40th Bomb Group Association

# MEMORIES

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EDITORS' INTRODUCTION: In late February and March, 1944, the 40th Bomb Group, stationed at Pratt, Kansas, began receiving B-29's to take overseas, but they needed engine changes and some 50 modifications, major and minor, before they would be ready for combat. High command in Washington was pressing to get the B-29's overseas as soon as possible. With the 40th Group ground crews already shipped overseas, Pratt became the scene of several weeks of feverish work, day and night, by the crew chiefs, flight crews, and specially recruited civilians to get the planes ready. These weeks of chaos, confusion and hard work in the bitter Kansas winter have come to be called "The Battle of Kansas." To describe that "battle," we have assembled recollections of some group personnel, excerpts from news and magazine accounts (released months later when the B-29 was actually in combat), and excerpts from records and diaries. This issue contains part of these; more will appear in the January 1987, issue.

## THE BATTLE OF KANSAS (Part I)

From the official 40th Bomb Group History for March, 1944, written in July, 1944,
by Capt. F. G. Wood, Jr., Historical Officer:

During the period of intense and almost frantic effort to get the new B-29's in shape for combat overseas (which started in the latter part of February and continued through March) the 40th Group was charged with the accomplishment of seven changes and modifications. The remainder of the 40 to 50 modifications were to be done by crews from four modification centers.

These civilian personnel constituted a difficult and unpleasant problem. Tempers were already short due to long hours and little sleep, and overtaxed housing and messing facilities did not help matters. In addition the Group personnel felt that in many instances the civilians, who demanded fleece lined winter flying clothing and other special military equipment due to the arctic wind, were not working as hard or as long as they could and should have been. However, despite the confusion and the unavoidable conflict between the feather merchants and the GIs, work progressed.

The 40th Group, as stated, was responsible for seven modifications.

First it was necessary to change all engines which were not classed as "War" engines. Most of the engines were R-3350-23's which had to be replaced with the "A" models. During the period 27 February to 11 March, 40th Group personnel changed 116 engines and 24 turbo superchargers.

Second, all rudders which were not of the new, strengthened design had to be changed, a total of 22 rudders.

Third, all main landing gear tires on all aircraft had to be changed, the nylon casing being preferred to old type. In all, 144 tires were changed.

Fourth, the front collector rings were discovered to be unsatisfactory due to the fact that vibration was causing the brackets to crack and break. It was necessary to change approximately 100 sets.

Fifth, a modification had to be made on all cowl flaps, considerable trouble had been experienced with the top cylinder heating up and turning out. The top cowl flap, therefore, was raised two inches and fixed solidly in this position thus allowing more air to pass over the cylinder. In all 124 of these changes were made.

Sixth, the radar section had the tremendous task of installing 36 APQ-13 radar sets. The men were hampered by inexperience -- none had ever installed a set of this sort -- but the Job was done and each set checked operationally.

Seventh, all propeller pistons and governors had to be modified to provide for more certain feathering at high altitudes. A total of 100 propellers and pistons were modified.

After all changes and modifications had been accomplished, each airplane had to be flown for a period of not less than two hours in order to break in the new engines and check the work done. All of the above was done by Group personnel in the short space of five weeks despite wind and snow, shortages and lack of facilities.

Going back to 3 March, at midnight of that date all officers and men of the Group were confined to the field for "maintenance reasons." No one was allowed off the field without a special pass (which was granted only in an emergency) nor were wives allowed on the field. In view of this, most of the married men sent their wives home, since they thought it likely the restriction would remain in force until the actual date of departure.

On the morning of 10 March General Henry H. Arnold arrived on the field. He immediately called a meeting of the nine crews in the Group who had been selected to ferry the first B-29's to their destination. Crew members were notified as quickly as possible. Some were working on the "line" and others were asleep, having just completed a maintenance shift the night before. The General did not face an immaculate, clean- group of men.

From the first word General Arnold uttered, the crew members were impressed with his decisive, efficient manner. He stressed the fact that the eyes of four men in particular would be on them--Roosevelt, Churchill, Stalin and Chiang Kai-shek--and that the tremendous difficulties encountered in carrying the war to the enemy were not their standard of measurement of effort--only results. After touching on the fine manner in which the airplane crews had worked in getting the project ready for movement, General Arnold questioned the pilots present as to the amount of time they thought would be required to accomplish the three shakedown missions, and the consensus was one week.

