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BACKGROUND PAPER

ON

ARMY AIR FORCE GROUND CREWS IN WORLD WAR II

During World War II, 2.3 million Americans served in the Army Air Force. (6,xxv) Many thousands of these were aircrew, whose daring exploits are deservedly well-documented both in history and in fiction. The rest, including over half a million maintenance technicians, made their contribution to victory from the ground. (6,630)

The importance of maintenance to an air force is obvious. If aircraft can't be repaired when they break or suffer battle damage, combat operations soon come to a halt. Aircraft maintenance was a critical factor during World War II. To quote the official history of the Army Air Force, maintenance "...was little if any less important than combat operations." (5,103)

This paper is an attempt to tell the story of Army Air Force ground crews in World War II. In it, I will first describe how maintenance technicians were trained and organized. I will then illustrate the contributions which ground crews made to victory by looking at the early operations of the Army Air Force in the South Pacific.

In the early days of the air service, anyone who maintained aircraft was called an airplane mechanic. (6,629) As aircraft became more complex, the title of airplane mechanic was gradually associated only with the personnel who maintained the airframe and powerplant.

MSgt Metz/SNCOA/4693/fm/18Aug92

Technicians who specialized in other equipment such as armament, cameras, and radios, came to be known by other names. (6,630)

At the beginning of World War II, the basic airplane mechanic school was 38 weeks long, and in theory, prepared personnel to maintain any type of aircraft. (6,631) However, numerous complaints were received from field commanders because new airplane mechanics required substantial training before they could perform their duties. The old course was quickly replaced by new courses, specific to aircraft type. These courses were less than half the length of the old course, and included more hands-on training. (6,631)

After completing the basic airplane mechanic course, certain technicians attended additional courses. This created specialists, with special expertise in maintaining particular systems. These specialists were known by various names: engine mechanic, airplane machinist, propeller specialist, aircraft welder, instrument specialist, aircraft metal worker, aircraft electrician, etc. (1,35) Inspections and minor repairs of all aircraft systems were done by airplane mechanics, but major repairs and overhauls were done by specialists.

Army Air Force Regulation 65-1 divided aircraft maintenance into four categories, or echelons, as follows:

First echelon maintenance will normally consist of servicing airplanes and airplane equipment, preflight and daily inspections, and minor repairs...all essential tools and equipment must be transportable by air.

Second echelon maintenance will normally consist of servicing airplanes and airplane equipment, performance of the periodic

preventive inspections...includes engine change when the organization concerned is at the location where the change is required. Most of the tools and equipment for 2nd echelon can be transported by air; but certain items...necessitate ground means of transportation

Third echelon of maintenance embraces repairs and replacements requiring mobile machinery and other equipment of such weight and bulk that ground means of transport are necessary. Units charged with this echelon of maintenance require specialized mechanics. This echelon includes field repairs and salvage, removal and replacement of major unit assemblies...

Fourth echelon of maintenance includes all operations necessary to completely restore worn or damaged aircraft... and the periodic major overhaul of engines, unit assemblies, accessories, and auxiliary equipment...(3,6)

Each flying squadron in the Army Air Force was assigned a number of enlisted personnel to serve as ground crews. Fighter squadrons typically had about 160-175 enlisted ground personnel, and bombardment squadrons about 180-250, depending on whether they operated light, medium or heavy bombers.(2,15-17) Each aircraft was maintained by a team of enlisted technicians under an NCO called the crew chief.(6,630) A nonflying officer known as the squadron engineer was in charge of the overall maintenance effort.(6,630)

Three or four flying squadrons were organized into a combat group. Usually all of the squadrons operated from a single airbase and maintenance technicians assigned to the individual squadrons were pooled.(6,657-8) The technicians, primarily airplane mechanics, performed 1st and 2nd echelon maintenance on all the aircraft of the group.(6,658)

The Army Air Force made it clear that combat group commanders were responsible for aircraft maintenance in their groups:

...the organization and supervision (of maintenance) is a direct responsibility of command. Commanders who shirk such responsibilities, or who delegate it to subordinates, or who relegate it to a low priority in their own responsibilities, do not have a proper appreciation of Air Force operations. (9,1)

Although 1st and 2nd echelon maintenance was done directly in the combat groups, 3rd and 4th echelon maintenance was done by separate maintenance units, the service and air depot groups. (6,667) Service groups performed 3rd echelon maintenance. These groups operated from rear area bases, with each group supporting two or more combat groups. (6,667) Air depot groups did 4th echelon maintenance, also at rear area bases. Each air depot group supported two or more service groups. (6,667) Most of the personnel assigned to the service and depot groups were specialists who had been trained to perform major repairs and overhauls of particular aircraft systems and components.

