

AIRCRAFT REPAIR – SHEET METAL

Written by W. W. Hill

As you know, my association with the ring started back in November when I posted a question on the web site inquiring about B-17 sheet metal maintenance. I sent a list of questions to Whit and he replied with some very interesting history. It just dawned on me a couple of days ago that I never shared that information with the ring. My apologies to Whit and to the ring for this oversight. I've attached a Word document with the questions and his answers. Thankfully I had saved his message in Word shortly before we lost all of our e-mail messages last December when our e-mail program crashed.

Whit's comment "When did we sleep", makes me wonder when they did get time off, and for how long and how often? We used to gripe that when we worked 12-hour shifts with no days off at times in the Air Force, but what little we endured pales in comparison to what these men did.

Dale

I don't know that the policy was at other bases, but this is how it worked at Bassingbourn. A bunch of us went out to Deentroppe and another base I don't remember at this time, and explained to them how we were set up to repair battle damage. Whether they did as we suggested I don't know. We never got back to see.

Keep 'em Flying 91st Bomb Group, by Whitmal W. Hill, 323rd Bomb Sq. Sheet Metal Crew Chief.

1. *Did you do line work only or shop work as well?*

1. The Squadrons primarily did only online work. The 441st Sub Depot accomplished major repairs.

2. *Did each Sq. have a shop or was there one base shop?*

2. We had four squadrons that flew B-17's on missions. The 322nd, 323rd, 324th, and the 401st. The base, a peacetime permanent RAF base, had four huge hangers that could hold four B-17s at one time. Each Squadron had its own sheet metal crew that worked out of the Squadron hanger. The 322nd and 323rd shared hanger space, as one hanger was devoted entirely to the 441st Sub Depot loaded with shops (Machine, Engine Buildup, Plastic, Small Equipment Maintenance, energizer repair etc), Sheet metal, Dope & Fabric and others where major maintenance was generally completed. The 91st Squadron sheet metal crews, however, worked independently but were tied together with the 441st Sub depot sheet metal shop that kept track of aircraft out of action because of airframe battle damage. The 323rd has a small shop located in the corner of Hanger No 2 that was a small room with a workbench with vise, and was shared with the squadron welders.

3. *Did you have a mobile shop? 4. Portable air compressor?*

3. All four squadrons had Mobile Carts. These carts were built on bomb loading trailers and consisted of an electric generator with drop and extension cords, air compressor/ tank, a bench/vise, sheet metal storage bin, and space for eight toolboxes. The 401st sheet metal cart was built as a covered trailer. The others were open affairs, and during inclement weather were parked under the wing of the aircraft being worked upon. The Squadron Sheet Metal crew chiefs were all issued a jeep to pull the carts from aircraft to aircraft.

4. *Could you heat-treat and temper metal if you need to?*

4. There were no special heat treatment ovens. On the one and only job we did requiring the hardening of annealed aluminum, was for a damaged engine mount that required replacement. The hand formed bracket was made from SO material, heat-treated in the Central heating furnaces. Using a long handle shovel and the instructions in the Sheet Metal handbook issued by the Chanute AAB, Rantoul, Illinois, Sheet Metal School we, Corporal Harold Elliot and myself, successfully manufactured the engine mount replacement. The bracket was inspected and passed after each mission until the aircraft was lost to the enemy ground and fighter aircraft fire. That was the only occasion that required hand manufacturing a replacement part that required heat-treating. When extrusions and circumferential parts were required; we would get the necessary parts from salvaged fuselage located in a "grave yard" near the town of Cambridge. During days when work was all completed our crew would visit the "graveyard" and cut out parts we thought would come in handy in repairs.

5. *Did you ever have to make any temporary repairs so an aircraft could make a mission?*

5. None of the 91st BG B-17s as far as I know ever flew with temporary repairs or parts.

6. *What other component repairs did sheet metal make besides structural?*

6. We basically made airframe repairs. Men from the 441st Sub Depot accomplished tubing and flight control cables.

7. *Who removed major components such as outboard wing sections for repair?*

7. The aircraft's ground crews accomplished removal of outboard wings. Reinstalling them was accomplished by 441st Sub Depot Mechanics who rebored the taper pin fitting to insure a proper and secure fit.

8. *What was the availability of sheet metal tools?*

8. Originally we were limited to the "Table of Allowances." Which was short of all the critical tools we needed to do our job. Our making repairs after the first couple of missions, we set rivets by hand using machined out heavy bolts to fit the rivet heads, a hammer and a steel block for a bucking bar. Supply eventually came across with drill bits, and rivet guns. However, we were still short of special tools in stock, I subtly filled my jacket with tools we were not authorized, such as an offset drill and rivet guns. We all eventually had cleco fasteners, hammers, and straight and curved tin snips, and a set of duckbill shears and bucking bars. Broken drill bits were usually exchanged for good bits. The tool that really saved the day was the RAF POP Rivet guns. These guns were a god send for repairing blind holes in wings, stabilizers and other blind spots where bucking a regular rivet was not practical. The pop rivets came in 1/8, 3/32, 5/32, and 3/16. One of the toughest jobs which contained about eight rivets only replacing ball turret doors that had been yanked off by the gunners loading up who used the open door to swing the turret about instead of the side handgrips. These eight rivets were 1/4-inch iron countersunk rivets, which were too heavy for the light, rivet guns used to set aluminum rivets, and as a result had to be set by using a flat rivet set, a hammer, and heavy bucking bar. The space was limited, and light was limited at 4 A.M., causing many missed swings of the hammer that landed on the handholding the rivet set.

9. *Did you assist the other squadrons if they needed help?*

9. Battle damaged aircraft were repaired to according to the amount of repair work required. The first priority was to finish up those aircraft with the least amount of damage and work toward those most damaged. The 441st Sub Depot kept an account of the damaged and fixed aircraft. When one squadron's sheet metal damage was completed, the sheet metal crew from the squadron that had finished up their aircraft was then sent to assist one of the squadrons in getting their aircraft repaired, and continued until all the sheet metal damage to the 91st Bomb Group B-17s were repaired. Of course those aircraft's needing engines, wings and other changes that could not get the aircraft back in operation by the next morning, were not worked upon until the next day. When did we sleep?

10. *Describe the barracks assignment.*

10. a/b/c/d. Each squadron had it's own ground crews that lived in a squadron barracks. As noted above, Bassingbourn was a permanent, central heated RAF base. We even had bathtubs. Squadron Barracks were H shaped and must have had perhaps 60-80 men billeted, double deck, in each barracks. Some of the squadron ground crews were billeted in what were family quarters. Many of the 441st Sub Depot NCO's were billeted in what was formerly a hospital ward. This ward had two men to a room on double bunk bed. Each room was heated by a small coal stove, and the hot water was heated by an outside furnace/boiler that was maintained by the men in the billet. In the main squadron billets, there were private rooms on each wing, and on each floor where the Senior NCOs were billeted. E. The senior ranks were M/Sgt., T/Sgt. The biggest bitch was that while we went overseas in 9142 and were promoted according the Table of Allowances, any time there was a replacement or increase in manning from the States it was usually a man with little experience but lots of rank. As a result those of us who were overseas at the beginning of the conflict found it hard to get promoted.

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