He then said that every man should get away from all the work of preparation for a week of leave, then come back, run the shakedown missions and be fresh to take the ships over. He concluded his talk with a wish for good luck and Godspeed.

Whether or not the General was aware of the part the combat crews had been playing in the modification work is not known, but the aspects involved in giving anyone leave at this time created a furor which lasted until the next day. Some of the crews realized that seven-day leaves were impracticable; other realized only that General Arnold had said they should be given leave. The majority finally decided to take only three-day passes, but the incident directly affected the morale of the Group.

On 11 March the restriction was lifted and once more off-Post and on-Post visits were permissible. By this time, however, most of the wives had gone home and were too far away to be visited on a three-day pass. This was another situation which adversely affected morale. Most of the men visited nearby cities for a last fling.

From *Boeing Magazine*, June 1945:

On airfields near Wichita were scattered the first two hundred B-29s that had been built. They were ticketed for the CBI Theater, but first they needed overhaul and modification for combat. Army mechanics were working desperately on this job, though they had been trained only to go with the ship into combat and there keep it in condition. They never had been instructed in the mechanics of

overhauling and modifying the new and intricate B-29. The Boeing-Wichita plant was called on to supply six hundred factory mechanics to help get the ships in condition.

Boeing pulled its very best men off the B-29 production lines. Some who were off shift were roused out of bed. A few of them managed to get home to pack a few clothes; others had nothing but what they wore. They queued up to draw expense money and were whisked out to waiting transport planes and flown to four B-29 bases in Kansas. There the Boeing mechanics and the army mechanics got together.

Together they worked in zero temperature on the open Kansas fields with prairie gales whistling around them. Lacking scaffolds, they climbed to the ships on ladders, a dangerous and difficult position because of the high winds that swayed their perches. They stuck to their jobs in spite of the discomforts of working on frozen conduits with bleeding hands and wearing any spare army clothes they could find to keep them warm. At times they worked twenty-four hours without sleep.

Meanwhile, the people in the Boeing plant had a double job to do. They had to keep up line production without six hundred of their best men and at the same time keep their fellow-workers out in the field supplied with spare parts. They did it, and the Boeing mechanics and their army pals finished their work as the deadline approached. The minute the mechanics crawled out of a completed plane, the Army Air Forces combat crews had their bags packed and were standing beside the ship ready to fly her away. This was Wichita's first modification job and it stands as one of the most extraordinary pieces of work ever done by aircraft mechanics.

From a General Electric Bulletin, summer 1945:

There are many "stories behind the story" of the production record of launching the B-29 in half the usual time required for a heavy bomber. Perhaps one of the most dramatic was the "Battle of Kansas." For it was at a blizzard-swept Kansas airfield that thousands of technicians sent from war plants all over the country pitched in to help the army perform a miracle. In three weeks' time they did several months' normal work, installing and testing the latest equipment on a good share of the first super-bombers earmarked for action.

The planes had been flown from factories to airfields for flight testing before much of the latest equipment, including some redesigned on the basis of last-minute combat-area intelligence, could be installed. Thus a number of the mammoth birds alighted at a Kansas airfield, among others, just three weeks before they were due to depart for battle. But they were far from complete and anything but ready for action. The call had gone out to most of the manufacturers supplying parts for the B-29 to fly men and materials at once, and technicians by the hundreds began arriving in a mass invasion.

"That airfield was so big and had so much runway space it looked like a concrete prairie," recalls H.T. Hokanson. "I had seen B-29s before that, but there were so many of them spread out they looked like an invasion force all by themselves." The army had an immense organization problem to solve in giving the various company representatives proper work facilities and sufficient "elbow room." To complicate matters further, March 1944, was going out like a lion in the form of a blizzard which howled across miles of flat prairie.

"Modification" is the mild army word for the changes--many of them almost major operations--which had to be made on the planes. Mechanics wrestled with gear assemblies. Electricians tinkered with mazes of complex wiring. Production men flashed urgent messages back to their plants for rush deliveries of needed materials. Army officers phoned engineers from California to New England, getting quick answers to knotty problems. Or, rousing them in the middle of the night, summoned

them to the scene to break particularly acute bottle-necks.

