful in neutralizing ZPU-4 air defense weapons at RIO HATO with the 30mm Area Weapons System (AWS). The stand-off weapons capability and the infrared night sights on the Apache made it the weapon of choice during the hours of darkness. The infrared night sights

on the Apache provided a key reconnaissance and surveillance system during the hours of darkness.

D-Day Missions. Apaches sought to locate and destroy mortar positions that were firing on Ft Clayton, but they were unable to locate the positions. An Attack Team was sent to Panama Viejo to provide overwatch for the impending air assault of the 2-504 Abn Inf and to provide support for the remainder of the day.

An Attack Team of one OH-58C and two AH-64s launched at 0620 hours to provide overwatch of the Tinajitas objectives. All three aircraft took hits from enemy small arms fired from built-up areas as the helicopters repositioned to support the 1-504 air assault. The team was relieved on station by a second Attack Team. The second team located 11 enemy personnel with automatic weapons. The enemy soldiers were engaged and killed with 30mm AWS at a distance of 2833 meters (Laser range).

Other attack missions were carried out at the Commandancia and Panama Viejo. The team destroyed several 2 1/2 ton trucks and two V-300 armored cars with 30mm and rockets and hellfire missiles respectively. Five hellfire missiles were fired into buildings while supporting the attack on the Comandancia.

Task Force Wolf Operations after D-DAY. Additional attack (5 AH-64s) and recon assets (B Troop, 1-17 Cavalry) were deployed from Ft Bragg on 21 and 23 December, bringing TF WOLF to a total of 11 AH-64s, 4 AH-1E Cobras, and 5 OH-58C Scouts.

TF WOLF continued to provide air assault security and supported JSOTF missions. Additionally, TF WOLF conducted area

and route reconnaissance, show-of-force, movement to contact, deliberate attack and reconnaissance-in-force missions. The Apaches were normally employed in teams of two. OH-58Cs served as unarmed scouts, provided command and control, and afforded the capability for immediate recovery of downed pilots. Specific composition of the teams was determined by the commander's analysis of the factors of METT-T.

Normal combat missions flown during daylight hours were executed primarily by the Cavalry (AH-1E); during the hours of darkness, they were flown by the Apache attack companies. TF WOLF maintained one pair of Apache crews on standby for immediate missions, 24-hours a day. JTF SOUTH authorization was required to launch the standby team.

The Apaches proved themselves in their first combat experience. Designed primarily as a tank killer, the Apache proved its versatility through a variety of missions in support of both SOF and conventional force operations. Apaches were used to destroy barracks housing the PDF, to provide standoff reconnaissance of landing zones using night-vision optics, to escort troop-carrying helicopters, and to provide suppressive fires. It is truly a surgical strike weapon.

It is tough as well. Three were hit by small arms fire. One aircraft was hit eight times; another was hit 15 times; and a third, 23 times. All were able to fly to Howard AFB after being hit. The Apache is now battle-proven. It performed well. One hundred thirty-eight of its 246 hours were flown at night; all

weapon systems were validated; all combat missions were completed successfully; and battle-damaged aircraft were returned to combat within 36 hours.⁵⁶

MEDEVAC OPERATIONS

The 214th Medevac Detachment, commanded by Major Gary Drabczuk, equipped with 5 UH-60 Medevac aircraft, was placed under the operational control of the 44th Medical Brigade (19 Dec 89 - 3 Jan 90), then under the operational control of the 142d Med Bn (4 Jan 90 - 31 Jan 90). Additionally, two of its UH-60 medevacs and crews were chopped to the Joint Special Operations Task Force (JSOTF) to support TF Green (19 Dec 89 - 10 Jan 90).

The 214th Med Det provided area medical evacuation to: US soldiers and their dependents, Panama Canal Commission and DOD employees, local Panamanian nationals, and POWs (PDF and Dignity Battalion personnel). They also provided emergency movement of medical personnel, equipment, supplies, and whole blood.

The unit was assigned the following secondary missions:

- Assist the Joint Rescue Coordination Center in extraction and recovery of personnel from downed aircraft.
- Conduct air search and rescue (SAR) operations.
- Provide Humanitarian Service assistance.

The 214th Med Det was short one UH-60 due to the accident of 30 Sep 1989. There was also a critical shortage of experienced personnel, with only 3 "combat crews." The unit was finally augmented on 24 December with three additional crews from 44th Med Bde, FT Bragg.

A major problem was allocation of the scarce UH-60 medical evacuation resources. During the operation, medical evacuation requests came in from 25 separate agencies. Thus the unit faced the awesome responsibility of prioritizing its missions.

The unit flew 72 different missions in the first 72 hours of the operation, hauling 228 patients.⁵⁷ Their first Medevac mission was to Paitilla Airport to transport wounded Navy SEALs to the Hospital set up on Howard AFB.

SPECIAL OPERATIONS AVIATION

The 160th Special Operations Aviation Group (ABN) (Task Force 160)--NIGHT STALKERS--under the command of COL Billy Miller began arriving at Howard AFB by C-5A on Monday morning, 18 December and were housed in Hangar 3 (1-228 Avn) at Howard AFB. The AH/MH-6 aircraft were parked in the hangar until just prior to H-hour for operational security. Three CH-47s were self-deployed from the States using air-to-air refueling operations in route.

Table 3 provides information on the number and type of Special Operations rotary wing aircraft involved in Operation JUST CAUSE.

TABLE 3

Special Operations Aircraft⁵⁸
(Rotary Wing)

<u>Number</u>	<u>Type</u>	<u>Unit</u>
11	AH-6 Gunships	Task Force 160
19	UH-60 Blackhawks	Task Force 160
5	MH-53 Pave Lows	1st Spec Opns Wing
4	MH-60 Pave Hawks	1st Spec Opns Wing
9	MH-6 Slicks	Task Force 160
7	MH-47	Task Force 160
5	UH-60	617th Spec Opns Avn Det

This represents the largest number of special operations aircraft ever deployed. All of these aircraft are reported to have flown on the morning of 20 December.⁵⁹ TF 160 deployed 441 personnel (47 officers, 99 warrant officers, 295 enlisted).

TF 160 aircraft provided support to six different special operations teams that were employed at H-hour.⁶⁰ Two teams of AH-6 "Little Birds" provided suppression of air defense weapons at Rio Hato and Tocumen during the Task Force RED parachute assaults. The team of "Little Birds" at Tocumen had the mission of knocking out the control tower and two guard towers.⁶¹

TF 160 also supported the attack on the La Comandancia at H-Hour. Just minutes prior to H-hour, in one of the most daring operations of JUST CAUSE, TF 160 aircraft supported Delta Force and Task Force GREEN in the rescue of Kurt Muse from the Carcel Modelo prison, which was located adjacent to the Comandancia.

The "Little Bird" carrying Muse was shot down, but both Muse and the pilot survived.⁶²

TF 160 (160th Special Operations Aviation Group) conducted many essential missions including inserting a navigation beacon for the parachute assault on Torrijos/Tocumen Airport; conducting "surgical" urban operations in Panama City supporting TF Green; establishing forward area refuel/rearm points (FARRPs) at Torrijos, Howard AFB, and Albrook Air Station; supporting TF Blue sniper operations; conducting MH-47 FARRP operations in support of TF Blue and Green; providing fire support for urban operations (TF GREEN), Torrijos/Tocumen (TF RED), Rio Hato (TF RED), LA Comandancia (TF GATOR), and Colon (TF BLUE/WHITE). Additionally, they removed caches of discovered weapons and performed chase and interdiction operations.⁶³

TF 160 also provided the mobility for Task Force Green as they searched high and low for Noriega. TF Green earned the name "Ghost Busters" for going on so many "snatches" that turned out to be "dry holes."

TF 160 lost three AH-6 "Little Birds" during combat operations beginning at H-hour on 20 December: Two were shot down in the vicinity of the Comandancia at around H-hour; and the third was shot out of the sky over Colon during the day on 20 Dec, killing both crewmembers. A fourth "Little Bird" was destroyed due to non-combat damage suffered when a parachute was blown into the rotor system while it was hovering at Tocumen Airport on 30 December.

617th Special Operations Aviation Detachment (SOAD)

The 617th SOAD is an element of TF 160 permanently stationed in Panama at Howard/Ft. Kobbe, commanded by MAJ Richard Compton. The detachment's mission was to provide aviation support to Task Force Black (3-7 Special Forces). The support consisted primarily of inserting several reconnaissance and surveillance teams to overwatch critical targets prior to H-hour and striking important PDF command and control nodes.⁶⁴ To conduct these missions, the 617th SOAD was augmented with two UH-60s and crews from A Co "Talons", 1-228 Aviation.

Their most notable mission was air assaulting a Special Forces team at H-hour to the Pacora River bridge area to block deployment of Battalion 2000 from Ft Cimmaron to reinforce Torrijos/Tocumen Airport and/or the Comandancia. The mission was conducted just as a convoy of V-300 armored cars and trucks were approaching the bridge. With the assistance of an AC-130, the team was able to stop the convoy at the bridge. This action is described in detail in "Taking the Pacora River Bridge" in Soldiers in Panama.

TASK FORCE AVIATION - D+2

On D+2, additional attack, scout, and lift aircraft were deployed from the 82d Airborne Division, Ft Bragg, and 7th Infantry Division, Ft Ord. TF Aviation task organization is specified in Table 4.

TABLE 4

**TASK FORCE AVIATION
D+2 TASK ORGANIZATION**

<u>--Task Force HAWK</u>		
o A/3-123 AVN	(Aslt Co)	15 UH-60
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<u>--Task Force 1-228 Aviation</u>		
o A/1-228 AVN	(Aslt Co)	18 UH-60*
(*E Co, 228 Avn UH-60 attached)		
o B/1-228 AVN	(CAC)	15 UH-1*
		8 OH-58A
		3 C-12
o C/1-228 AVN	(Medium Lift)	9 CH-47C*
(*ORF attached)		
o 214th Medical Det		5 UH-60 Med
<u>--Task Force WOLF</u>		
o A/1-17 CAV	(Recon)	4 AH-1E
		2 OH-58C
o B/1-82 AVN	(Apache)	11 AH-64
		3 OH-58C
o B/1-123(-)AVN	(Attack Co)	7 AH-1E
		4 OH-58C

All aircraft that arrived on 21 December were assembled and ready for combat aviation operations within hours. To thwart any attempt by the PDF to disrupt canal traffic, TF Aviation conducted reconnaissance and surveillance of the canal with attack and scout aircraft. LZs in Panama City were located and surveyed as the main focus of the battle was now a MOUT operation. Sector maps were prepared to facilitate operational planning. Attack teams were made available; they provided very effective counter-sniper fire. The Apache demonstrated it can

place a Hellfire missile in the window of a building at a distance of more than 2000 meters. General Stiner commented that the "absolutely outstanding surgical capability of the Apache to strike a building without excessive collateral damage was one of the major operational lessons" in Operation Just Cause.⁶⁵

On 22 December, TF Hawk, augmented by A/1-228 Avn, conducted the longest air assault of JUST CAUSE, using NVGs. Operation LONGREACH was a battalion task force air assault of a 7th Inf Div battalion from Torrijos airport to Coclecito. It was planned for three flights of five UH-60s (8 Shadow, 7 Talon), five AH-1s, two OH-58s, and two CH-47s. Enroute to the LZ, they stopped at the FARPS in order to make the flight to and from Coclecito. EMPIRE and VERNADO were both used to reduce the time for the refuel operation. The weather enroute to the LZs was poor--low ceiling and fog--resulting in deviation from the planned route. Ten UH-60s were required to make a second lift to complete the mission.

One of the most rewarding missions was the rescue of 11 scientists, research assistants and a 4-year old girl taken hostage by soldiers loyal to Noriega. The scientists and child were taken from a marine research station operated by the Smithsonian Tropical Research Institute on an island in the San Blas region, off the northern coast of Panama. On Wednesday night, Cobra and Blackhawk searches were unable to locate the party. Departing again at first light on 22 December, the aircraft located, rescued and returned the hostages to FT

Clayton. Another rewarding mission extracted the hostages from the top of the Marriott Hotel in downtown Panama City.

STABILIZATION OPERATIONS

TF Aviation began supporting stabilization operations and moving the 7th Inf Division from Tocumen to Rio Hato on D+3/4. Intelligence was incomplete, without full detail. TF Aviation staff worked hard to develop refuel plans for the extended operations. Additional refuel equipment and fuel handlers from the Aviation Brigade at Fort Ord were brought in to establish a FARP at Rio Hato. Air Force C-130s were used to refuel the bladders using "Wet Wing" procedures.

The A2C2 plan had to be enlarged to cover the extended areas of operation. 7th Inf Div air assaulted and conducted stabilization operations in Santiago, Chitre, Las Tablas, and La Chorrera. Most of these were company(+) or two company operations. As the towns in the vicinity of Rio Hato were stabilized, the 2d Brigade, 7th Inf Div pushed westward to David. This required a FARE (FSSP) to be established at David to support aviation fuel requirements.

Most of the operations were conducted in the same manner. A special operations team made contact by telephone with the local PDF garrison commander, offering the opportunity to surrender men and weapons. The PDF commander was usually given a small firepower demonstration from an AC-130 or other TAC air, so he could get an idea of what was in store for the garrison if he

TABLE 5

TASK FORCE AVIATION ORGANIZATION
Western Stabilization Operations

--Task Force CONDOR

o B/3-123 AVN (Aslt Co)	12 UH-60
o B/1-123(-)AVN (Attack Co)	5 AH-1E
	5 OH-58C

--Task Force 1-228 Aviation

o A/1-228 AVN (Aslt Co)	18 UH-60*
(*E Co, 228 Avn UH-60 attached)	
o B/1-228 AVN (CAC)	15 UH-1*
	8 OH-58A
	3 C-12
o C/1-228 AVN (Medium Lift)	9 CH-47C*
(*ORF attached)	
o 214th Medical Det	5 UH-60 Med
o Team HAWK	
- A/3-123 AVN (Aslt Co)	14 UH-60
- B/1-123(-)AVN (Attack Co)	2 AH-1E

--Task Force WOLF

o A/1-17 CAV (Recon)	4 AH-1E
	2 OH-58C
o B/1-82 AVN (Apache)	11 AH-64
	3 OH-58C

didn't surrender. Once the garrison surrendered to the special operations team, the area would be turned over to conventional forces to account for captured weapons, conduct interrogations, and assess the city's and citizens' ability to take care of themselves.

