Pathfinders and the 8th Air Force, Part 1

By John W. Howland

On March 9, 1944 we completed our third raid to Berlin in four days. However, local flak was almost as heavy as enemy flak. My pilot (Jim Tyson) and I had been royally chewed out by Col. Leber for breaking radio silence over enemy territory on two occasions. The first occasion was on March 6th when we requested a return to flight plan after the lead ship led us over Osnabruck, lost one ship to flak, and then took up a heading for Hanover. The second occasion was March 9th. We had been flying above clouds for several hours and requested a position report from the pathfinder ship with regard to Position B. (As navigators were authorized to do) But we got chewed out again at debriefing. Later that same day we were offered a transfer (on temporary duty) to the Pathfinder Force, then based at Chelveston. Jim Tyson and I talked it over and decided to accept.

This is Sunkist Special a/c #42- 97625. You can clearly see the H2X radome in place of the ball turret. The aircraft was named after pilot James L. Tyson's California roots.

This photo was taken July 17, 1944.

We expected to receive a short break from operations and some schooling to learn how to lead a Wing of 54 planes. However, the day after our arrival we were made operational and briefed to fly deputy lead on a deep penetration. As we left the briefing room, I asked the Lt. Colonel, "When does our schooling start to learn to be a lead team?" He looked at me, shifted his cigar and said, "Lieutenant., as of right now you are a lead navigator. Get going!" The course was set, and from then on, we "learned on the fly."

Jim Tyson tackled his main problem with a vengeance. Excessive turning created havoc in the 54 ship Wing formations. Further, if the turns were too sharp, those flying on the outside were yelling into their microphones "Slow it down, we can't keep up with you!" At the same time, those on the inside were screaming, "Speed it up, were stalling out down here!" Jim finally developed what we called a "Standard Formation Turn". This turn was approximately 1/4 needle width on Jim's turn and bank indicator. This was a very slow turn. It took eight minutes to go through 360 degrees. But those on the outside of the turn could keep up, and those on the inside weren't stalling out. Looking back, guiding those huge formations through the sky was like conducting a ballet in slow motion. But if you stumbled and fell, especially over enemy territory, results could be disastrous, even deadly.

One of the toughest jobs confronting me was to lead a formation of 54 bombers over a checkpoint, on course, at altitude and exactly on time. I talked to many navigators on this subject; but always received the same answer. "Just allow plenty of time and jog left or right to kill time while you are heading for the check point." Such a procedure is fine if you are flying a single

plane or in a small flight of planes. But jogging, and turning, or slowing down and speeding up was bad news for the 54 ship Combat Box formations we were leading. Turns had to be slow and very gentle. Jim Tyson and I were well aware of the problems and dangers associated with this approach. No! Jogging and unnecessary turns weren't the answer.

I pondered this problem many hours making sketches and dozens of calculations. Nothing seemed to fit until one evening while I was sitting on my bed. Like the answer to many perplexing problems, the answer was instantaneous, clear, and oh-so-obvious. If you want to fly over a checkpoint at a certain time, you shouldn't fly toward the checkpoint. You should fly away from it. I explained the theory to Jim Tyson. He agreed it was a workable approach toward resolving our problem.

Jim and I worked out the details of the departure procedure during practice flights in the air. It took about four minutes and a circle 10 miles in diameter to turn a Combat Box formation 180 degrees using our Standard Formation Turn. If we wanted to fly over a checkpoint on a course of 90 degrees at exactly 0920 hours in the morning, I flew a reciprocal heading of 270 degrees. Then, I made certain to pass 10 miles right or left of the checkpoint at least 4 minutes prior to the scheduled departure.

To illustrate, let's say we flew 10 miles abreast of the checkpoint on a heading of 270 degrees (west) at 0900 hours, twenty minutes before departure time. Since 4 minutes would be used for turning, we had 16 minutes to divide between flying west (270 deg) and east (90 deg). Under no wind conditions we flew 8 minutes west, made the turn (4 minutes), and flew another 8 minutes east. With practice, and making time allowances for wind, we got so we could hit our departure time within a few seconds.

Another problem that bothered me was obtaining wind data at altitude, which is essential for accurate DR navigation. Of course, I was familiar with double drift techniques taught at navigation school. Using this procedure, the navigator takes a drift reading on one heading. Then, turns right 45 degrees and takes another reading. Then turn left ninety degrees and take another drift. Then, by plotting these three drift readings on the E6B computer, the wind can be determined. However, if I had tried that, the Wing formation would have been scattered all over the sky and Jim Tyson would probably have shot me.

The technique we developed we called the "Six Minute Wind." I took advantage of Jim Tyson's steadiness as a pilot and the accuracy of my wonderful GEE Box cathode ray tube. It worked like this. When we were at altitude I put the plane on a fixed course, let's say 180 degrees, due south. I then advised Jim we were starting our Six-Minute Wind. For the next six minutes he carefully maintained compass heading, power settings, air speed and altitude. Meantime, I took a GEE fix to start the six minute run. Then I ran an air plot on my GEE chart to determine my "no-wind" position at the end of the six-minute period. At the end of the six minutes, I took another Gee fix and plotted it on my GEE chart. Then, by drawing the vector from my "no-wind" position to the GEE fix I developed wind direction. Further, measuring that distance and multiplying by 10 gave me wind speed. This data was needed by me for the DR navigation plot I maintained, and also by the Mickey Operator if he was called upon to make the bomb drop. We will talk about the H2X radar, Mickey Operators, the GEE BOX some other time. Their story should be told.

John W. Howland
PFF Navigator
324th Sq 91st Bomb Group
535th Sq 381st Bomb Group