



# Tandem Notes

Vol. 7

Third Quarter 2000

No. 3

## 'Bearcat to Dark Horse'

### U.S. Army Approves Additional MH-47E Special Operations Chinook

The Boeing Company and the U.S. Army are teaming up to make a "Dark Horse" out of a "Bearcat."

This odd alchemy is not as strange as it seems, however.

The U.S. Army Aviation Center's CH-47 Chinook, nicknamed "Bearcat III," utilized to test and evaluate new aircraft systems and configurations, will take on a new name and new mission, thanks to a modification program formalized in late September. After its arrival at Boeing Philadelphia's manufacturing facility in early October, "Bearcat III" began to be stripped, inspected and repaired in preparation for remanufacturing as an MH-47E Special Operations Chinook, nicknamed the "Dark Horse."

The Army's 160<sup>th</sup> Special Operations Aviation Regiment (Airborne), based at Ft. Campbell, Kentucky, and Hunter Army Airfield in Savannah, Georgia, currently operates 25 MH-47Es and eleven MH-47D Chinooks in special missions around the world. Special Operations Chinooks are configured to fly nap-of-the-earth at night and in adverse weather. The aircraft are equipped with fully integrated cockpit management systems, aerial refueling probes and a variety of unique systems to carry out the Special Operations mission.

"Bearcat III's" modernization, to be completed in 2003, will restore the full complement of MH-47Es authorized for the Special Operations Forces. □



**Comin' at Ya.** The MH-47E Special Operations Chinook doing what it does best, flying nap-of-the-earth at high speed. With deliveries completed in 1994, the U.S. Army's MH-47Es remain among the most advanced helicopters flying today. Among the distinguishing features in this photo are the in-flight refueling boom, rescue hoist, chin-mounted forward-looking infrared turret and terrain-following, terrain-avoidance radar. □

## Dear Chinook and Sea Knight User:

**A**s I write this, we are still waiting for the outcome of the U.S. Presidential election. There is no such uncertainty, however, about the value and capabilities of tandem rotor helicopters.

England, of all places, was in the last few weeks the target of monstrous wind and rain storms that devastated the otherwise tranquil countryside southwest of London.

It was no surprise, however, that HC Mk2 Chinooks from the British Royal Air Force were on the scene after the disaster, carrying vital supplies and providing assistance quickly and safely.

This incident adds another chapter to the astonishing history of Chinooks and Sea Knights in their humanitarian service roles.

Still, natural disasters often exact costs that cannot be measured. One victim of the storms was Cavin Parker, an official of the U.K. Ministry of Defence procurement directorate who was instrumental in HC Mk2A and Mk3 contract negotiations. We extend our sincerest sympathies to his family, friends and colleagues.

As always, send all correspondence to Jack Satterfield, Boeing Philadelphia, P.O. Box 16858, M/S P10-18, Philadelphia, PA 19142-0858. Ph: (610) 591-8399; Fax: (610) 591-2701, e-mail: john.r.satterfield@boeing.com  
Good luck and good flying!

*John T. Malhade*  
**John Gilbride**

**Director - Aerospace Support -- Philadelphia**

## Rough Mission, Nice Rotorcraft

# 'Delta Schooner' Chinooks Are 'Pretty in Pink'



The dry summer of 2000 brought a record number of forest fires to the western U.S. Millions of acres went up in smoke, and several firefighters gave their lives while struggling to contain nature's onslaught. Among those in the forefront of the fight were the 'Delta Schooners' of Co. G, 140th Avn. Regt., California Army National Guard. The Forest Service asked the 'Schooners' to add high-visibility markings to their Chinooks. Here, a Chinook prepares to use a 1,350-gal. water bucket (left), and three of four Chinooks deployed to fight the Storrie Fire in Plumas County, Calif., rest at Fire Base Chester, Lake Almanor, Calif. The fire destroyed 60,000 acres. The 'Schooners' flew more than 300 hours and dropped more than five million gallons of water on Western fires this year. (Photos and comments from SFC Steve Robertson, CANG) □

## From the Field...

### RAF Chinooks in Canada

by Patrick Allen,  
Defence Helicopters

Three RAF Chinook HC Mk2s deployed to Canada for the first time to support Exercise IRON HAWK, a 38-day live-fire and maneuver warfare-training exercise, at the British Army Training Unit Suffield (BATUS) located on 1,000 square miles of rolling prairie, 250 kilometers east of Calgary, Alberta.

The principle task at BATUS is to plan and conduct up to six 'Ex MEDICINE MAN' live-fire and training exer-

cises for UK armored battle groups each year.

Exercise IRON HAWK, which took place from 1 Sept. to 3 Oct., was a new initiative moving away from armored battle group training to Lead Aviation Brigade and Lead Recce Task Forces, forming elements of the UK's new 16 Air Assault Brigade, who are able to use the live-fire training area to practice deep operations at Divisional level and below, within the context of a Joint Rapid Reaction Force (JRRF) deployment.

(see RAF, p. 3)



An RAF Chinook flies by Crow's Nest Mountain (left) near Calgary, Alberta, Canada during recent exercises in the area.

Three RAF HC Mk2s supported an air assault brigade, lifting weapons and equipment (right) during 38 days of training. □

### Record Fire Year for CHI

As of September, Columbia Helicopters, Inc., had equalled its previous record for fire-fighting deployments established in 1994.