On D+7, TF Aviation organized TF Condor to establish a forward aviation operation base at David, providing aviation support to the Western Operations. Table 5 shows the organization of aviation for this phase. TF Condor consisted of

assault, attack, and medevac aircraft supported with an ALUM(-). A weather detachment was provided by the Air Force. Communication with the Task Force was nearly impossible. The commercial phone system, with STU III phones attached, offered the most dependable communication for status reports and parts requirements. An FSSP was established and resupplied with C-130 "Wet Wing" procedures. This is a very efficient method of transporting aviation fuel in this environment.

Air Assaults were conducted from David, north over the Continental Divide, to Changuinola and Bocas del Toro. The weather team was critical to this operation, since weather was often marginal or below minimums in the mountainous area. The weather team's equipment could obtain satellite weather maps, which were invaluable in determining which routes and times were most favorable for aviation operations.

TF 1-228 Aviation conducted resupply and air movement of units near Panama City and in the TF Atlantic area of operations. TF 1-228 air assaulted a Ranger company from Tocumen to Cerro Azul and conducted an air assault to Cheppo. TF 1-228 provided command and control aircraft to JTF-SOUTH, TF PACIFIC, and TF ATLANTIC. Medium lift helicopters were flying around the clock conducting movement of water, food, fuel, and ammunition. Concurrently, UH-60s were kept on standby to conduct "immediate reaction" air assaults throughout the area.

The 2d Bde, 7th Inf Div, moved to Sona to conduct operations securing and stabilizing the "Tiger" Island prison complex on

Coiba Island. The PDF Commando School was located here as well. A FARP, resupplied by CH-47s and UH-60s, was established at Sona to support the operation. Air operations were assisted by an Air Force combat control team and Army Air Traffic Control team.

On D+11, TF 1-228 air assaulted elements of 3d Bde, 7th Inf Div, from Ft Sherman to Nargana and other islands in the San Blas island region, on the north east coast of Panama.

While the Coiba Island operation continued, the 2d Brigade commander lacked the forces to continue the stabilization operation. In an economy-of-force operation, he organized Team Apocalypse with elements of TF Condor.

TABLE 6

TEAM APOCALYPSE ORGANIZATION

o PLT/B/3-123 AVN (Aslt)	4 UH-60
o TM/B/1-123(-)AVN (Attack TM)	2 AH-1E
	2 CH-58C
Ground Forces:	
- PLT/D/3-123 AVN (Maint)	
- Sec/B/14 Eng	
- TAC Satellite Tm	
- Sec/Flt Opns/HHC/3-123	

Team Apocalypse's mission was to clear the remaining towns to the east of Changuinola (PEGASUS in the most north west portion of Panama) of all caches, PDF, and Dignity Battalion personnel. It would also assess the local government's ability to maintain law and order. Team Apocalypse set up and staged out of Chirique Grande on the Atlantic coast in northwest Panama.

Upon completion of the Western Stabilization operations on 10 January, Task Force Condor returned to Howard AFB and began preparations for redeployment to the States.

Team ZAP was formed with elements of TF 1-228 and TM Hawk, to support 7th Inf Div stability operations in the eastern portion of Panama, which included Santa Fe, Yaviza, and La Palma. The operations would also counter suspected drug cartels in the area. Operations were hampered by the lack of maps, since much of this area has not been mapped. Hand drawn maps were used for navigation.

Show-of-force operations continuously demonstrated the capability of projecting combat power to any location in Panama. On one occasion, 1-508 Abn conducted a battalion parachute assault northwest of David; they were subsequently air assaulted to other objectives in the mountains.

On 3 January, Task Force Aviation began to identify and redeploy units to the States with elements of 1-82d Avn (ATK) redeploying first. 7th Infantry Division Aviation Brigade assets began to redeploy to Ft Ord on 7 January 1990. The redeployment was time phased as the operational requirements began to diminish. Operational requirements for the attack assets dwindled. However, there was an "insatiable appetite" for lift assets to continually reposition ground forces as units were redeployed. Additionally, civil affairs teams in virtually every major town in Panama required Army Aviation for resupply and transportation. Likewise, a never-ending flow of VIP visitors

required extensive aviation support for their own transportation. Also rapid reaction forces remained on standby in case of PDF activity. Vice President Dan Quayle visited on 27 and 28 Jan 1990. Five NVG crews and UH-60 aircraft transported him, his official party, and press members around the area of operations. On 4 January, forty members of the U.S. House of Representatives flew into Tocumen Airport for a two-day visit of JUST CAUSE operational areas. This visit occupied ten UH-60 aircraft for two days.

Logistical requirements for providing humanitarian support were mind boggling. Tens of thousands of cases of MREs were flown to Panama and distributed throughout the country, creating a huge demand for CH-47 aircraft.

The bottom line: The OPTEMPO did not slow down. There was no relaxation of the "pace" as aviation units went from supporting combat assaults to humanitarian assistance, to VIP visits, to supporting the nation-building initiatives of Operation *PROMOTE LIBERTY*!

TF HAWK was reduced to Team HAWK when the attack assets were redeployed to Ft Ord. Team HAWK consisted of 14 UH-60s, commanded by Major Donald Arnold. Team HAWK redeployed to Ft Ord in mid-May, 1990, thus ending two years of deployment that began with the security enhancement mission in April 1988.

V. FLYING HOURS AND MISSION OPTEMPO

Military men who spend their lives in the uniform of their country acquire experience in preparing for war and waging it. No theoretical studies, no intellectual attainments on the part of the layman can be a substitute for the experience of having lived and delivered under the stress of war.

General Maxwell D. Taylor
Speech to graduating U.S. Military Academy cadets,
June 1963

1-228 AVIATION FLYING HOUR SUMMARY (20 DEC - 31 JAN 90)

TABLE 7 ⁵⁸

1-228 AVN MISSION AND FLYING HOUR SUMMARY

	<u>MISSIONS</u>	<u>FLIGHT HOURS</u>	<u>NVG HOURS</u>	<u>PAX</u>	<u>CARGO LBS</u>
UH60	170	1015	187	5420	250772
UH60M	280	428	98	470*	16642
UH1H	237	1087	292	1646	15130
OH58	140	627	62	325	2975
CH47	82	418	103	7367	1450370
C12	<u>39</u>	<u>167</u>	<u>0</u>	<u>205</u>	<u>2006</u>
TOTALS	948	3741	742	14963	1737895

* Medevac patients

During Operation JUST CAUSE, the 1-228 Aviation flew more than twice the peacetime flying hour rate . The UH-60s and UH-1s

normally flew 250-300 hours per month. The battalion flew more than 25% of the previous year's flying hour program (12,000 hours) in six weeks!

AVERAGE DAILY HOURS FLOWN PER OPERATIONAL AIRCRAFT

Table 8 presents the OPTEMPO flown in terms of hours per day/per operational aircraft. The Army Aviation Mission Area Analysis completed in March 1992 determined that heavy combat would require approximately 6.2 hours of daily flight from each operational aircraft. As a result of the Army Aviation Systems Program Review in April 1982, the Vice Chief of Staff, General John Vessey directed Joe Cribbens, DA DCSLOG, to conduct a study to determine how many hours per day could be supported and what the limiting factors are. This study was called MAX FLY.⁵⁹

TABLE 8 ⁶⁰

AVERAGE DAILY HOURS FLOWN PER OPERATIONAL AIRCRAFT

1-228 Aviation

(20 Dec 89 ~ 20 Jan 90)

A/C TYPE	NO. A/C ASSIGNED	AVG NO A/C AVAIL/DAY	HOURS FLOWN	AVG DAILY HOURS PER OPERATIONAL A/C
UH-1	14	11	816.3	2.4
OH-58A	8	6.2	519.4	2.7
UH-60	17	13	768.9	2.0
UH-60M	5	3	355.7	3.8
CH-47C	8	4	395.1	3.1

This OPTEMPO stressed the units and crews to the maximum. A hidden factor, not quantified in Table 9, is the impact of quick reaction standby aircraft requirements. Standby requirements take an awesome toll, since standby crews are not able to get quality rest. Likewise, standby hampers the flexibility of maintenance officers and commanders in scheduling routine aircraft maintenance.

Prior to JUST CAUSE, an aviation capabilities analysis (CAP) specified the number of aircraft and hours per day that were sustainable from a maintenance point of view. The results were included in the TF AVIATION Operations order. But the CAP was not observed. Aviation units were normally scheduled to fly all operational aircraft, each day. The CAP was cast aside, and the units were "flown into the ground". Nonetheless, Phase Maintenance Inspections were not overflowed. But the entire CH-47C fleet was flown into Phase during the Operation. The CH-47D fielding was started in February 1990, and "limited" Phases were performed on the C models in order to self-deploy them to Philadelphia for rebuild.

1-82d AVN (Task Force WOLF) FLYING HOUR SUMMARY

TABLE 9

Task Force WOLF Flying Hours ⁶¹ (15 Nov - 19 Dec 1989)					
	DAY	NIGHT	NVG/SYSTEMS	TERRAIN	SUB-TOTAL
AH-64 (6)	0	9.1	52.2	0	61.3
OH-58C(3)	12.6	1.7	47.4	0	61.7
Pre JUST CAUSE---					123.0
(20 Dec 1989 - 11 Jan 1990)					
	DAY	NIGHT	NVG/SYSTEMS	TERRAIN	SUB-TOTAL
AH-64 (11)	119.9	21.5	73.9	23.5	238.8
OH-58C(5)	85.3	8.4	46.4	21.9	162.0
AH-1E(4)	81.6	0	0	0	81.6
JUST CAUSE---					482.4
TOTALS				AH-64	300.1
				OH-58C	223.7
				AH-1E	81.6
TOTAL FLYING HOURS					605.4

1-82d AVN (Task Force WOLF) AMMUNITION STATUS

TABLE 10 ⁶²

TASK FORCE WOLF AMMUNITION STATUS		
TYPE	ISSUED	FIRED
HELLFIRE	40	7
MPSM	312	29
PD6	456	90
30MM	11,232	3,300
9MM	3,000	0
5.56	2,520	0
TOW	24	0
2.75" FLA	72	10
2.75" HE	264	48
20MM	10,000	2,100
7.62MM	5,600	0

TASK FORCE HAWK FLYING HOUR SUMMARY (20 DEC - 11 JAN 90)

TABLE 11 ⁶³

TASK FORCE HAWK MISSION AND FLYING HOUR SUMMARY (20 Dec 89 - 11 Jan 90)

	<u>MISSIONS</u>	<u>FLIGHT HOURS</u>	<u>NVG HOURS</u>	<u>PAX</u>	<u>CARGO LBS</u>
UH60(26)	99	966	*	4829	6800
OH58C(4)	38	276	*	*	0
AH1E (7)	<u>32</u>	<u>174</u>	*	<u>N/A</u>	<u>N/A</u>
TOTALS	169	1416		4829	6800

* Not available

TABLE 12 ⁶⁴

TASK FORCE HAWK AMMUNITION EXPENDITURE (20 Dec 89 - 11 Jan 90)

<u>TYPE</u>	<u>AMT FIRED</u>
TOW	1
2.75"	122
20MM	1766
7.62	9290

160th SPECIAL OPERATIONS AVIATION GROUP FLYING HOUR SUMMARY

TABLE 13

TF 160 Flying Hour Summary

<u>Aircraft</u>	<u>(#)</u>	<u>Hours</u>
MH-6	(9)	262
AH-6	(11)	222
UH-60	(19)	768
CH-47	(7)	<u>369</u>
Total		1601

VI. AIRSPACE MANAGEMENT

Despite the presence of such a large number of aircraft (up to 150 fixed-wing aircraft, ...and around the same number of helicopters) most of them maneuvering in the same relatively small 20-by-20 mile block of airspace (about the size of the area bounded by the peripheral "Beltway" around the District of Columbia), there were no midair collisions or even reports of near-collisions in the opening hours of the operations or the three weeks thereafter." ⁶⁵

Robert R. Ropelewski
Armed Forces Journal

ARMY AIRSPACE COMMAND AND CONTROL (A2C2)

Airspace management and the control of literally hundreds of aircraft in the same airspace, often operating under "blackout" conditions and performing different tasks, presented major concerns for LTG Stiner from the very beginning of the planning process. Meeting the challenge of A2C2 and ensuring safe flight procedures was a top priority for COL Terrell and the staff of TF AVIATION.

Flight routes and procedures had been in place for years. They were well understood by the aviators in Task Force HAWK and 1-228 Aviation. COL Terrell directed the planners to develop a plan based on the existing procedures and expand as required.

The Assistant S3 of TF AVIATION, CPT Kevin Gibbons, was appointed as the airspace management officer. He immediately undertook the tough task of figuring out how to solve the challenge. He worked in Panama from late October through the end of JUST CAUSE. Plans were drawn up and "brainstormed" by the battalions and TF AVIATION Safety and Standardization Officers. After Action Review comments of crews were incorporated as required.

Detailed plans for aircraft into and out of all FARPS were incorporated into the overall air traffic control plan. To reduce congestion and delays, the various FARPS were divided among the different units and types of aircraft. For example, for the H-hour missions, attack aircraft were to use Vernado FARP, all UH-60s used Range A, and TF 1-228 aircraft used the Ft Sherman refuel facility. All FARPS were controlled with Army Air Traffic Controllers from the ATC Platoon. The 195th ATC Platoon had just deployed as a unit PCS move from Ft Bragg in August 1989. The communications equipment and highly skilled personnel of this unit were invaluable for assuring safe operations of the large re-arm and refuel sites.

Panama also had a TDA organization called SKY WATCH; it performed administrative flight control functions similar to those on any installation in the States. SKY WATCH was manned with Army ATC personnel. The actual facility was located on Corozol. They had fixed base equipment with FM, UHF, VHF, and HF capabilities. They also had direct line phones with the 1-228

Avn TOC. This agency played a vital role in assisting operations by passing mission changes and status of operations between aircraft and unit TOCs. This support helped offset the limited current communications capability in aviation tactical operation centers (TOC) and aircraft.

The existing flight routes ran north/south, primarily within the Canal operating area. There were four routes: 1 and 3 handled north bound traffic, and 2 and 4 handled south bound traffic. Additional corridors were added to facilitate the east/west traffic to the Tocumen Airport area.