The experience of G.E. on the B-29's gunfire control system is perhaps typical of the 24-hour orderly confusion which repeated itself daily on the suddenly overpopulated prairie. Because of the intricacies of electric wiring and other complexities of the G-E designed system, particularly its computer for eliminating all guesswork in the gunner's training his sight on an enemy plane, the company had its share of headaches. In a nutshell, the system enables the B-29 to fire more lead, concentrated more accurately on a more distant target, than any other plane previously built. The plane thereby can fly unescorted, a new concept in aerial warfare.

Here was one G.E. headache. A last-minute change had to be made in a gunfire interrupter mechanism, requiring insertion of a cam, or small disk, of a dimension which did not exist. The G-E engineers phoned Schenectady. The necessary tools were there, but the right men for the job were at the Bloomfield, New Jersey plant, so the tools were shipped there, the cams machined, then flown to Kansas.

Work had to go on at night, too, and the technicians became expert at performing all kinds of mechanical tricks by flashlight. "We didn't get much sleep," some of those who fought the "battle," recall. "We worked as many hours as we could stand up, then took over someone else's bed in one of the two tiny hotels in the near-by town. Each bed had a different occupant for two or three shifts a day, and every so often an open army reconnaissance car delivered a group in town and took another out."

The vast "modification" assignment moved forward under a surprisingly efficient over-all organization scheme the army had improvised, and the planes were finished ahead of the deadline. The manufacturers' representatives and the army men alike watched with pride as one superbomber after another took off for its date with destiny.

The problem of solving unexpected problems on the spot was no novelty to any of the manufacturers involved. Some G.E. engineers, for example, had serviced equipment in distant battle zones, and others had been ironing out B-29 problems since right after Pearl Harbor, when the army decided on all-out production of the plane. "The B-29 deadline was set, so any threatening problems had to be overcome immediately," points out an engineer. "For example, we found there was no way of eliminating a small amount of jerking in the gunsight as the gunner tracked his target. But this jerking was feeding false information into the computer, a radically new product for correcting turret guns automatically for wind, plane and bullet speed, leaving the gunner only to put his sight on the target, adjust a dial and pull the trigger. We had to invent an electrical connection of gyroscopics and springs to compensate for this error, so the result would be true calculations."

Memories of M. E. "Red" Carmichael, a crew chief (written February 1986):

Much has been said, and I'm sure much will be written about the Battle of Kansas. To me as one of the original crew chiefs on the B-29 at Pratt, it didn't seem to be that great a hardship. We crew chiefs were used to the <u>many</u> hours in the cold, trying to get the "Big Bird" ready for flight.

It was <u>quite</u> a change for the flight crews, who, up until that time, had only to climb into the A/P when we finally decided it was ready for flight. The following episodes are not intended to throw aspersions at the flight crews who had taken over the chore of trying to get the "Big Birds" ready for flight. They did remarkably well under the conditions they had to work in.

Capt. William Hunter and Capt. Robert Tisserat and their combat crews were assigned to #250. No one on Hunter's crew had worked as a maintenance mechanic, but Hunter was an ex-engineering officer, and I thought he would be an asset. Tisserat had one man who had worked on B-17's and B-24's and was also a good maintenance man. Tisserat said he had worked as a maintenance man when he was a Corporal.

So, we started. One combat crew was assigned to day and one to night shift. The first task I assigned to Tisserat was the removal of all four carburetor air scoops. I cautioned him to take a good look at all the control cables going to the carburetor, as he would have to disconnect them to remove the air scoop. He assured me that he would have no trouble, and he started working on #2 engine while I assigned various chores to the rest of his crew. Some time later, he came over to me and said, "Let's check this one first to be sure everything is correct." He duly informed me that everything was O.K., but I checked everything in the nacelle and said, "You watch the throttle arm and mixture controls, while I move them from the cockpit."

I went to the engineer's station to work the controls. The throttle was O.K. but I couldn't move the mixture control. I climbed down from the engineer's position and up the maintenance stand at #2 engine. I had to tell the Captain that he had crossed the mixture control cables. He didn't argue with me; just asked me how to correct the error. I told him; and Bob, you did great on the other three engines!

