



## **'FLYING THE HUMP'**

### **A FACT SHEET FOR THE HUMP OPERATION DURING WORLD WAR II**

#### **UNITED STATES ARMY AIR FORCES (USAAF) CHINA-BURMA-INDIA (CBI) THEATER OF OPERATIONS**

"The Hump" was a high altitude military aerial supply route over the Assam Valley in northeastern India, across northern Burma, to Yunnan province in southwestern China,

This operation was the first sustained, long range, 24 hour around the clock, all weather, military aerial supply line in history. It was a start-from-scratch operation. There was no precedent for it.

The Hump route was an unlikely route for regular flight operations due to high terrain and extremely severe weather. It crossed a north-south extension of the main Himalayan Mountains that ran south through northern Burma and western China. On the very north end of the extension terrain exceeded 20,000 Mean Sea Level in height. Average elevations lowered to the south but did not fall below 12,000 Mean Sea Level for approximately 140 miles. The routes flown fell between these two extremes.

Northern Burma was largely uninhabited except for wild native tribes. In addition to mountains, it was covered by tropical rain forest with trees reaching over 150 feet in height. River gorges of the Salween, Mekong and Yangtze Rivers exceeded 10,000 feet in depth. Uncivilized headhunter tribes existed on the southern rim of the main Himalayas in China.

Severe weather existed on the Hump almost year around. The monsoon season, with heavy cloudiness, fierce rain and embedded severe thunderstorms with turbulence severe enough to damage aircraft, existed from around May into October of each year. The late fall and winter flying weather was better with many VFR days. However, heavy ground fogs, with ground visibilities down to zero/zero, occurred almost nightly during the early winter, and severe thunderstorms still occurred over the route on an irregular basis. Winter winds aloft were extreme, often exceeding 100 MPH. Most night flying had to be done by instruments from takeoff due to lack of any ground or horizon references, until well into western China.

Early flights were basically daylight operations that were often forced to the northern portion of the Hump due to the presence of Japanese fighter aircraft to the south flying out of Myitkyina, Burma. Terrain heights in this area generally averaged around 15,000 to 16,000 Mean Sea Level. This was the high Hump.

The Hump initially contained few enroute navigational aids. Enroute communications were poor, and air traffic control, except for local control towers, did not exist. Aeronautical charts were very unreliable and weather reporting was very poor. These conditions slowly improved after the arrival of the U. S. Army Airways Communications Service (AACS) in August 1943.



Homing beacons existed at each airfield in India and China. These homers were severely affected by weather, night effect, and static electricity that built up on aircraft. Airport instrument approaches were normally conducted to airports on homing beacons and were non-precision approaches.

The first supply mission over the Hump occurred in April, 1942, when the U. S. Army 10th Air Force in India contracted with the African Division of Pan-American Airways to handle the transport of 30,000 gallons of gasoline and 500 gallons of lubricants to China for use by the B-25s of the Doolittle Raiders. The Raiders had expected to refuel in China after their April raid on Tokyo.

The 20th Bomber Command, of the 20th Air Force, arrived in the theater in April 1944, flying B-29s, very heavy bombers. Their home bases were located at Kharagpur and 4 other air bases about 75 miles west of Calcutta, India. They were accompanied by three Air Transport Squadrons that flew C-46s in logistic support of this Command. The 20th departed the theater in March 1945. During this period these B-29s and C-46s regularly flew the Hump in support of their primary mission, which was to bomb the southern islands of Japan from their forward bases in Chengtu, China.

Loads carried over the Hump were many and verified. The primary load was gasoline, carried in 55-gallon drums and added to by siphoning from tanks of the carrying aircraft. Also carried were: small arms and ammunition, small vehicles, heavy equipment cut up and carried in pieces, truck and aircraft engines, bombs and aircraft machine gun ammunition, mortar shells, hospital equipment, personnel, 20' lengths of 4" pipe, etc.

All operations over the hump required use of oxygen. Oxygen was provided to Crewmembers by a demand system, which provided oxygen upon inhale. It also had a constant flow and an emergency forced flow capability. Oxygen masks were very uncomfortable. Regulations required that oxygen be used above 12,000 Mean Sea Level during daytime and above 10,000 Mean Sea Level at night.

Source: China-Burma-India Hump Pilots Association