The air mission commanders and flight leaders developed detailed routes with start points, check points, and release points for every H-hour mission. Overlays were provided to the airspace management officer at TF AVIATION. Meetings were held with all airspace users to deconflict the routes and airspace.

Gen Robert Russ, Commander, 12th Air Force, located at Bergstrom AFB, assumed over-all responsibility for airspace management. He served as the Air Force Component Commander for U.S. Southern Command. In fact, all air space users had to attend a coordination meeting at Bergstrom to coordinate final plans.

24th Composite Wing, located at Howard AFB, operated the Air Operations Center to provide over-all airspace coordination. The plan required each air space user to have a representative in the center to resolve conflicts as they arose. This process wasn't

disciplined after the first day or two, so uncoordinated users occasionally planned operations in the same airspace.

Procedural controls were developed to allow tactical commanders maximum latitude in use of the airspace. No attempt was made to control traffic with radar. Special corridors were planned to allow Army aircraft to arrive and depart without contacting Howard Tower. The coordinating altitude was established at 1200 feet; this would separate Army helicopters and Air Force fixed wing aircraft. "

TF AVIATION personnel briefed the Commander, TF 160 in detail on the D-day conventional missions. The TF 160 commander gave a general overview of Special Operations aviation missions and objectives. Special operations areas were listed as no-fly areas for the pilots of TF AVIATION. There were problems of coordination of SOF and conventional aviation missions after D-day, when follow-on operations got underway. Often, there was not time to conduct external coordination of aviation missions. Even so, we must work on conducting airspace coordination and passing information, and it is difficult, especially when employing the AC 130 on a "non-linear" battlefield.

During JUST CAUSE, all friendly aircraft were marked with glint tape on the top of the tail boom and elevators to facilitate AC-130 identification of friendly aircraft. Additionally, Army Aviation units resorted to putting white paper in the windows of UH-1 and OH-58 aircraft in order to differentiate them from PDF aircraft. Also, additional emphasis

was placed on use of aircraft IFF (identify friend or foe) transponder procedures.⁶⁷

As JUST CAUSE moved to the western, then later to the eastern, areas of Panama, the A2C2 route structure had to be expanded to cover these areas. Communications with the flight following agencies (SKYWATCH and Howard Tower) were nearly impossible at these long distances. Army ATC personnel were often deployed on extended operations to allow Task Force commanders to conduct internal flight following and reporting.

Later in Just Cause, and especially in Operation PROMOTE LIBERTY, coordination was necessary with Air Force and Navy aircraft to assist in relaying flight information to flight agencies. For example, the Navy's E2 aircraft has a unique capability for communication and radar vectors. It is invaluable, for instance, in locating a Navy ship at night when conducting an emergency medevac, since the E-2 can guide the aircraft directly to the ship.

Nonetheless, creative thinkers and planners can come up with newer, more capable equipment to allow us to get the maximum benefit from the aircraft we currently have. The Joint airspace arena still presents complex challenges, the aviation accomplishments of JUST CAUSE notwithstanding.

VII. COMBAT SERVICE SUPPORT

*I don't know much about this thing
called logistics. All I know is
that I want some.* ⁶⁸

Admiral Ernest J. King

Many people don't know enough about logistics--especially the implications of not planning ahead for aviation combat service support requirements. Army Aviation faced great demands during Operation JUST CAUSE to support operations due to employment of light forces which have limited internal transportation. These demands were heightened by the lack of a road network in Panama. Simply stated, in most areas of Panama you either fly by helicopter or walk! In some locations, you may use a boat to go by water.

Aviation operations require a great deal of sustained logistics support from and to aviation forces. Rotary-wing and fixed-wing assets use vast quantities of CSS, particularly aviation fuels and ammunition. It takes time to plan and coordinate this support. It doesn't happen easily!!!

AVIATION CLASS III

PERSONNEL. The POL sections of 1-228 Aviation were reorganized in October 1989, substantially increasing the number of authorized POL handlers. The various POL sections were

consolidated and overseen by the battalion's Airfield Operations Officer. The Battalion was critically short of Fuel Handlers, with only 15 on hand out of an authorized 39. These fuel handlers had many responsibilities: operating the Ft Sherman hot refuel point, providing cold refuel to aircraft on the ramp at Howard, defueling aircraft for maintenance, running the Howard hot point, operating the FT Kobbe "filling station" for wheeled vehicles, and performing maintenance on the platoon vehicles and equipment. They were busy people and were the unsung heroes!

Task Force HAWK had two fuel handlers prior to JUST CAUSE. They augmented 1-228 Avn, which provided fuel to everyone, and later operated the fuel sites at Rio Hato and David.

EQUIPMENT. The equipment situation was as bad as the personnel situation. 1-228 Avn had no HEMETT tankers, but was authorized 23 tank and pump units on 5 ton trucks. Only 11 systems were on hand, and only 7 were installed, due to shortage of trucks. The battalion also had 5 FARE (forward area refuel equipment) systems.

1-228 AVN and TF HAWK had to rely on this old equipment for all refuel. There was no commercial, TDA, or fixed facility "hot refuel" at Howard. Daily aviation operations had to rely on TOE equipment and personnel. This was totally different from FT Hood or Campbell, and other CONUS locations, where nice drive through hot points have been built, often operated by civilian contractors.

The shortage of manpower made maintenance and sustainment of the refuel equipment extremely difficult. To make matters worse, there was a major problem in keeping water out of the fuel because of the long rainy season, high humidity, and hot days. This resulted in increased workload for an already overworked section. There were some occasions when nearly every aircraft would have water in the fuel tank, requiring the aircraft to be defueled.

COMBAT OPERATIONS. In the early planning for contingency operations, it was decided to emplace Fuel System Supply Points (FSSP) at two sites near Howard AFB. Command and control and manning these sites presented major issues. Only the 41st Area Support Group was authorized the FSSP; however they didn't want to set up and operate the equipment, since that was a "retail" operation--hence not their mission. 1-228 Avn initially set up Vernado FARP using organic tank and pump units (TPUs) and FAREs. Berms and parking pads were prepared by the 536th Engineer Battalion.

In late November, the 1-228 Avn fuel handlers were chopped to the 41st Area Support Group to assist in setting up and operating the FSSP. The FSSP had two 10,000 gallon bags and a 350 GPM pump, with four hot refuel points. Two additional points could be established with TPUs for surge operations. A second FSSP was established by 41st Area Support Group at Empire Range. The Aviation Brigade, 7th Inf Div, deployed additional fuel handlers and equipment after the 20th of December. This

equipment was used to establish fuel sites at Rio Hato and later at David to support aviation operations in the western area.

OBSERVATIONS

- o "Wet Wing" C-130 was critical in supplying fuel to Rio Hato and David.
- o Responsibility for safety and quality control of fuel was assumed by aviation. No one else seemed to care. Only fuel testing capability in Panama was performed by the Navy civilians at Rodman Naval Base. They were not usually available after hours, during weekends, and after D-Day. The Army needs this capability organic.
- o D4 "NATO" nozzles. The units in Panama were using the Army's CCR (closed circuit refuel) nozzle to hot refuel all aircraft. After JUST CAUSE, it was discovered that using the D4 Nozzle to refuel the UH-60s and CH-47s reduced refuel time by almost two-thirds.
- o Filling and moving 500 gallon collapsible drums (Blivets) by sling load. This requirement had not been planned and coordinated. Responsibility for blivets, slings, related equipment, and rigging had not been thought through. As a result, reaction was initially slow.
- o Lack of HEMETT tankers. The HEMET tanker has a 350 GPM pump and carries 2400 gallons. The TPU has a 50 GPM and carries 1200 gallons. Aviation units in Panama did not receive HEMETTs until 1991. They still don't have the 4-point Hot Refuel systems that go with the HEMET.

AVIATION MAINTENANCE

Aviation Intermediate Maintenance (AVIM). Aviation intermediate maintenance capability was provided by E Company, 228th Aviation, commanded by CPT Camden Kent. E Company was assigned to the 193 Support Battalion, 41st Area Support Group. This was a new command relationship since the company had been

subordinate to 1-228 Aviation prior to 15 October 1989, only two months earlier. The support relationship was turbulent as CPT Kent tried to get his company integrated into a new organization. External SOP's had not been written, there was no unity of effort, and it took a lot of "bickering" just to get routine tasks accomplished. For example, it was nearly impossible to conduct an operational readiness float (ORF) transaction. Normal maintenance coordination became much more difficult and often required battalion commander involvement to accomplish the simplest of tasks.

On 20 December, without prior knowledge and coordination, XVIII Airborne Corps deployed approximately 20 maintenance personnel from the Corps AVIM company. These personnel augmented E Company, 228th Aviation and basically worked as phase maintenance teams. However, their productivity was hampered since the augmentees did not deploy with tools and equipment. Additionally, work was disrupted because of an unplanned requirement to conduct an assessment of the maintenance condition and repair of the PDF helicopters that were captured at Tocumen Airport.

The maintenance augmentees started an OH-58 phase and a CH-47 phase, but the manpower was wasted in each case. The team used the wrong "phase book" to start the phase on the OH-58, and the team redeployed to Fort Bragg before the phase was completed on the CH-47, leaving no record of work accomplished.

Contractor Personnel. E Company was augmented with approximately 43 Lockheed Support Services Incorporated (LSSI) contractor personnel who worked in the supply and maintenance areas. Three of the personnel performed maintenance on the Aviation Life Support Equipment (ALSE), including life rafts, water "wings", oxygen equipment, flight helmets, survival vests, and radios.

The Lockheed personnel provided a unique level of experience which made it possible to perform numerous depot level repairs. They also made up for a portion of the unit maintenance manpower shortfall which existed at the time. All the LSSI personnel lived in downtown Panama City, so many were unable to get to work for several days after D-day. Additionally, there had been no provisions to give them MREs, and they did not have PX and Commissary privileges.

The US Army Aviation Systems Command (AVSCOM) in ST Louis arranged for 15 additional LSSI contractor personnel to deploy to Panama. They assisted with the backlog of maintenance resulting from the high combat OPTEMPO and battle-damaged aircraft.

Logistics Assistance Representatives (LAR). The AVSCOM and Communication and Electronics Command (CECOM) LARs were absolutely invaluable. Burt Young, AVSCOM UH-60 LAR, was essential to the success of the maintenance operation. He worked around the clock providing maintenance assistance in the installation of oil coolers, giving advice on battle damage repair and assessing what additional support could be provided by

AVSCOM. He facilitated parts requisitioning by "faxing" the "not operationally ready" supply requirements directly to the AVSCOM Emergency Operations Center. This cut days off the normal requisitioning system.

Battle Damage Repair. Throughout the entire operation, approximately 45 aircraft sustained battle damage. AVSCOM deployed an aviation engineer to Panama immediately after D-day to help expedite the battle damage repair process. This was very beneficial, since he could make assessments and grant waivers on the spot to allow repairs to be made by airframe and sheet metal specialists at unit level. With his assistance and the use of combat repair techniques and rivet patches, most aircraft were returned to service after quick temporary repairs. Permanent repair was often deferred until the next major scheduled maintenance. In fact, A Company, 1-228 Avn had more aircraft flyable on 22 December than on 19 December--a phenomenal feat, since seven aircraft received between 5 and 18 hits each! The Company Aircraft Maintenance Technician, CW3 Karl Shaw, with over 20 years experience, was critical in getting aircraft back in the air through his ability to quickly analyze the damage and make decisions on the best course of action to get the maximum aircraft back up in the shortest timeframe.

Special Tools and Test Equipment (STTE). Lack of adequate special tools and test equipment was a major problem during the period following D-day. Triage was performed on the damaged aircraft, and "controlled substitution" was conducted to get the

maximum number of aircraft repaired as quickly as possible. Several UH-60 blades were hit on 20 December; they were replaced with blades taken from other aircraft. This required extensive vibration testing. The outmoded vibration analyzers available in Panama units were slow and time consuming. Additionally, installation of the UH-60 oil coolers required extensive vibration checks. Units thus had to borrow state-of-the-art vibration analyzers from the Special Operations Aviation units, which greatly reduced the time involved in performing rotor-smoothing and driveshaft-balancing.

AVSCOM sent down battle-damage repair kits after 20 December. However these were of little use since no one was trained to use them. AVSCOM did obtain some of the modern vibration analyzers for the Panama units. They were big timesavers, even though some smart maintenance test pilots had to teach themselves how to use them without benefit of publications.

The units needed lightweight, portable flood light sets to conduct maintenance and inspections of aircraft at night. Again these were available to the special operations aviation units but not conventional units.

Aviation Ground Support Equipment (AGSE) Aviation units did not have sufficient Aviation "TUGs" to move aircraft in and about the hangar and flight line, resulting in a waste of manpower and time moving them by hand. The process of moving UH-1s was made even more difficult by a shortage of ground handling wheels.

Aircraft often hovered over salt water and landed on beaches while supporting operations to the more distant, inaccessible areas and islands. There were no aircraft wash devices available to make the job of washing the salt spray off the aircraft easier and more efficient. Use of fire trucks did help, but this required a lot of coordination and often wasted manpower while waiting for the truck to arrive. Additionally, all aircraft were parked at Howard AFB, less than one half mile from the Pacific ocean. They should have been rinsed/washed on a daily basis to prevent corrosion. However, this requirement was often overlooked due to the long hours of flying and late missions. Aviation units must have state-of-the-art wash kits to facilitate aircraft washing. Additionally, we should develop wash solutions to prevent corrosion of aircraft components. Several months later, the units paid the price in increased aircraft "downtime" for major repairs and exchange of components due to corrosion. Most Army Aviation units are not knowledgeable of proper corrosion control procedures and techniques. We need additional training in this area. Units relied on coordinating with the Navy Corrosion School at Jacksonville Naval Air Station to obtain this training.

CLASS IX REPAIR PARTS SUPPLY.

The Force Activity Designator (FAD) was not changed from II to I during the planning phase. Thus units could not use the "01" urgency-of-need designator (UND) when requisitioning class

IX repair parts. GEN Stiner told the log personnel to get it changed, but it never happened. However, units were able to use a JCS "project code," which gave a higher priority to parts requests.