Columbia assigned ten of its 13 U.S.-based aircraft, including one recalled from Alaska logging operations, to stem the wild fires raging throughout several western states. CHI's rotorcraft, including Boeing 234 Commercial Chinooks and Boeing Vertol 107-IIs, fought fires in Montana, Utah, California, Colorado, Idaho and Nevada. □



## RAF in Canada (cont'd. from p. 2)

Ex IRON HAWK incorporated all the operations of war within a realistic environment consisting of 15 days of live-fire training, followed by Tactical Engagement Simulation (TES) training against an Opposing Force (OPFOR) and culminating in a division-level tactical exercise involving combined arms and maneuver warfare which included RAF Chinooks and Lynx and Gazelles from Three Regiment Army Air Corps.

The exercise also provided an opportunity to look at future possible uses of a wider expanse of training area, other than the Suffield Block (BATUS), also encompassing the British Army Training Unit (Wainwright) a training area 250km north of Suffield, together with the Electronic Warfare (EW) range at CFB Cold Lake and the airspace between for future air assault maneuver warfare involving the UK's new WAH-64D Apaches.

Squadron Leader Richard Luck, the No. 18 Squadron Detachment Commander, said, "Ex IRON HAWK was an excellent opportunity for the Chinook wing to practice strategic deployment within a joint context, and to participate at BATUS in an environment which fully exploited, under live-fire conditions, the synergy possible in an all-arms operation.

There is no doubt that this exercise has enhanced considerably our understanding of both air and ground maneuver warfare and the mechanisms required to integrate them."

The three RAF Chinook HC Mk2s arrived by sea at Churchill on Aug. 24 and were rebuilt and flown down to BATUS, arriving on Aug. 28. During that weekend, one of the Chinooks was tasked to undertake a SAR mission in the Hudson Bay to search for a lost fishing boat. After several hours searching, they managed to recover the body of a fisherman.

During the deployment, both Squadrons took the opportunity to undertake mountain-flying training in the nearby Rockies while based at Lethbridge, a

civilian airport south of Calgary. This allowed the crews to complete a full range of mountain flying techniques with peaks around 9,000 feet high, including the well-known 'Crows Nest' mountain.

Both the exercise and mountain flying detachments used the deployment to enhance their operational capability.

Operating over the rolling prairie proved particularly challenging, with little or no ground references especially as routes had to be flown accurately to avoid live fire templates.

Chinooks undertook a full range of tasks, including deploying Pathfinder patrols, supporting the Lead Aviation Regiment (Three Regt AAC) and Artillery units as they conducted their live-fire missions and deep-strike operations both by day and by night.

The BATUS training area provided a unique and challenging training environment for all the air crews, and with the possibility of future training missions with the WAH-64D Apaches there may well be future deployments by the RAF Chinook wing to Alberta, Canada. □

## No Bidder Wars Over This 'E-Bay'

Thanks to a Boeing Philadelphia-St. Louis initiative, the next Army Chinook model, the CH-47F, also is getting "lean" as well as strong.

One major part of the CH-47F Chinook modernization program, which will deliver 300 improved CH-47Fs to the Army beginning in 2003, is fuselage "tuning" and stiffening.

The goal is to reduce the vibration effects of turning rotors that wear down structures and systems, including avionics equipment in the avionics bay, an aluminum sheet metal shelf structure behind the Chinook cockpit.

Design engineers at Boeing Philadelphia considered substituting steel for aluminum in the shelf structure, nicknamed the 'E-Bay,' to reduce vibration, but this added weight and cost.

Engineers at Military Aircraft & Missile Systems in St. Louis, already at work on a Lean Manufacturing redesign of the F-model Chinook's cabin section, proposed machining one-piece aluminum shelves.

Boeing Philadelphia quickly accepted the new design. Simulations using the NASTRAN computer model to measure vibration proved the one-piece E-bay met the reduced vibration specifica-



tion and also lowered weight, touch-labor and developmental costs. Dan Blood, A&M design engineer, Frank Campbell, production supervisor, Andy Conner, airframe structures mechanic and Bill Steltz, aircraft electrician (left to right), complete work on the new Chinook "E-bay" avionics equipment shelf system in the first CH-47F Chinook prototype. □

tion and also lowered weight, touch-labor and developmental costs.

The joint effort, including virtual design reviews using shared computer systems, enabled Boeing to design the new shelves in just eight weeks, and a new supplier fabricated the first shipset in just four more weeks. The assembly team

completed installation ahead of schedule.

The first CH-47F, now in assembly, is scheduled for first flight in mid-2001. Under the current modernization plan, Chinooks will remain in U.S. Army service until at least 2033, a remarkable 71 years after CH-47s joined the Army fleet. □

# Phrogs Assist In ‘Cole’ Bombing Salvage Operation



After a terrorist bomb crippled the Burke-class guided missile destroyer USS Cole, the U.S. Navy launched a sophisticated salvage operation to bring the damaged ship home for repair. Throughout the salvage effort, Navy CH-46Ds performed a variety of utility missions to assist the rescue flotilla prepare for the long voyage.

Seventeen American sailors on board the Cole died in the explosion, which ripped a 1500-square foot hole in the ship’s hull, wrecking engineering spaces and buckling a mess deck. □

## A ‘Capital’ Phrog

Boeing Tech Rep John Sanner recently sent these photos of a U.S. Marine CH-46E in VIP livery from MCAS Quantico’s HMX-1. Given this Phrog’s well-known Pennsylvania Avenue locale, formal attire, in the form of a glossy paint scheme, seems completely appropriate! □