We were changing all the brakes, inspecting the wheels, and repacking all the wheel bearings. Capt. Hunter and his crew were furnishing the muscle. We worked the right side, and I explained how to change brakes, pack the bearings, inspect the wheels, etc. Then we went to the left side, removed wheels and brakes, and installed new brakes. Then Hunter said, "Go home, Sergeant, and get some rest." I agreed to this suggestion, but I asked, "Can you manage to finish this without any problems?" In his superior Captain's manner, he informed me it would be no problem. So, I left. This should be the end of the tale, but when Hunter and crew took the A/P out for a taxi test, the left-hand outboard brake started leaking fluid. After pulling the A/P back to the maintenance stand, jacking it up, and removing the wheel, I found the inner and outer bearings had been interchanged. Lesson #1: Bill, it can't be done!

During the modification program, all engines on #250 were replaced. All we had were problems with engines overheating and failing due to inadequate lubrication. Our Squadron Commander, Lt. Col. Cornett, decided we should remove all engine rocker box covers, fill the cavity around the rocker arms and push rod housings with oil. So, we dragged the A/P into the hangar, removed all the rocker box covers, and started filling the upper cylinder cavities and push rod housings with engine oil. Col. Cornett decided this wasn't enough: we also had to get oil into the lower cylinder cavities. How? We froze engine oil in a bucket, using CO2 fire extinguishers, then pushed the tarry, gooey mess into the cavities and slapped on the rocker box covers!! You should have seen that combat crew with crap all over their hands, face and clothing. Col. Cornett, that was a good idea for the upper cylinders; but when the oil thinned out and we pulled the props, we lost most of that lower cylinder oil.

Another crew was assigned to service all fuel tanks for the entire Squadron. When they came over to #250, they proceeded to drag the fuel hose and nozzle from the rear side of the A/P over the aileron. (This was at night.) I immediately started yelling at the guy up on the wing, questioning his ancestors, etc., for pulling that hose over the aileron. Clarence Bradley, a flight engineer, started trying to quiet me down, saying, "Sarge, that's Major White. You don't yell at Majors." I informed him that I yelled at anyone that dragged fuel hoses over an aileron.

When we were getting ready for our first "after mod" flight, the putt-putt (auxiliary power plant) went haywire. So we had to order another one, which, after some time, was delivered to the A/P. Capt. Vic Agather came with it. A.C. Denny and I uncrated the new putt-putt. I removed the spark

plug and poured some oil into the spark plug hole to lubricate the cylinder walls. Vic immediately informed me that the putt-putt would never run. I bet him a dollar it would, and I'd even let Denny start it. He agreed. So, Denny and I installed the putt-putt in the A/P. I told Denny he was going to be the operator and to turn the engine over several times before starting it. I climbed out of the tail section, and Vic tells me again that it won't start. We exchange a few opinions as to why it would and why it wouldn't. About this time Denny turns the putt-putt over electrically and it starts immediately. Vic, Denny and I sure enjoyed that beer we bought with your dollar!

We are now getting the A/P ready for our overseas travel. The bomb bay rack is installed; all gear is aboard. I've serviced the A/P, and I have started a preflight inspection with the help of Art Denny. Jerry Noble, the flight engineer, is up on the wings (which are icy), dipsticking the fuel tanks. Denny and I hear the clatter of the dipstick as it hits the concrete, and Denny yells, "I'll get it for you, Lieutenant." Noble yells back, "Never mind; I'm down here with it."

Memories of Victor Agather (written October 1981):

The origin of the problem and the sequence of events which resulted in the Battle of Kansas are manifold but can be summarized. The loss of the prototype B-29 in February 1943 redoubled the necessity of freezing production design on both airframe and engines with the knowledge that modifications would have to be made after production of each B-29 was completed. Therefore, the system of modification centers, to be supplied by modification kits, was instituted.

After the complete airplanes came off the production lines, they were taken to modification centers where they were matched with modification kits, and installed systems were removed from the aircraft and replaced with modification kits. The whole purpose of this system was not to stop the production line of the B-29's, but whenever a modification could be scheduled in the production line without stopping the line, it was so programmed by serial number of aircraft, and the kit was dropped from the modification center as the production line picked up the modifications.