Order-ship times for parts to Panama were normally over 20 days. Thus even implementation of "direct requisitioning" did not reduce delivery time. AVSCOM's efforts to get parts to Panama was hindered by lack of transportation when they reached Charleston AFB, SC. Most of the available airlift was being used to move humanitarian supplies to Panama, so aircraft parts were not getting on the C-141s and C-5As. This problem was not resolved until XVIII Airborne Corps sent a logistics liaison officer to Charleston to locate the parts and get them shipped!!

There were also problems identifying aviation repair parts and getting them to the correct location once they arrived at Howard AFB. Extensive amounts of manpower were involved in walking around and looking at pallets, trying to locate parts that were in critical demand. In some instances, parts were found at Tocumen Airport!! As a result of all these factors, some units did not receive aviation repair parts through the normal system for weeks.

In some cases, deployed units resorted to the use of "Log" birds to get repair parts from their CONUS posts. Our contingency operation repair parts supply system needs to be overhauled to provide a more responsive supply of unanticipated demand requirements.

VIII. OBSERVATIONS AND RECOMMENDATIONS

SOLDIER

*I was that which others did not want to be.
I went where others feared to go, and did what others
failed to do.
I asked nothing from those who gave nothing,
and reluctantly accepted the thought of eternal
loneliness...should I fail.
I have seen the face of terror; felt the stinging cold
of fear; and enjoyed the sweet taste of a moment's
love.
I have cried, pained, and hoped...but most of all,
I have lived times others would say were best
forgotten. At least someday I will be able to say that
I was proud of what I was...a SOLDIER.*

GEORGE L. SKYPECK

Through my participation in and study and reflection on Operation JUST CAUSE, I have arrived at the following personal observations.

GENERAL

o Great soldiers, well trained, employed with detailed and well-rehearsed plans adds to success. The aviation soldiers of Operation JUST CAUSE overcame adversity time after time to make the mission go. Soldiers don't work simply to get time off. They will work "till they drop" if they understand the

mission and are made to realize the importance of their individual contributions to the success of the overall effort. Leaders have to provide an atmosphere where soldiers know they are important to mission accomplishment--take time to tell them thanks!

o **Wives and children earned "combat patches."** Family support groups are invaluable. For was the first time in recent history, American soldiers were fighting with their families and children present. Those family members definitely earned their combat patches. Company and battalion family support groups were invaluable in providing information and support. Not one time did a soldier have to be sent home to take care of a family problem such as lack of baby food, no diapers, or just plain fear. The wives took care of one another. The greatest contribution was just sharing concern for others in the same situation by talking to one another on the telephone. Communication is essential to success of FSGs. The contributions, sacrifices, and risks to US military families in Panama were almost entirely overlooked by the national press.⁹

o **Previous knowledge of key players.** One of the most significant reasons for the success of Operation JUST CAUSE was the relationships of the key commanders and staff. Their service together in previous assignments enhanced teamwork and performance. Through previous assignments in the 82d Airborne Division and Apache Training Brigade, the author had served with every key player involved in the planning and execution of the

operation. There was not a lot of time wasted getting to know others capabilities and strengths. Players shared immediate trust and confidence.

o **Combat Awards.** The awards for Operation JUST CAUSE were tightly controlled as a result of negative publicity from the liberal awards policy of the Grenada Operation URGENT FURY. There were approximately 24,000 troops in Panama and 3,532 awards were recommended. Aviation awards approved include Distinguished Flying Cross (16), Air Medal for Valor (15), Air Medal for Achievement (208). For comparison, the Air Force awards included Distinguished Flying Cross (17), Air Medal (78).⁷⁰ Even though more than half the hours and missions flown were by 1-228 Aviation personnel, no recommendations for the DFC were approved. Additionally, only a few of the Battalion's personnel who flew H-Hour and D-day missions were approved for award of the Air Medal. Numerous award recommendations for key and deserving individuals who flew critical and dangerous missions were disapproved. There were obviously different approval criteria applied by the different participating organizations.

COMMAND AND CONTROL

o **Army airspace command and control (A2C2).** A thoroughly coordinated A2C2 plan was in place for the initial operations, but the coordination of airspace for follow-on operations was not as thorough, resulting in special operations aviation and conventional units planning operations in the same area without

the other being aware. Full time liaison between special operations and conventional aviation units must deconflict flight routes and altitudes, especially for "blacked out" night operations.

o **Scheduling of Army Aviation resources.** XVIII Airborne Corps deployed a large contingent of Aviation staff officers including COL Robert Seigle, Commander XVIII Aviation Brigade, COL Gene Cole, Commander 82d Aviation Brigade, LTC Randy Timmerman, XVIII Abn Corps, G3 Aviation, and LTC Don Vinson, Commander, 1-82d Aviation. These personnel were augmented and assisted by the personnel assigned to USARSO DCSOPS Aviation office and COL Terrell and his TF Aviation staff. This combined staff caused unnecessary staff "layering" and resulted in conflicting mission coordination and guidance. Initially, operations were scheduled by calling mission requests with incomplete data on the radio and telephone without the use of standardized mission tasking sheets to record pertinent information.

In many cases, instead of giving aviation battalions prioritized missions, the assets were "distributed" to various organizations and elements without concern for the urgency of various requirements. For example, at one time 1-228 Avn had 14 aircraft "distributed" to organizations such as the Public Affairs Office. These aircraft would report to the "Quadrangle" at Building 95, Fort Clayton, and often sit all day when the "supported" office/organization had no plans to use helicopters.

Such allocation of resources severely impaired the battalion's ability to schedule aircraft for missions and perform organizational maintenance. Additionally, it gave aviation a "black eye" on occasion when short-fused missions were requested and all assets were already "doled" out--often unused! Employment of scarce aviation resources is more efficient when the aviation units receive missions and prioritize them according to set guidelines.

- o **Planning Time.** Consistently, the "one third/two third" rule for planning time was violated. In some instances, units were given only minutes to respond to missions that had been in the planning process for days at higher levels. Again, this adversely impacted the ability of aviation commanders to schedule routine maintenance and conduct "fighter management". TF AVIATION commanders had to continually react instead of plan.

- o **LNOs are a must.** The importance of LNOs cannot be over-emphasized. They are vital for coordination with special operations aviation. Additionally, cargo helicopters were employed inefficiently without the use of LNOs to assist the Corps Support command in planning and coordination. This caused frustration for all concerned. There was a critical shortage of personnel who could perform the aviation LNO function, since all available qualified personnel were used to fly missions.

Mission information provided to the pilots was occasionally incomplete, resulting in confusion at the LZ or PZ.

o Detailed operational schedule (opsched). A key to success--"plan the fight, fight the plan." Flight leaders and unit operations officers were required to prepare detailed operational schedules (matrix) for H-hour assaults. This technique was useful in reporting critical events and tracking execution of the plan. Use of operational schedules is not taught in the TRADOC school system, but this process has been implemented by numerous units. This technique should be incorporated into the basic, advanced, and CGSC courses.

o Commander's Intent. The importance of knowing the commander's intent two levels higher cannot be overemphasized. It is absolutely essential in order to conduct ongoing operations when communications with higher headquarters are not possible. The author spent up to 40 hours a week in planning conferences with JTF Panama and JTF SOUTH, the company commanders and staff of 1-228 Avn understood the commander's intent and were able to carry on operations without detailed guidance.

TRAINING

o Training and mental preparation of aircrews for combat. The Army school system does not thoroughly prepare leaders to deal with the harsh realities of combat stress, including hostile fire and the realities of wounded or dead fellow soldiers. It is something that we do not feel comfortable talking about, but we need additional training on helpful techniques for coping with these demands of combat. A good document on this subject is "Key Desirable Leader Actions and Behaviors in Final Preparation of

Small Units and Small Groups for Combat," prepared by Walter Reed Army Institute of Research.

o **Warrant Officer Platoon Leaders.** The 1-228 Aviation was short of First Lieutenant Flight Platoon Leaders and substituted Warrant Officers in many platoon leader positions. Seven out of nine authorized platoon leader positions were filled with warrant officers during Operation JUST CAUSE. They performed magnificently. We must exploit the role of the warrant officer; there is no limit to their extensive capabilities.

o **Non-Commissioned Officer performance.** The sergeants of the battalion ran the battalion. It is that simple. The sergeants stepped in and performed as key staff officers in their absence and ran key functions such as personnel, intelligence, and all aspects of logistics. The officers were thus free to do their job of planning, coordinating, and conducting aviation operations around the clock.

o **Battle Roster Pilots.** Aircrews must be "battle rostered" and fly together as much as possible. This technique reduces the time required to develop cockpit coordination and team work, which is absolutely essential for safe NVG operations. Additionally, it provides an opportunity for the pilot-in-command to become an advocate for the new pilot. Thereby reducing the time for the new pilot to become a pilot-in-command. The ultimate goal is for all unit pilots to become pilot-in-command qualified to provide maximum flexibility in scheduling crews.

o **Air Warrior spirit.** Unit commanders must develop the "warrior spirit" in the members of the unit. Unit members must have the inspiration and soul of the warrior and a sense of warriorship. Being an air warrior is a difficult life. CPT Bradley Mason used to tell his soldiers--"if you want to be a warrior--you've got live a warrior life--a life of sacrifice." It is not easy and requires study, work and dedication. The aviators must be "steely eyed" professionals, who know the flow of battle, both in the air and on the ground. They must be technically competent and tactically proficient.

o **Mission Essential Tasks List (METL).** In aviation units, it is a major task to strike a balance between conducting day-to-day support (Administrative) missions and training on METL tasks. Often the requirements are not complementary. Making matters more difficult is the chore of conducting a cross walk between doctrine and the commanders' aircrew training program. There is not much guidance, in most instances, since the tactics, techniques, and procedures are not standardized and published.

Commanders at all levels have the responsibility to evaluate the realistic capabilities of aviation units and to keep "their hand on the throttle" in order to guard against pushing units into unsafe practices.

o **Tough realistic training.** Because they were physically fit, the aviation soldiers were able to sustain combat operations under less than favorable conditions. They took PT a minimum of three times a week and were acclimatized to the harsh weather

conditions. Tough physical training is key to developing combat ready units.

Requirements for environmental training must be institutionalized as part of the unit aircrew training program. It must include all requirements to develop proficient "Combat Crews" such as survival training, mountain/desert flying qualification, deck landing qualification, Dunker/HEEDS training, flying with body armor, and all other requirements applicable to METL accomplishment. This program must be cross-walked to monthly aviation unit status reporting (USR). Commanders at all levels must understand and support air crew proficiency training programs if aviation units are to be "trained and ready" to execute combat operations safely with minimum risks. CPT Tom Muir, Commander, B Company, 1-123 Aviation (TF HAWK) summed it all up on 22 December 1989, in San Antonio, Texas when he was visited in the hospital by General Carl Vuono, Chief of Staff of the Army--"Sir, we were ready. We were well prepared."⁷¹

- o **Self deployment of CH-47Ds** A major accomplishment of the operation was the successful self-deployment of three specially modified CH-47s. Crews flew 12 1/2 hours non-stop from CONUS to Panama, successfully refueling twice by C-130 tanker aircraft.

SAFETY

- o **Loose parachutes on LZs.** The Rangers and 82d Airborne Division left loose parachutes lying on the drop zones at Tocumen

and Rio Hato Airfields. This created a major safety hazard for the numerous helicopters working in and out of these areas. Several days after the airborne operation, a special operations AH-6 "Little Bird" crashed when a parachute blew up off the ground and into the rotor system. The aircraft was a total loss. A CH-47C aircraft also sustained damage to the forward "dog house" when a loose parachute blew into the rotor system, but amazingly a disaster was averted when the pilot was able to land the aircraft with no other damage.

- o Proved "combat safety" of night vision goggles (NVGs). Aviation units in Operation JUST CAUSE proved the benefit and safety of flying at night with NVGs. There were no accidents and no incidents during night flying with the NVGs. However, it was a different story conducting air assaults in the day time, when virtually every aircraft was hit. We owned the night and did it safely.

ORGANIZATION AND FORCE DEVELOPMENT

- o Doorgunners. Authorization of doorgunners for aviation units is a must. A soldier cannot be thrown in an aircraft and told he is now a doorgunner. That was the way it was done during the Grenada Operation and it proved disastrous. Doorgunners must be carefully selected, complete a comprehensive classroom, range, and flight training program, including over five hours of NVG qualification training in the aircraft--all of which must be carefully documented in formal training records. Doorgunners

must be "battle rostered" as an integral part of the "combat crew".⁷² Doorgunners proved to be indispensable fourth air crew members on assault aircraft, especially at night. Aviation units cannot take mechanics "out of hide" and sustain maintenance operations, including battle damage repair. The aviation units are not properly structured to maintain even a normal operational tempo, much less combat operational tempo. Therefore, if doorgunners are taken from the maintenance repair sections, this disruption only makes matters worse. A portion of the maintenance man-power shortfall could be corrected by adding aircraft mechanics to TOEs to perform as doorgunners. The use of trained and experienced doorgunners proved their benefit time after time. Not only did they provide aircraft security with the M-60D machinegun, they also provided an additional set of "eyes" when conducting NVG operations. This certainly enhanced the safety level of conducting NVG operations.

o **Lack of aircraft "kevlar" floor protection.** The lesson was learned again that an AK-47 can shoot through the floor of a UH-60 and do a lot of damage. Several soldiers were injured enroute to the LZ during the Tinajitas air assault by small arms fire through the floor of the aircraft. Other aircraft received damage to the overhead hydraulics when bullets went through the floor and into the ceiling of the aircraft. This can be prevented with the development and fielding of kevlar ballistic "blankets" for the floors of the aircraft.

o **Absence of aircrew body armor.** Aviation units in Panama initially did not have sufficient body armor for all crews. Additional body armor was ordered and arrived on 19 December! Body armor should be inspected and evaluated as part of command inspections and the Aviation Resource Management survey (ARMS). All units must have a minimum number to allow conduct of contingency operations and allow for training. A lightweight body armor is needed to protect aircrews. The old Vietnam era "chicken plate" is too hot, heavy and bulky for today's modern aircraft.

o **Survival radio inadequacy.** The current survival radios are inadequate for the mission profiles conducted by modern aircraft. They must be upgraded to provide a greater capability to communicate with and facilitate direction finding by search and rescue aircraft.

o **M-60D door gun inadequate.** UH-60 assault aircraft need a greater suppressive firepower capability. The current M-60D does not provide adequate capability to protect the Blackhawk, even in a low intensity conflict environment. A mini-gun or 50 caliber machine gun is required for close in self protection. Army and Air Force special operations aircraft were equipped with mini-guns, and an analysis of battle damaged aircraft shows how effective a better self protection system is.

o **Aviation company executive officers.** Aviation companies must be authorized executive officers to oversee unit administration and logistics operations while the commander is

fighting the battle. The 1-228 Avn assigned lieutenants the function of company executive officer and used warrant officers to fill platoon leader vacancies.

- o Aviation communications capabilities. An aviation battalion has about the same capability to communicate as an infantry company. The lack of positive communications with aircraft on missions lead to inefficient uses of aviation resources. Without reliable, effective communications, we cannot pass along mission changes and stay abreast of the situation. Aviation is sadly lacking in this area. Radios and overall communications capability must be updated to take advantage of current satellite and global positioning and reporting technologies. This capability would enhance the efficiency of employing Army Aviation. We truly could do more with less if we could communicate!!

LOGISTICS

- o Movement of priority aviation repair parts. No aviation repair parts were received in country until D+11. Procedures must be developed to expedite delivery of aviation repair parts. Aviation resources are too critical to be sitting on the ground waiting on the normal parts supply system to respond. A dedicated "Log Bird" is needed to ensure supply of critical parts.

- o Unity of aviation maintenance effort. The aviation intermediate maintenance company (E Co, 228th Avn) was under the

control of the 193d SPT Bn. This peacetime relationship remained effective upon execution of Operation JUST CAUSE. This resulted in command and control problems throughout the operation since the AVIM commander was never integrated into Task Force AVIATION planning or execution. This limited Aviation's ability to coordinate and prioritize maintenance efforts required to execute missions, or to task organize maintenance support packages to support forward deployed aviation task forces."

- o Aviation maintenance support teams. Detailed planning and coordination must be conducted to ensure full utility of deploying aviation maintenance teams. They must have supervision, a mission, and tools to accomplish the mission.

- o Aviation vibration analyzers. Aircraft are too expensive to fly with abnormal vibration. They are too critical to battlefield success to use time consuming, antiquated procedures to track and balance various rotating components. All aviation units need state-of-the-art, computerized vibration analyzers to reduce maintenance downtime and maintenance test pilot workload.

- o HEMTT tanker with four point refuel system. The HEMTT tanker is essential to sustaining aviation combat operations. It's 350 gallon-per-minute capacity pump is crucial in reducing aircraft refuel turnaround time. Each aviation battalion needs a minimum of four sets of HEMTT "4 point hot refuel" equipment to maximize combat capability of HEMTT tanker and the aviation unit.

- o Air Items for sling load operations. Medium lift helicopter operations were hampered by a lack of sufficient air

items to rig and sling external loads. For example, CH-47s would pick up sling loads in the COSCOM PZ, fly to the LZ, release the load, reposition and land while the load was being de-rigged, carry the air items back to the initial PZ, land, off-load the air items, and wait on the second load to be rigged. This was grossly inefficient--extremely wasteful of aircraft hours and manpower. The lack of air items slowed the resupply missions to such a degree that it was necessary to continue into the night with the same inefficient methods. Then night vision goggles were necessary and the riggers were not nearly as fast rigging loads in the dark. It is estimated that 25 to 50 percent of the CH-47 hours were wasted with this inefficient operation.

We need sufficient air items to conduct combat resupply operations. Consideration should be given to maximize internal cargo operations with the HICHS (helicopter internal cargo handling system). But efficient cargo helicopter operations do not just happen, they must be planned with the same degree of detail that would go into a H-hour live fire combat assault. Nothing is easy. Nothing can be taken for granted!!

o Class III operations. Initial positioning and coordination of FARPs was one of the most crucial pieces to the success of Operation JUST CAUSE. After operations began to expand West, significant problems were encountered in getting FARPs in place and operational. This was due to the divided nature of command and control over Class III personnel and equipment.

Responsiveness to the scheme of maneuver would have been better

had the Class III personnel been under the direct control of TF
AVIATION.

IX. CONCLUSIONS

The absolute key to the plan's [Operation JUST CAUSE] success was the six air assaults to break the back of the PDF quickly...without them, no way!--Would be 2.5 mile per hour approach, or less, cutting through jungle--resulting in more lives lost through protracted fighting. ⁷⁴

LTG CARL W. STINER
Commander, XVIII Abn Corps
April 1990

Army helicopters ruled the night! The newest branch of the Army proved that it could fight and win "safely" in combat. The impact of Army Aviation was astounding. Right from the start Army Aviation played key roles, providing aerial fire support suppressing air defense sites, inserting special operating teams, conducting H-hour combat air assaults, providing command and control, saving lives during daring medical evacuation missions, and supplying crucial combat supplies.

Army Aviation proved that it is "pound for pound,...the most deployable, versatile, and lethal of today's Army Forces."⁷⁵ The plan called for speed, surprise, and simultaneous operations--Army Aviation, with its unique capabilities, provided all of these characteristics that contributed to overall mission success.

The AH-64 Apache made it's inaugural combat flight and proved that it is a worthy warfighter with the capability to fight and fight again.

All flying in the first critical hours of the invasion was done at night. The operation simply could not have been accomplished without night vision goggles and devices. Combat experiences in Panama proved what Army planners already knew--air assault operations conducted at night using night vision devices are more effective. They minimized casualties and combat damage to assault aircraft.

Army aviation provided the Joint Task Force commander with the speed, flexibility, and lethality required to seize 27 initial objectives. Aviation enhanced the pace of maneuver and accomplished all of this at night under marginal weather conditions in blacked-out helicopters. Even though many of the participating Army aviators had limited experience (nearly 25% were recent flight school graduates), all displayed the combat discipline, determination, and courage of seasoned Army aviators! The proven success of Army aviation in combat, despite limited experience, reinforces the Army's requirement for a tough, realistic night training program.

It was also apparent that Army Aviation needs the Comanche Scout aircraft. A pilot was killed when his OH-58C aircraft was shot down while attempting to locate a PDF anti-aircraft position. Because the OH-58C has no enhanced night optics, the crew was required to close within a few hundred meters of the

target, a task an armed OH-58D or Apache could have accomplished from a distance of two miles. This incident amplified the need to continue modernization of the Scout helicopter fleet.

Appendix A--AVIATION COMMANDERS AND STAFF

JTF-SOUTH

XVIII Airborne Corps
Aviation Officer

COL Robert N. Seigle

Task Force AVIATION

Commander	COL Douglas R. Terrell
Executive Officer	LTC William Webb
S-1	CPT James Droskinis
S-2	CPT Wayne Isham MAJ Mark Grablin
S-3	MAJ James Kelly
Asst S-3	CPT Kevin Gibbons 1LT Dustin Kanady
S-4	MAJ Thomas Schatte

1st Battalion, 228th Aviation "Winged Warriors"

Commander	LTC Douglas I. Smith
Command Sergeant Major	CSM Richard A. Howard
Executive Officer	MAJ Larry Santure
S-1	CPT Bruce Smith
S-2	SSG Mendiola
S-3	MAJ Gayland D. "Butch" Muse
S-4	CPT Jeffrey Chapman
Bn Standards	CW3 Roger D. Smith
Bn Safety	CW4 Leon J. Golembiewsky
Commander, HHC	CPT Robert F. Hein

Commander, A Company (Assault) "TALONS"	CPT Bradley J. Mason
Commander, B Company (Cmd Avn) "Jokers"	MAJ Gary D. Messano
Commander, C Company (Med Lift) "Sugarbears"	CPT Axel Martinez
Commander, 214th Medevac Det "Medevac"	MAJ Gary S. Drabczuk
Commander, E Company 228th Aviation (AVIM) 193d Spt Bn	CPT Camden Kent

Task Force HAWK

Commander	LTC Howard Borum
Executive Officer	MAJ Donald Arnold
S-1	
S-2	
S-3	MAJ Monty Willey
S-4	
Commander, A Company (Assault) "SHADOW" 3-123 Aviation	CPT Thomas Muir
Commander, B Company (Assault) 3-123 Aviation	CPT Thomas Hyde
Commander, B Company (Attack) 1-123 Aviation	CPT Alan Jones

Task Force WOLF (1-82nd Aviation)

Bn Commander	LTC Donald E. Vinson
Command Sergeant Major	CSM John J. Mercer
Executive Officer	MAJ Reed C. Kowalczyk
S-1	CPT Ronald Tuggle
S-2	CPT Grady King

S-3	MAJ Wayne R. Sears
Commander, A Company (Apache) 1-82 Aviation	CPT Roger A. Pretsch
Commander, B Company (Apache) 1-82 Aviation	CPT Stewart B. Hamilton
Commander, A Troop, (Recon) 1-17 Cavalry	CPT Allen E. Glass

**160th Special Operations Aviation Group (Airborne)
"Night Stalkers"**

Commander	COL Billy J. Miller
Command Sergeant Major	CSM Zandrew Farrow
Deputy Brigade Commander	LTC John Binkley
Executive Officer	LTC Robert Vuill
S-1	MAJ Richard Kiehl
S-2	MAJ Joseph Preston
S-3	LTC Gordon Hemsberger
S-4	MAJ J. T. Moore
Commander, HHC	CPT Raymond Palumbo
Commander, A Company MH-6 "Little Birds Slicks"	MAJ Richard Bowman
Commander, B Company AH-6 "Little Bird Guns"	MAJ Daniel Brown
Commander, C Company UH-60	MAJ Ray Nelson
Commander, D Company UH-60	MAJ Mike Zonfrelli
Commander, E Company CH-47D	MAJ John Moorman
Commander, F Company ALUM	MAJ Henry Hostetter

Commander, 617th Special
Operations Aviation Detachment
(SOAD) (Panama) UH-60

MAJ Richard Compton

APPENDIX B D-Day Aircrews

The following is a listing of TF AVIATION aircrews participating H-hour and D-day operations.

1st Battalion, 228th Aviation

A Company "TALONS"

<u>AIRCRAFT</u> <u>(HITS)</u>	<u>P-I-C</u> <u>(MISSIONS)</u>	<u>PILOT</u> <u>(MISSIONS)</u>	<u>CREW CHIEF</u> <u>(MISSIONS)</u>	<u>DOOR GUNNER</u> <u>(MISSIONS)</u>
84-23974 (15)	CW2 Craddock Craig S. (A,V,T)	CPT Burnett Charles, J. (A,V,T)	SPC Morning Marion, D. (A,V,T)	SPC Fisher Edward, S. (A,V,T)
87-24588 (15)	CW3 Prieto Jose E (V,T,C)	LTC Borum Benton H. (V,T,C)	SSG Kennedy Homer L (V,T,C)	SPC Ferguson Greg L. (V,T,C)
84-23977 (12)	CW2 Lilley Timothy A. (A,V,T,C)	1LT Schall Stanley F. (A,V,T,C)	SSG Machado Jose A (A,V,T,C)	SPC Cole Micheal A. (A,V,T,C)
84-23991 (12)	CW2 Garner Harold J. (A,V,T,C)	CPT Mason Bradley J. (A,V,T,C)	SPC Albert Ruben L. (A,V,T,C)	PFC Taybron Paul N. (A,V,T,C)
84-23967 (8)	CW3 Bohlmann Mark F. (A,V,T,C)	CW2 Ambler Jaime A. (A,V,T,C)	SPC Charlesworth Steven A. (A,V,T,C)	SGT Combs David M. (A,V,T,C)
84-23947 (10)	CW2 Giles Mathew J. (A,V,T,C)	CW2 Johnson Charles W. (A,V,T,C)	SPC Fleming Steven W. (A,V,T,C)	SGT Acosta Frank A. (A,V,T,C)
84-23989 (2)	CW3 Babicz John L. (A,V,T,C)	WO1 McKenny Micheal A. (V,T,C)	SPC Burnett Tab A. (A,V,T,C)	SPC Rodriguez Troy J. (A,V,T,C)
Other Crews	CW2 Wilderson CW2 Shockney	CW2 Allen WO1 Poland LTC Pickett	SGT White SPC Cornell SGT Small	SGT Lomping SGT Maphis SPC Bontemps

Mission Codes:

Fort Amador -A
Fort Cimarron -C

Tinajitas - T
Panama Viejo - V

B Company "JOKERS"

UH-1 Aircrews

Pilot-in-Command

Pilot

Air Assault Mission

CW3 Loats
Michael W.

WO1 Treadaway
Dewayne L.

Renacer Prison
(Flight Lead)

CW3 Smith
Roger D.

WO1 Greenlund
Dwight L.

Renacer Prison

WO1 Gibson
Vincent C.

WO1 Snelling
Michael J.

Renacer Prison
(Parking lot)

1LT Zivkovich
Robert M.

WO1 Burke
James E.

Gamboa PDF School

WO1 Finley
Rex A.

WO1 Wing
Mark E.

Cerro Tigre
Logistics Complex

CW3 Kahler
Paul E.

WO1 Block
Richard

Cerro Tigre
Logistics Complex
(Flight Lead)

CPT Hein
Robert F.

MAJ Diaz
Felix

TF ATLANTIC C&C Acft
COL Keith Kellogg, CDR
LTC DI Smith, 1-228 Avn

OH-58 Aircrews

WO1 Perfetto
Nicholas J.

WO1 Carl

C&C Aircraft
ITC Lynn Moore
Cdr, 3-504 Abn Inf

WO1 Camelin
Timothy J.

1LT Sullivan
Daniel S.

Recon of Fort Clayton/
Albrook Air Station

CPT White
Stanley S.

Courier

CW2 Stout
Richard

WO1 Maguder
Kevin P.

Gen Thurman/
MG Cisneros

CW2 House
Martin H.

WO1 Ellis
Brian C.