Col. Carl Cover, who had been a vice-president of Douglas, was placed in charge of modification centers. This theoretical approach of both production and modification made sense, but in practice it broke down rather rapidly because there was a substantial time lag between the training of people at the modification centers, the matching of the kits with the aircraft and the return of the completed aircraft to the four bases in Kansas for the staging of the aircraft for the combat crews. As the modification centers dropped behind schedule and the combat crews did not have B-29 aircraft for training purposes, the decision was made to switch the modification from the modification centers to the four bases in Kansas; that is: Salina, Pratt, Great Bend and Walker, and in so doing, the crews could become familiar with the aircraft and its modifications as well as assist in the test flying of the aircraft after modification. Once again the flaw in this thinking resulted in the "Kansas Blitz", as within a short period of time, there was not a flyable B-29 in Kansas and utter confusion reigned. In the transfer of the aircraft and modification kits from the modification center to Kansas bases the continuity of modification was lost. The kits became separated from the aircraft to which they belonged, the modification logs were incomplete, and in the end nobody knew exactly what modifications were to be accomplished. Furthermore, the B-29 ground crews had already left for India and there were no adequate ground crews at the Kansas bases to accomplish the modifications, provided anybody knew what modifications had to be made on any given aircraft. As you can easily see, these were the basic ingredients for an explosion which took place, which involved General Arnold, General Myers, the B-29 Group Commanders and the Base Commanders, as well as everybody either directly or indirectly involved in the B-29 program.

If you will pardon the personal references, maybe I can tell the story in a little more lucid form. Whereas I had been working on the engine fire program at a very early stage in the development of the B-29, the "B-29 Project Office" at Wright Field was the central clearing agency for the requests by the various organizations demanding modifications such as Air Corps Flight Test, 58th Bomber Command, Electrical Laboratory, Boeing Engineers, Armament Section, Power Plant Section, Etc. Thus, all of us identified with the B-29 Project Office were somewhat familiar with all the requests for modifications as well as those finally approved to be incorporated in the B-29. We all knew that an explosion was about to take place, but that was somebody else's problem. Early in February, 1944, I received a call from Col. Erik Nelson at about 2:00 o'clock in the morning, telling me to get my tail in the saddle and get out to Salina immediately with a list of all serial numbers of B-29's as well as modifications required by serial number, and that General Bradshaw's airplane was standing by at operations to bring me to Salina immediately. Upon arrival in Salina early that morning, we were informed of the ungodly confusion that existed at the four bases and that nobody knew just exactly what modifications had to be made in any given aircraft. In the meantime, all the airplanes were grounded. We split the four bases between several groups of us and four of us immediately flew to Pratt, Kansas, where the 40th Group was stationed, and I started to check each aircraft personally to make a complete list of modifications that had to be made to put each aircraft in flight condition. I went 5 days and 5 nights without going to sleep. By the end of that time, we knew exactly what had to be done on each aircraft. In the meantime, the group of four of us had to identify the kits for each aircraft and then locate the kits. After having completed the list we flew to Boeing, Wichita, one night and walked down the production line and as we saw an individual who might be doing the sort of work that Pratt required, we merely pointed to that individual and he was immediately taken off the production line and driven to the airport where a C-47 flew him to Pratt. In the meantime, the name and address of the individual was taken, a car was driven to his home to pick up his clothes and advise his family, and these were also sent to Pratt. In all, we took almost 400 individuals from Boeing, Wichita. The additional problems at Pratt, as well as in the other bases were that we had basically only two hangars; therefore, the bulk of the work had to be done in the open on the ramps. It was mid-Winter with dust and snow flying and bitter cold. These crews could only work on the airplanes for approximately 20 minutes. Then they went into the hangars to warm up while other crews came from the hangars to do the work. Thus, we worked 24 hours a day. We had all the additional problems which are inherent with such an emergency operation, housing, food, clothing, tools, disgruntled laborers, etc. However, General Arnold had told General Myers and Col. Nelson and anybody within earshot that we had priority for anything we wanted in the form of tools, materials, personnel, etc., which priority we used judiciously. For example, at Pratt we had almost 100 engines that had to be changed as the airplanes had the old type engines. One night, we located engine slings in Erie, Pa. An American Airliner was ordered to unload its passengers. The engine slings were cut with torches, and loaded over the seats of the DC-3. The next morning the pilot, copilot and stewardess, red-eyed from all night flying, arrived at Pratt. We welded together the engine slings and proceeded to start out the engine change program. Engines were flown in cargo planes together with many of the other accessories and tools which were needed.