JTF-SOUTH Pax haul

C Company "Sugarbears"
(CH-47C Aircraft)

<u>AIRCRAFT</u> <u>(HITS)</u>	<u>P-I-C</u> <u>(MISSIONS)</u>	<u>PILOT</u> <u>(MISSIONS)</u>	<u>FLT ENGINEER</u> <u>(MISSIONS)</u>	<u>CREW CHIEF</u> <u>(MISSIONS)</u>
123	CW2 Trotter, P	1LT Mount	Cole	Levingston
676	CW4 Brackmeier Gary O.	CW3 Rodriguez Virgilio L.	Judd	Wynn
004	CW3 Henderson Timothy L.	CPT Fedors Kurt	Keefe	Moore
683	CW3 Hibler, C.	CW3 Fricke	Morton	Hernandez
530	CW4 Clark, J.	CW3 Lamacchia, F.	SGT Carr, D.	Brown
287	CW2 Coker	CPT Sutherland	SGT LaBelle	SGT Carr
293	CW3 Standish	Hunter	SPC Kruszynski	SGT Peltier

Task Force HAWK
(TEAM SHADOW-ASSAULT HELICOPTERS)

<u>AIRCRAFT</u> <u>(HITS)</u>	<u>P-I-C</u> <u>(MISSIONS)</u>	<u>PILOT</u> <u>(MISSIONS)</u>	<u>CREW CHIEF</u> <u>(MISSIONS)</u>	<u>DOOR GUNNER</u> <u>(MISSIONS)</u>
86-24487 (1)	Pickett 3330 (A, A2, V)	Montano 1893 (A, A2, V)	Parks 5970 (A, A2, V)	Hurdle 4307 (A, A2, V)
85-24425 (0)	Mann 3470 (A, A2, V, T)	Kutschera 0310 (A, A2, V, T)	Colley 3185 (A, A2, V, T)	Diaz 9629 (A, A2, V, T)
85-24425 (0)	Mann 3470 (C)	Borum 4475 (C)	Colley 3185 (C)	Diaz 9629 (C)
85-24397 (3)	Mann 6354 (V)	White 1516 (V)	Womack 0613 (V)	Lamb 3325 (V)
85-24434 (1)	Beck 4710 (V, T)	Elwinger 0482 (V, T)	Smith 7864 (V, T)	Baskin 7842 (V, T)
85-24435 (0)	Petaroi 8480 (A, A2, V, T, C)	Larson 5528 (A, A2, V, T, C)	Beasley 1959 (A, A2, V, T, C)	Stevison 2784 (A, A2, V, T, C)

<u>AIRCRAFT</u> <u>(HITS)</u>	<u>P-I-C</u> <u>(MISSIONS)</u>	<u>PILOT</u> <u>(MISSIONS)</u>	<u>CREW CHIEF</u> <u>(MISSIONS)</u>	<u>DOOR GUNNER</u> <u>(MISSIONS)</u>
85-24442 (0)	Witten 8504 (A,A2)	Borum 4475 (A,A2)	Johnson 6586 (A,A2)	Perrin 3092 (A,A2)
85-24442 (0)	Witten 8504 (V,T,C)	Pickett 5054 (V,T,C)	Johnson 6586 (V,T,C)	Perrin 3092 (V,T,C)
86-24502 (1)	Mirides 5114 (V,T)	Cumbey 3812 (V,T)	Rudell 2974 (V,T)	Mills 9173 (V,T)
85-24750 (2)	Warren 1404 (A,A2,V,T,)	Healy 7064 (A,A2,V,T)	Clark 8599 (A,A2,V,T)	Stalder 9814 (A,A2,V,T)
85-24433 (2)	Harris 7351 (A,A2,V,T)	Lincoln 7193 (A,A2,V,T)	Wignarajah 2997 (A,A2,V,T)	Decorse 1373 (A,A2,V,T)
85-24426 (5)	Vanderheuval 5337 (A,A2,V,T)	Muir 3321 (A,A2,V,T)	Lavell 8691 (A,A2,V,T)	Bryant 5705 (A,A2,V,T)
85-24402 (7)	Moss 8774 (A,A2,V,T,C)	Snowden 4185 (A,A2,V,T,C)	Mason 0348 (A,A2,V,T,C)	Mlaker 9363 (A,A2,V,T,C)
85-24750 (0)	Warren 1404 (C)	Healy 7064 (C)	Yeager 4181 (C)	Lamb 3325 (C)

(ATTACK / OBSERVATION HELICOPTERS)

78-23051 (3) AH-1	Monroy 2755 (A,V,T,C)	Peltier 9283 (A,V,T,C)	N/A	N/A
77-22789 (14) AH-1	Stacy 9156 (R,T)	Marsh 6280 (R,T)	N/A	N/A
78-23065 (4) AH-1	Sargent 4350 (A,V,T,C)	Mack 7426 (A,V,T,C)	N/A	N/A
77-22778 (5) AH-1	Kidd 0616 (V,T,C)	Head 8561 (V,T,C)	N/A	N/A

MISSION CODES:

Fort Amador - A
Fort Amador, 2d sortie - A2

Panama Viejo - V
Tinajitas - T
Fort Cimmaron - C

<u>AIRCRAFT</u> <u>(HITS)</u>	<u>P-I-C</u> <u>(MISSIONS)</u>	<u>PILOT</u> <u>(MISSIONS)</u>	<u>CREW CHIEF</u> <u>(MISSIONS)</u>	<u>DOOR GUNNER</u> <u>(MISSIONS)</u>
77-22788 (0) AH-1	Bradley 3575 (A)	Keegan (A)	N/A	N/A
77-22788 (1) AH-1	Bradley 3575 (V,T,C)	Cram 4601 (V,T,C)	N/A	N/A
775 AH-1	Talley (CT)	Barnett (CT)		
70-15586 OH-58 (Shot down / destroyed)	Jones 6894 (A)	Porter 2255 (A)	N/A	N/A
70-15561 OH-58	Beck (R)	Parsons (R)		

MISSION CODES:

Fort Amador - A
Fort Amador, 2nd sortie - A2
Panama Viejo - V
Tinajitas - T
Fort Cimarron - C

Renacer Prison - R
Cerro Tigre - CT

Appendix C AIRCRAFT BATTLE DAMAGE

The PDF demonstrated they could hit helicopters with small arms fire during the rescue of Kurt Muse from La Modelo Prison and during the day air assaults on 20 December. There were 2 "Little Birds" shot down in the vicinity of the Comandancia at approximately H-hour. One, an AH-6 "Little Bird" flown by CPT George Kunkle and CWO Fred Horsley, was shot down while trying to attack the Comandancia with 2.75" rockets and TOW antitank missiles. Both pilots survived and were able to escape. The other "Little Bird" shot down that night was a MH-6 "slick" which was flying Kurt Muse off the top of the La Modelo Prison. The aircraft also had several special operations team members on the outside of the aircraft. The aircraft crashed in a street after being hit by ground fire. All personnel were rescued.

During the day on 20 December, a third TF 160 "Little Bird" was shot down over the city of Colon. 1LT John W. Hunter and CW2 Wilson B Owens were killed. During the H-hour assault on Fort Amador, CW2 Andrew P. Porter, B Company, 1-123 Avn (TF HAWK) was killed when his OH-58 was shot down in the Panama Canal. CPT Alan Jones was able to get out of the aircraft and swim to shore.

During follow-on operations after D-day, a TF 160 "Little Bird" crashed at Tocumen Airport when a parachute blew into the aircraft's rotor system. Even though the aircraft was a total loss, both pilots survived.

Table 14

Aviation Battle Damage Assessment⁷⁶

<u>Aircraft Type</u>	<u>Damaged</u>	<u>Returned to Service</u>	<u>Lost</u>
Blackhawks	25	24	0
UH-1 HUEYs	1	1	0
AH-1 COBRAs	5	5	0
OH-58 Kiowa	4	3	1
AH-64 Apaches	3	3	0
Special Opns Acft	<u>7</u>	<u>4</u>	<u>3</u>
TOTAL	45	40	4

- o Most damaged aircraft were flying again in 24 hours or less.
- o All lost aircraft were OH-58 or AH/MH-6.
- o A total of 167 helicopters were used.
- o Most aircraft battle damage was due to small arms fire.
- o An additional spec opns aircraft lost to non-battle damage.

Summary of Battle Damage: A/1-228 Avn (TALONS) UH-60 Blackhawks

ACFT 84-23974 (15 hits) Two main rotor blades received hits, several rounds penetrated structural members in the cabin floor, 3 rounds through the fuel cells, hydraulic lines severed, extensive damage to the inside of the tail cone by shrapnel, approximately 80 wires in the tail cone damaged, stabilator system failed, the tail landing gear extensively damaged.

Disposition: Aircraft was down for extended repair. It was used as a parts source to get other aircraft flying.

ACFT 84-23947 (10 hits) Received rounds through belly of aircraft, damage to left hand flight controls below pilots seat, tail rotor pylon damaged, one main rotor blade damaged.

Disposition: Replaced three flight control components, one main rotor blade, applied temporary repairs to sheet metal. Aircraft released for flight.

ACFT 84-23991 (12 hits) Two rounds through right hand fuel cell, one round through co-pilots door, one round through right hand flight controls, rounds through cabin roof, and pilots seat damaged by a bullet.

Disposition: Aircraft remained in service for four days. The right hand fuel cell began to leak and the aircraft was brought in for repair.

ACFT 84-23977 (12 hits) Bullet holes in two main rotor blades, Disposition: Blades evaluated and cleared for use. Blades were repaired/changed when the tactical situation permitted.

ACFT 84-23967 (8) Rounds through right hand fuel cell, right hand fuel vent valve, rounds through forward cabin floor, mid cabin floor. Pilots windshield had a bullet hole in it.

Disposition: Replaced left hand cyclic control tube, cut away damaged sheet metal from control tubes, applied green duct tape to damaged fuel vent lines. Windshield replaced. Released for flight.

ACFT 87-24588(CINC HAWK) (15 hits) Round through stabilator, 2 rounds through tail cone, tail rotor cables damaged by bullets, tail rotor control cable brackets (3) damaged, emergency locator transmitter damaged. One main rotor blade was punctured. Electrical wire bundle in tail cone severed. #2 FM radio antenna and tail rotor gearbox fairing received bullet damage. Disposition: Replaced stabilator, repaired sheet metal damage, replaced tail rotor cables, repaired wires in tail cone. Aircraft released for flight.

160th Special Operations Aviation Group (ABN)

Listed below is a summary of battle damaged aircraft in the 160th Special Operations Aviation Group:⁷⁷

3 x MH-6 Damaged by small arms fire (one was a total loss)

1 x MH-6 Parachute mishap (30 Dec 89) Tocumen Airport

2 x AH-6 Total loss resulting from small arms fire

1 x UH-60 Received small arms damage

1 x UH-60 Struck antenna during H-hour assault--damaging
main rotor blade tip caps

ENDNOTES

1. Carl E. Vuono, Subj: Initial Observations of Operation JUST CAUSE, 5 January 1990, Copy in the Classified Vault, Vuono Papers, Military History Institute, Carlisle Barracks, Pa.
2. Ann Devoroy and Patrick E. Tyler, "U.S. Launches Military Operation in Panama to Seize Gen. Noriega," Washington Post, 20 December 1989, 1.
3. Lawrence A. Yates, "Joint Task Force-PANAMA: JUST CAUSE--Before and After," Military Review 10 (October 1991): 59.
4. Margaret Roth, "Classified memo warned of harassment in Panama," Army Times, 3 April 1989, 21.
5. Tom Donnelly, "TERROR IN PANAMA," Army Times, 20 March 1989, 3.
6. Mike Kirkland, "Storm over Panama," Army Times, 18 April 1988, 8.
7. Yates, "Joint Task Force - PANAMA", 60.
8. ibid 61.
9. Bradley J. Mason, Major, US Army. "Assault Helicopter Contingency Operations: The Fine Line Between Peace and War." School of Advanced Military Studies Monograph, US Army Command and General Staff College, 1991.
Major Mason served as the Commander, A Company (Talons) 1st Battalion, 228th Aviation, May 1989 - May 1990. He led the Talons on many critical air assaults during Sand Flea and Purple Storm operations; and during H-Hour assaults initiating Operation JUST CAUSE.
10. Yates, "Joint Task Force - PANAMA", 67.
11. The author served in Panama from 14 July 1989 to 21 June 1991 as the Commander of the 1st Battalion, 228th Aviation. Blade Jewel resulted in over 100 families departing this Battalion.
12. Margaret Roth and J. Paul Scicchitano, "SHOWDOWN IN PANAMA," Army Times, 14.

13. Arnie Rossie, to Cdr, 1-228 and Cdr, TF HAWK, CF: JTF PANAMA J3, SUBJ: Operational Alignment of Avn, 3 August 1989.

The author has a copy of the memo directing the establishment of TF EAGLE and the associated command relationships.

14. In the beginning it was not routine to land at night in joint use areas. Over time, the SAND FLEA operations gradually increased in size and complexity.

15. Marc A. Cisneros, Interview by author, 5 February 1992.

16. Aircraft accidents are always followed by safety and collateral investigations which are disruptive to unit activities. The UH-60 crashed as a result of material failure of the oil cooler drive shaft splines causing a loss of tail rotor thrust. Inspections were conducted of all aircraft and a USARSO aviation maintenance inspection was made of all aviation maintenance operations. This inspection was followed by a US Army Aviation Center, Directorate of Evaluation and Standardization (DES) "assistance visit", 10-15 December. It was a challenge getting everything done with so many competing requirements for time.

17. The 1-228th Aviation routinely used the full range of the battalion's aircraft capability to support short notice (CRE) air assaults. Each type aircraft had a specially designated area to land in LZ AIRBORNE (Port Kobbe), that was pre-coordinated with the 1-508th Abn Inf. The "Red Devils" would quickly adjust loads to fit the mix of aircraft, thus the analogy to the football play--34 FLEX.

18. Personal notes of the author.

19. The author had the only copy of the TV tape. It was obtained during the Pre-Command Course at Ft Rucker, Apr 89. The local TASC reproduced 6 copies for each battalion Saturday night allowing unit leaders to see the tape on Sunday to meet the CINC's directive.

20. The author emphasized a Battalion policy of achieving NVG proficiency rather than simply obtaining NVG currency. To maintain NVG currency requires only 1 hour of NVG flight time every 45 days, in contrast with NVG proficiency where the battalion goal was five hours per month per pilot! This policy was crucial in developing the proficiency that led to the success of the numerous Operation JUST CAUSE NVG assaults.

21. Howard Borum, Interview by author, various occasions Aug 91 through Feb 92, Carlisle Barracks, PA.

22. US Army, "Annual Historical Review (Tactical), 1 October 1989 - 30 September 1990, 1st Battalion, 228th Aviation." US Army South, Fort Kobbe, Panama, 1990.

23. Jim Tice, "Schedule reducing Panama tours is complex: New rotations implement major policy changes," Army Times, 2 Nov 1989, 12.

24. General Stiner stated during his briefing to the Aviation Ball in April 1990 at Fort Rucker that XVIII Airborne Corps had to provide all CH-47, UH-60, and UH-1 crews since the "in-country units were not proficient in flying at night, and had in fact never refueled at night." Neither of his comments were accurate!

The 1-228 Avn and Task Force Hawk had numerous night vision goggle proficient crews and routinely flew and conducted "hot refuel" operations at night. In fact, the in-country aviation units could have conducted the critical NVG H-hour missions without the CH-47 augmentation crews. These additional crews were requested to ensure sufficient crew availability to allow for adequate crew rest and sustain 24-hour a day flight operations for an extended period of time.

25. US Army, "After Action Report, Operation JUST CAUSE," (1st Bn (ATK), 82 Avn, 82 Airborne Division, Fort Bragg, NC, 1990), 1.

26. LTC David Pickett was killed in El Salvador when his UH-1 helicopter was shot down by FMLN rebels on 1 January 1991, only days prior to his change of command. He had been visiting his UH-1 platoon stationed in San Salvador and was returning to Soto Cano Air Force Base in Honduras when his aircraft was shot down. The crew survived the crash landing, and were murdered by the rebels.

27. Thomas Donnelly, Margaret Roth, and Caleb Baker, OPERATION JUST CAUSE: The Storming of Panama, (New York: Lexington Books, 1991), 92.

28. *ibid* 92.

29. *ibid* 90.

Donnelly, et al, did not reference a source of information on the status of aviation training and pilots and his facts are incorrect. It indicates the pilots in Panama were not proficient and that just is not the case. They proved it time and again.

The author was not interviewed by the writers of this book.

29. US Army, Operation JUST CAUSE Briefing, (US Southern Command, Quarry Heights, Panama, 1990).

30. US Army, Operations in Panama Briefing/Module, (1990, US Army, Training and Doctrine Command, Ft. Monroe, VA).

31. A partial listing of the topics discussed in the last TF Aviation Commanders meeting prior to beginning H-hour assaults. These were taken from the authors notes recorded during the meeting.

32. The white poster board distinguish between PDF aircraft of similar design. The glint tape was placed on all aircraft to allow the AC-130s to see the "blackened out" aircraft and reduce chances of "friendly fire". These instructions were contained in the JTF SOUTH Joint CEOI.

33. See Thomas Donnelly, Margaret Roth, Caleb Baker, OPERATION JUST CAUSE: The Storming of Panama, (New York: Lexington Books, 1991) 166-183,84; US Army, Operation JUST CAUSE, (Chief of Military History Pub 70-33, 1990).

34. See Malcolm McConnell, JUST CAUSE: The Real Story of America's High-Tech Invasion of Panama, (New York: St. Martin's Press, 1991) 148; (Donnelly, Roth, and Baker 1991) 84-85; (CMH Pub 70-33).

35. See (Donnelly, Roth, and Baker 1991) 84; (McConnell 1991) 92-117.

36. See (Donnelly, Roth, and Baker 1991) 85, 183-187; (McConnell 1991) 197-198.

37. See (McConnell 1991) 38-48; (Donnelly et al 1991) 192-194.

38. See (Donnelly et al 1991) 121-123; (CMH Pub 70-33).

39. See (CMH Pub 70-33); (Donnelly et al 1991) 85-86.

40. US Army, "Operation JUST CAUSE," (Briefing, US Southern Command, 1989).

A copy of the briefing slides are in GEN Thurman's papers in the Classified Vault of the Military History Institute, Carlisle Barracks, PA.

41. Carl E. Vuono, "Army Aviation in a Changing World," Army Aviation (Army Aviation, 30 June 1990): 8.

42. Douglas Terrell, Operation JUST CAUSE, (recorded by Terry Coakley, 40 min., Army Aviation Association of America, 1990), videocassette.

43. *ibid*

The information on Table 2 was adapted from COL Terrell's presentation and from the author's notes.

44. LTC Fitzgerald, Commander, 1-508 Abn Infantry stated that during the after action review with his leaders on the Amador operation, his B Company commander who flew on CPT Mason's aircraft related the calming effect of CPT Mason on the radio encouraging his fellow Blackhawk pilots as they were on long final into Fort Amador and literally thousands of tracers being visible. He stated that CPT Mason's calmness gave him renewed confidence and strength to deal with the situation that soon was to be at hand. The Infantry company commander was using a headset to monitor radio transmissions and talk with CPT Mason.

45. See US Army, "After Action Report, Combat Operations - Operation JUST CAUSE." Task Force - HAWK, Joint Task Force - Panama, Fort Kobbe, Panama, 1990; US Army, "Face of Battle" Soldier's in Panama: Stories of Operation JUST CAUSE, (Office of the Chief of Public Affairs, 1990) 10.

A super article describing the initial H-hour air assault on Ft Amador and the performance of CPT Mason and his Talons.

46. LTC Billie Ray "Fitz" Fitzgerald, Commander, 1-508 Abn Infantry related that his soldiers nearly shot CPT Jones as he was trying to come ashore. They thought he was a PDF SCUBA diver or one of the PDF trying to escape Fort Amador by swimming the canal.

47. See US Army, "After Action Report, Combat Operations - Operation JUST CAUSE." Task Force - HAWK, Joint Task Force - Panama, Fort Kobbe, Panama, 1990; US Army, "Raid at Renacer" Soldier's in Panama: Stories of Operation JUST CAUSE, Office of the Chief of Public Affairs, (1990) 6.

A superb article describing the B/1-228 Avn "JOKERS" air assault on Renacer prison. The UH-1 flight leader was CW3 Michale Loats and pilot of the second aircraft was CW3 Roger Smith. Both were UH-1 instructor pilots.

48. US Army, "Annual Historical Review (Tactical), 1 October 1989 - 30 September 1990, 1st Battalion, 228th Aviation." (1-228 Avn, US Army South, Fort Kobbe, Panama, 1990).

49. (1-228 Avn Historical Review 1990); (Donnelly et al 1991) 280-286.

50. (TF HAWK After Action Report 1990)

51. Department of Defense, "After Action Report: Department of Defense National Media Pool Deployment To Panama," (1990) 1&7.

There had been no pre-planned missions to provide helicopter support to the media pool since SOUTHCOM had not planned for the pool to be activated. SOUTHCOM's concept of coverage was to use all the reporters that were already in country!

52. See (Donnelly et al 1991) 215-235; (Task Force HAWK After Action Report 1990); and Author's notes.

53. (Donnelly et al 1991) 223.

54. MG James Johnson, Commanding General, 82d Airborne Division personally conferred with LTC Borum and CPT Mason and solicited their advice about when to conduct the Fort Cimarron air assault. The decision was made to refuel and rearm the aircraft prior to initiating the final assault.

Infantry casualties were taken back to Howard AFB in some of the battle damaged aircraft returning for maintenance.

55. The author met the aircraft as they returned to the "Harvest Bare" parking area and talked with every crewmember to get their impressions of "combat" and show appreciation for a job well done! The bravery and enthusiasm of soldiers having tasted combat for the first time was awesome--they were proud of their performance and the fact that not one of them had even been scratched, even though the aircraft were shot to pieces. There were numerous miracles that occurred that day--a map, that had been laying on the aircraft console between the pilots, had a hole made by a bullet; aircraft windscreens with bullet holes, one pilot's 9mm pistol stopped a bullet that would have gone through his thigh; flat tires on several aircraft. All the crewmembers were able to find bullet "souvenirs" in their aircraft.

The author emphasized to subordinate leaders that it was imperative that combat data be captured and recorded, and pilot debriefs and after action reviews would have to be conducted in combat just as in peacetime training.

56. See US Army, "After Action Report, Operation JUST CAUSE," (1st Bn (ATK), 82d Avn, 82d Airborne Division, Ft Bragg, NC, 1990); David Hughes, "Night Invasion of Panama Required Special Operations Aircraft, Training," (Aviation Week and Space Technology, 19 February 1990) 61-64; George Rhynedance, "Army aviation has fine safety record," (Office of the Chief of Public Affairs: Monthly Update, June 1990) 8-9.

57. US Army, "214th Medical Detachment: Operation JUST CAUSE," (214th Medical Detachment, US Army South, Panama, 1990)
After action briefing prepared by the Commander (MAJ Gary Drabczuk), 214th Medevac Detachment, Fort Kobbe, Panama. The author has a copy of this briefing.

58. Adapted from Bruce W. Watson and Peter G Tsouras, Operation JUST CAUSE: The U.S. Intervention in Panama, (Boulder, CO: Westview Press, 1991) 117; and US Army, Briefing "Operation JUST CAUSE" (160th Special Operations Aviation Group (ABN), Fort Campbell, KY, 1990).

59. David Hughes, "Night Invasion of Panama Required Special Operations Aircraft, Training," (Aviation Week and Space Technology, 19 February 1990) 61.

60. (McConnell 1991) 94-95.

61. (Donnelly et al 1991) 189.

62. *ibid* 85,130.

63. Operation JUST CAUSE briefing. 160th Special Operations Aviation Group (ABN).

64. *ibid*, 121-130.

65. Carl Stiner, interview by author, Carlisle Barracks, PA, 6 February 92.

58. (US Army, 1-228 Avn Annual Historical Review 1990)

59 The author participated as a member of the study team which wrote the Army Aviation Mission Area Analysis (AAMAA). A copy is in the War College classified library.

The author also attended the Army Aviation Systems Program Review in March 1982.

60. US Army, "Operation JUST CAUSE Briefing," (1st Battalion, 228th Aviation, Fort Kobbe, Panama, 1990).

61. US Army, "After Action Report, Operation JUST CAUSE," (1st Bn (ATK), 82 Avn, 82 Airborne Division, Ft Bragg, NC, 1990).

62. *ibid*

63. US Army, "After Action Report, Combat Operations - Operation JUST CAUSE." (Task Force - HAWK, Joint Task Force - Panama, Fort Kobbe, Panama, 1990).

64. *ibid*

65. Robert R Ropelewski, "Planning, Precision, and Surprise Led Panama Successes," (Armed Forces Journal, February 1990,) 28.

66. *ibid* 28.

67. Even though several units had the AN-424 Transponder Test Set, most were not trained on how to use it. There were no other methods for ensuring that all modes and codes were operational and properly set. This represented a major training challenge. The AN-424 Test Set is a superb piece of equipment that should be used daily by all aviation units. It allows checks of all aircraft IFF modes and codes without connecting any cables to the aircraft. The complete test can be accomplished in a matter of seconds for each aircraft.

68. Robert A. Fitton, ed. LEADERSHIP: Quotations from the Military Tradition. (Boulder, CO: Westview Press, 1990.) 172.

69. It was particularly frustrating watching the national news on TV and seeing the Christmas season interviews with soldiers families in the stateside shopping malls. It was as though they were the only ones making a sacrifice since their husbands were deployed to Panama and would not be home for Christmas. No interviews or recognition were given to those family members who were actually in Panama and undergoing the stress of combat and terrorist threats.

The author's wife, Linda and two children, Lisa who was in the 12th grade, and Kim who was in the 8th grade, were in Panama during Operation JUST CAUSE. They had an extra long Christmas break as a result of JUST CAUSE.

70. Grant Willis, "Soldiers Rake in six Silver Stars for JUST CAUSE," Army Times. (24 June 1991).

71. General Vuono's paper's. Military History Institute, Carlisle Barracks, PA.

72. The author made doorgunner training an area of command interest. It has to be implemented, tracked and evaluated just as pilot training. There are no shortcuts or easy ways to have competent and proficient doorgunners--it begins with the selection process, administering of flight physicals, conducting the training, documenting it--and caring enough to fight the bureaucracy to get crewmember flight pay for them. It is not easy and requires continuous effort.

73. Major General Timmons, Commander US Army SOUTH, reviewed the assignment of the Aviation Intermediate Maintenance (AVIM) company on 1 April 1992 and made the decision to remove it from the control of the 193d Support Battalion place it back under aviation command and control.

74. Carl Stiner, "Operation JUST CAUSE" presentation, Army Aviation Ball, Fort Rucker, AL, April 1990.

75. Rudolph Ostovich, III, "Contingency Warfare: Our Strong Suit," (ARMY AVIATION, 31 October 1990) 14.

76. Adapted from "Army Aviation in Panama: Operation JUST CAUSE," (Army Aviation, 28 February 1990) 30.

77. U.S. Army, "Operation JUST CAUSE," 160th Special Operations Aviation Group (ABN), 1990.

BIBLIOGRAPHY

1. Books

Behar, David S., and Godfrey Harris. Invasion: The American Destruction of the Noriega Regime in Panama. Los Angeles: The Americas Group, 1990.

Briggs, Clarence E., Operation Just Cause. Harrisburg: Stackpole Books, 1990.

Donnelly, Thomas, Margaret Roth, and Caleb Baker. OPERATION JUST CAUSE: The Storming of Panama. New York: Lexington Books, 1991.

Fitton, Robert A. ed. LEADERSHIP: Quotations from the Military Tradition. Boulder, CO: Westview Press, 1990.

Jones, K. J. et al. The Enemy Within, Casting Out Panama's Demon, Panama City: Focus Publications (Int), S.A., 1990.

A journalistic account, supported by numerous action photographs, of the events leading to JUST CAUSE and the operation itself.

Kempe, Frederick. Divorcing the Dictator. New York: Putnam, 1990.

McConnell, Malcolm. JUST CAUSE: The Real Story of America's High-Tech Invasion of Panama. New York: St. Martin's Press, 1991.

Musicant, Ivan. The BANANA WARS: A History of United States Military Intervention in Latin America From the Spanish-American War to the Invasion of Panama. New York: Macmillan Publishing Company, 1990.

The U.S. Invasion of Panama: The Truth Behind Operation JUST CAUSE. Boston: South End Press [1991].

Prepared by the Independent Commission of Inquiry on the U.S. Invasion of Panama. Don't waste your time reading this book of lies presenting a "leftist" slant of even untruths! Ramsey Clark is a member of this commission.

Watson, Bruce W. and Peter G. Tsouras. Operation JUST CAUSE: The U.S. Intervention in Panama. Boulder, CO: Westview Press, 1991.