As the Kansas Blitz developed, it became only natural that many swivel chair generals and other authorities wanted to get in on the act and make "browny points" with their superiors, as they would be the ones to try and take the credit for solving the problem. Within a three-week period of time, more than 60 generals arrived at Pratt alone, offering their services, but really they were a menace because they knew nothing of what had to be done. One particular incident may be of interest to you. As I was in the bowels of a B-29, I was informed that General "so and so" wanted to talk to me. I merely sent word back that if he wanted to speak to me he could climb into the B-29 and he could have a conversation with me. I could see him through the Plexiglas. A beautiful pressed uniform and all the characteristics of a "dandy", with the exception of perhaps a swagger stick. Just from his

appearance I knew that he did not know how to climb into the nose section of the B-29 without a ladder and there was no way he was about to, but very shortly thereafter, I was informed that I was being cited for insubordination with a possible court martial. When I reported this to Col. Nelson, he immediately took up the matter and the last I heard was that the General was relieved of duty and sent to Greenland to cool off.

By some miracle, we completed the work on time and the 40th Group left for Newfoundland on Easter Sunday. There were four of us performing this task at Pratt--Lt. Col. Harry Hubbard, Lt. Col. Mark Maidel, Captain Arthur Borden, and myself. I believe I was a Major at that time. The four of us shifted from Pratt to Great Bend, Walker, and finally Salina to see the last B-29's. Shortly after the B-29's arrived in India, operational problems began to multiply themselves, principally over the engine heating problem, and we went to India with additional kits to set up pilot operations for modifications at the four bases there. We did work with the R-3350 engine overhaul plant in Calcutta and the Hindustani Aircraft Company in Bangalore. I must say that the cooperation we had with the India B-29 crews was fantastic. Subsequently we moved to the Marianas--Saipan, Tinian and Guam--and performed the same function.

In summary, you must remember that normally a prototype aircraft is basically built to test the flight characteristics of the plane, that is, performance in the air, speed, altitude capability, load-carrying capacity and range, as well as these general flight characteristics under different types of operational conditions. Thus with the loss of the prototype and the basic freezing of design, the combat crews became a test bed to the B-29 in actual combat operations. Generally speaking, a prototype is always re-designed after flight testing to accomplish two basic factors: one, ease of production and two, ease of maintenance. Just as one example, the original cowling in the prototype was called an envelope cowling, whereby in order to remove the cowling to get at the maintenance of the engine it was necessary to remove the propeller and then remove the cowling. Thus, it was almost easier to change an engine than it was to change spark plugs. If you want to have poor maintenance, make it difficult for the mechanic to get to the accessories to be maintained. This cowling was subsequently changed to split cowling and thus maintenance was much easier. Probably an interesting sequel to the above is that when the Russians got their hands on the four B-29's that went into Siberia they copied the prototype with all the problems that we had incorporated into the prototype aircraft. After the war, an Air Attaché from Russia came to my office in New York and showed me pictures of the Russian version of the B-29. My only remark was: "I am sure that the Russian mechanics cursed and swore at their aircraft as our mechanics had cursed and sworn at our B-29's at the difficulty of getting to the accessories to be maintained."

Editors' Postscript: This ends Part I of "The Battle of Kansas." The next issue of MEMORIES will be on another subject, and the concluding segment of the "Battle of Kansas" is to be issued in January 1987. This will give you time to write us about your memories of those days in Pratt when preparations were being made to fly out. We want to add your memories to those we already have for Part II, so write us now. We can use MEMORIES material from you up to about December 1, after which time we have to close the issue and get it prepared, printed and mailed. So write us now: William A. Rooney and Robert L. Hall, 517 ½ Ridge Road, Wilmette, IL 60091.