2. Interviews

Borum, Lieutenant Colonel Howard B., Commander, 1st Battalion, 123 Aviation, 7th Infantry Division, Fort Ord, CA; Commander, Task Force-HAWK, Panama, October 1989 - February 1990. Interview conducted by the author on various occasions during the period August 1991 - February 1992, Carlisle Barracks, Pennsylvania

Cisneros, Major General Marc A., Commander, U.S. Army South (USARSO) and Joint Task Force-PANAMA, 23 June 1989 - 12 July 1990. Telephone interview conducted by author 5 February 1992.

Fitzgerald, Lieutenant Colonel Billie Ray "Fitz", Commander, 1st Battalion, 308th Airborne Infantry, 193d Infantry Brigade, Fort Kobbe, Panama. Interview conducted by the author on 9 April 1992, Carlisle Barracks, Pennsylvania.

Miller, Billy J. Colonel (Ret), Commander, 160th Special Operations Aviation Group (ABN), Telephone interview conducted by the author 8 March 1992.

Stiner, General Carl W., Commander, XVIII Airborne Corps and Fort Bragg; Commander, Joint Task Force-SOUTH during Operation JUST CAUSE, 20 December 1989 - 12 January 1990. Interview conducted by author 6 February 1992, Carlisle Barracks, Pennsylvania.

Vinson, Lieutenant Colonel Donald E., Commander, 1st Battalion, 82d Aviation, 82d Airborne Division, Fort Bragg, NC, October 1988 - October 1990. Interview conducted by the author on various occasions during the period August 1991 - February 1992, Carlisle Barracks, Pennsylvania.

LTC Don Vinson deployed elements (Team WOLF) of his AH-64 Apache helicopter battalion to Panama, 15 November. The company began redeployment to Fort Bragg on 3 January 1990.

Webb, Lieutenant Colonel William, Executive Officer, Task Force AVIATION. Interview conducted by the author on 12 Feb and 18 March 1992.

3. Reports, Monographs, and Studies

- Mason, Bradley J., Major, US Army. "Assault Helicopter Contingency Operations: The Fine Line Between Peace and War." School of Advanced Military Studies Monograph, US Army Command and General Staff College, 1991.
- Major Mason served as the Commander, A Company (Talons), 1st Battalion, 228th Aviation, May 1989 - May 1990. He led the Talons on many critical air assaults during Sand Flea and Purple Storm operations; and during initial H-Hour assaults initiating Operation JUST CAUSE.
- Peck, Terry M. "AirLand Battle Imperatives: Do They Apply to Future Contingency Operations?" School of Advanced Military Studies Monograph, US Army Command and General Staff College, 1990.
- Senkovich, Steven W. "From Port Salines to Panama City: The Evolution of Command and Control in Contingency Operations." School of Advanced Military Studies Monograph, US Army Command and General Staff College, 1990.
- US Army. "After Action Report, Operation JUST CAUSE." 1st Battalion (Attack), 82d Aviation, 82d Airborne Division, Fort Bragg, NC. 1990.
- US Army. "After Action Report, Combat Operations - Operation JUST CAUSE." Task Force - HAWK, Joint Task Force - Panama, Fort Kobbe, Panama, 1990.
- US Army. "Annual Historical Review (Tactical), 1 October 1989 - 30 September 1990, 1st Battalion, 228th Aviation." US Army South, Fort Kobbe, Panama, 1990.
- US Army. "Joint Task Force SOUTH UNCLASSIFIED After Action Report: Operation JUST CAUSE." XVIII Airborne Corps, Ft Bragg, NC, 1990.
- US Army. "Low Intensity Conflict Panama--Trip Report, 9-14 October 1989." US Army Infantry School, Information Paper, 1989.
- US Army. Operation Just Cause Lessons Learned Volume I.: Soldiers and Leadership. Fort Leavenworth, Kansas: Center for Army Lessons Learned, 1990.
- US Army. Operation Just Cause Lessons Learned Volume II.: Operations. Fort Leavenworth, Kansas: Center for Army Lessons Learned, 1990.

US Army. Operation Just Cause Lessons Learned Volume III.: Intelligence, Logistics & Equipment. Fort Leavenworth, Kansas: Center for Army Lessons Learned, 1990.

US Army. "TF AVIATION After-Action Report - Operation JUST CAUSE." Headquarters, Task Force AVIATION, Fort Clayton, Panama, 1990.

US Congress. House. Committee on Armed Services. Subcommittee on Investigations, Night Vision Goggles in Operation Just Cause. Hearing, 101st Cong., 2d Sess., 6 June 1990.

Testimony of COL Douglas R. Terrell, Commander, Aviation Brigade, 7th Infantry Division, Fort Ord; Major General Rudolph Ostovich III, Commander, US Army Aviation Center, Fort Rucker, AL; Major General William H. Forster, Director of Requirements, Integration and Deep Operations, Office of Deputy Chief of Staff for Operations and Plans, Department of the Army; CPT Alan Jones, Commander, Company B, 1st Battalion, 123d Aviation, Fort Ord; and CW4 Leon A. Mann, Jr., Headquarters, 3d Battalion, 123d Aviation, Fort Ord.

4. Articles

Ballagh, Robert S., Colonel, and First Lieutenant Robert A. Nabb. "Red Devil Redlegs: Fire Support in Operation JUST Cause." Field Artillery (October 1990) 40-42.

Bennett, William C. Lieutenant Colonel, US Army. "JUST CAUSE and the Principles of War." Military Review 10 (March 1991): 2-13.

Colucci, Frank. "Rehearsal Reaps Rewards." Defence Helicopter World 6 (June/July 1990) 18-24.

DeFrancisco, Joseph E., Colonel, US Army. "Bayonet Artillery in Operation JUST CAUSE." Field Artillery (June 1990) 6-11.

Hasan, Larry L., Captain, US Army. "EOD battlefield support during Operation JUST CAUSE." Ordnance (August 1990) 14-15.

Hasenauer, Heike. "Panama - One Year Later." Soldiers 45 (December 1990) 50-52.

Moore, David J., Captain, US Army, et al, "Operation JUST CAUSE." Transportation Corps - Professional Bulletin (July 1990) 24-25.

Preston, Joseph W., Major, US Army. "JUST CAUSE - Intelligence Support to Special Operations Aviation." Military Intelligence (July - September 1990) 16-18.

Ropelewski, Robert. "Planning, Precision, and Surprise Led to Panama Successes," Armed Forces Journal International (February 1990) 26-32.

Rhynedance, George, Captain, US Army. "Aviation has fine safety record." Army Public Affairs Monthly Update (August 1990) 8.

Article details Apache performance in Operation JUST CAUSE.

Schilling, Anthony M., Captain, US Army. "Force Protection: Military Police Experience in Panama." Military Review 10 (March 1991): 19-27,

Steele, Dennis. "OPERATION JUST CAUSE." Army (February 1990) 34-44.

Stiner, Carl W. General, US Army. "Reflections on Operation JUST CAUSE." Army Public Affairs Monthly Update (Speech File Service) (1 June 1990) 11-16.

General Stiner gave this speech at the 35th National Conference of the Civilian Aides to the Secretary of the Army on June 19, 1990.

Vuono, Carl E. General, US Army. "Panama "Validated" 6 Imperatives Shaping Today's Army." Army (February 1990) 11-12.

Wood, Samuel S., Major, US Army. "Joint Fire Support in Low-Intensity Conflict," Military Review 10 (March 1991): 14-18.

The author describes the restrictions on, and adjustments made by, US fire support planners and commanders in using fire support assets in Operation JUST CAUSE to reduce civilian casualties and collateral damage.

Yates, Lawrence A. "Joint Task Force-PANAMA: JUST CAUSE-- Before and After," Military Review 10 (October 1991): 58-71.

5. Newspapers and Magazines

"Army Aviation in Panama: Operation JUST CAUSE." Army Aviation, 28 February 1990, 28.

Baker, Caleb. "Army Officials Credit Success in Panama to Planning, Few Bureaucratic Obstacles." Defense News, 5 March 1990.

Also in Current News (Supplement), 5 March 1990.

Bush, George. "Panama: The Decision to use Force." Vital Speeches, 7, 15 January 90, 194.

A copy of the speech delivered to the American people on 20 December 1989 by President George Bush announcing his decision to use force in Panama.

Capaccio, Tony. "Apache Worked as Advertised in Panama Operations." Defense Week, 22 January 1990.

_____. "First Apache Combat Mission in Panama Invasion Marred by Reliability Glitches." Defense Week, 5 March 1990, 11.

Church, George J. "Showing Muscle: With the invasion of Panama, a bolder--and riskier--Bush foreign policy emerges." Time, 1 January 1990, 20.

_____. "No Place to Run: With Noriega cornered but not caught, was the pain of invasion worth the gain?" Time, 8 January 1990. 38.

Devoroy, Ann and Patrick E. Tyler, "U.S. Launches Military Operation in Panama to Seize Gen. Noriega," Washington Post, 20 December 1989, 1.

Dickinson, William L. "History, Accomplishments, and the Future." Army Aviation, August-September 1990, 6-12.

Donnelly, Tom, "TERROR IN PANAMA," Army Times, 20 March 1989, 3.

Fulghum, David A. "Army tells Congress That Aviators Rehearsed U.S. Invasion of Panama." Aviation Week & Space Technology, 11 June 1990, 23.

Hughes, David. "Night Airdrop in Panama Surprises Noriega's Forces." Aviation Week & Space Technology, 1 January 1990, 30.

_____. "Night Invasion of Panama Required Special Operations Aircraft, Training." Aviation Week & Space Technology, 19 February 1990, 61.

"Just Cause Provides Lessons Learned in Combat Operations." National Guard, August 1991, 26.

Kirkland, Mike. "STORM OVER PANAMA." Army Times, 18 April 1988, 8.

Livingstone, Neil C. "DANGER IN THE AIR." The Washingtonian, June 1990. 92.

The story of Kurt Muse's clandestine radio operations in Panama in 1988-89 that resulted in his arrest and rescue during the early hours of Operation JUST CAUSE.

Magnuson, Ed et al. "Passing the Manhood Test: Operation JUST CAUSE was a triumph for American soldiers." Time, 8 January 1990, 43.

Roth, Margaret, "Classified memo warned of harassment in Panama," Army Times, 3 April 1989, 21.

Stiner, Lieutenant General Carl W. "The Architect of "Just Cause": LTG Stiner Explains His Panama Plan." Army Times, 12 March 1990, 14.

Tice, Jim. "Schedule reducing Panama tours is complex: New rotations implement major policy changes." Army Times, 2 Nov 1989, 12.

Vuono, Carl E. General, US Army. "Army Aviation in A Changing World." Army Aviation, 30 June 1990, 6-12.

Willis, Grant, "Soldiers rake in six Silver Stars for Just Cause." Army Times, 24 June 1991. 13.

6. Government Publications

Black, J.K. et al. DA PAM 550-46, Panama: A Country Study, Washington: U.S. Government Printing Office, 1989.

An excellent historical and strategic study of Panama from its discovery through May 1989.

Brown, Denise, ed., "Panama: Operation JUST CAUSE, Parts I and II," Current News No. 1827 Special Edition, February 1990, Washington: DoD Armed Forces Information Service.

Over one hundred articles and editorials concerning JUST CAUSE covering a time span from 20 December 1989 to 27 January 1990.

US Army. CMH PUB 70-33, OPERATION JUST CAUSE. Washington D.C.: Center of Military History, 1990.

A poster representation of Operation JUST CAUSE, depicting D-DAY Chronology, maps with major points of attack, and photos of operations and soldiers. Copies may be obtained from The Center of Military History, Washington D.C. 20314-0200

US Army. Just Another Day in Paradise: AFRTS in a Combat Environment. Washington D.C.: Chief of Public Affairs, 1990.

US Army. Soldiers in Panama: Stories of Operation Just Cause. Washington D.C.: Chief of Public Affairs, 1990.
Eleven vignettes of units and soldiers who participated in small unit actions during Operation JUST CAUSE.

7. Video recordings

Stiner, Carl W., Operation JUST CAUSE, LTG Stiner's Address to the 1990 Aviation Ball, produced by the Training Aids Support Center, U.S. Army Aviation Center, Fort Rucker, AL. 150 min. April 1990. Videocassette(2).

Lieutenant General Carl W. Stiner at the time was serving as the Commander, XVIII Airborne Corps and Fort Bragg, NC. During Operation JUST CAUSE he served as the Commander, Joint Task Force-SOUTH.

Terrell, Douglas, Operation JUST CAUSE, COL Doug Terrell's presentation to the 1990 Army Aviation Association of America 1990 Convention, Orlando FL, produced by Terry Coakley. 40 min. Army Aviation Association of America, 14 April 1990. Videocassette.

Colonel Douglas Terrell was the Commander, Aviation Brigade, 7th Infantry Division (Light). During Operation JUST CAUSE he served as the Commander of TASK FORCE-AVIATION, a major subordinate command of JTF-SOUTH.

Author's television tapes in his possession documenting pre-JUST CAUSE "Purple Storm" and "Sand Flea" operations in Panama, 1989. Tapes are from footage from Southern Command Network (Armed Forces Radio and Television Service) reports and from personal video cameras.

8. Letters and Briefings

"OPERATION JUST CAUSE." Briefing. Deputy Chief of Staff for Operations, Department of the Army. January 1990.

Copy in the Classified Vault, General Carl E. Vuono Papers, Military History Institute, Carlisle Barracks, Pa.

"OPERATION JUST CAUSE." Briefing. Commander, 1st Battalion, 228 Aviation, Fort Kobbe, Panama, 1990.

An unclassified presentation on aviation operations during JUST CAUSE. The author served as Commander, 1-228 Aviation during the timeframe of Operation JUST CAUSE and has a copy of this briefing.

Rossie, Arnie, to Cdr, 1-228 and Cdr, TF HAWK, CF:

JTF PANAMA J3, SUBJ: Operational Alignment of Avn, 3 August 1989.

COL Rossie was the Deputy Commander of USARSO and JTF-PANAMA. The author has copy of the memo directing the establishment of TF EAGLE and the associated command relationships.

US Army. Operations in Panama Briefing/Module, 1990, US Army, Training and Doctrine Command, Ft. Monroe, VA.

U.S. Southern Command Briefing. Operation JUST CAUSE, "Rebirth of a Nation." Panama City: HQ, US Southern Command, 1990.

Vuono, Carl E., Subj: Initial Observations of Operation JUST CAUSE, 5 January 1990, Copy in the Classified Vault, General Carl E. Vuono Papers, Military History Institute, Carlisle Barracks, Pa.