Some of the most difficult and trying conditions for aircraft maintenance in World War II were in the South Pacific. The war there was fought in the tropics, "that jungle covered zone of the earth where rain is plentiful, heat and sweat constant, mud, insects and decay universal." (10,382) Corrosion of aircraft was a serious problem. The primitive nature of the theater, and its great distance from the United States, made supply a problem of gigantic proportions. Ground crews at forward bases in the South Pacific were more likely to come under enemy fire than ground crews were in any other part of the world. And the rear area bases were just as hot, primitive, and unhealthy as the forward ones. (10,383)

At the beginning of the war, the 19th Bombardment Group (Heavy)

and the 24th Pursuit Group were stationed in the South Pacific, near Manila on the main Phillipine island of Luzon.(4,182) These groups were destined to have a very difficult time.

The two groups had about 35 B-17's and 100 P-40's between them. (4,182-3) Devastating Japanese air raids on the first day of the war destroyed about half of the aircraft. The 19th Bombardment Group immediately withdrew its surviving aircraft southward to the island of Mindanao, but the 24th Pursuit stayed near Manila. Within a few weeks, most of the rest of the 24th's aircraft had been destroyed, and on 10 January 1942, the remaining personnel of the group (about 80 officers and 1000 enlisted men) were formed into the 2nd Infantry Regiment (Provisional), and attached to the 71st Infantry Division.(8,5) Under this name, the 24th Pursuit fought on. Eventually, the personnel became prisoners of war during the final surrender on Luzon.(8,7)

The 19th Bombardment Group only stayed a few days on Mindanao before withdrawing to Australia. They left some of their ground crew behind to operate a forward staging base. This staging base was used by the bombers on missions from Australia in support of the American forces on Luzon.(4,221-2) However, on 1 May 1942, the Japanese landed at three points on Mindanao and the forward base was enveloped.(8,1) The 19th fought on against the Japanese, in Java and New Guinea, before being withdrawn to Hawaii in late 1942.

Another Army Air Force unit which was destined to have a difficult time was the 67th Fighter Squadron. The squadron was shipped to New Caledonia in the South Pacific in early 1942, traveling by ship with

their P-400 aircraft in crates on the same ship.(7,9) New Caledonia was a primitive jungle island, and the maintenance crews of the squadron faced a difficult task assembling the aircraft when they arrived. They had only simple tools, and not enough of those. There were no spare parts or technical manuals. Never-the-less, 41 aircraft were assembled in 29 days.(7,12-13) To quote Master Sergeant Robert Foye, who was line-chief during that period:

"It would be impossible to pick out outstanding men during this period--when they worked from 5 A.M. until dark in the mud and rain and then volunteered to go back at night. The whole damn outfit was outstanding. An outfit like this could be the nucleus for six Air Corps groups and with recruit fill-ins could start operating tomorrow..."(7,14)

Partly due to the superb efforts of the ground crews in assembling its aircraft, the 67th Fighter Squadron was ready to go into action in August 1942. The Marines landed at Guadalcanal on 7 August to capture an air field the Japanese had constructed there.(10,182) On 22 August, five aircraft of the 67th flew to the island.(7,23) The next day, a ship brought 30 mechanics and armorers of the squadron to the island (8,24), and on 27 August, nine more of the squadron's aircraft flew in.(5,40) For many weeks, the 67th was the only Army Air Force unit on Guadalcanal.

Conditions on the island were terrible. The airfield was bombed and shelled continually, including naval shellings with 14 inch shells on several occasions.(5,55-6) Supplies and spare parts for the aircraft were extremely short; the ground crews worked 14-16 hours a day in an effort to keep the aircraft flying.(5,41-2) Navy and Marine

fighter and dive bomber squadrons were rotated in and out, but the 67th was there without a break until the island was secured in January 1943. (7,57)

Although the P-400 aircraft flown by the 67th on Guadalcanal were inferior to Japanese aircraft, the squadron provided superb close air support for Marine infantry units. (7,28) They were critical to victory in the battle for Guadalcanal. And so were the ground crews who kept their aircraft flying.

In this paper, I have tried to show how ground crews made a vital contribution to victory in World War II. I've barely scratched the surface; it would be easy to write a book on the subject. The many achievements of the Army Air Force would have been extremely difficult, if not impossible, without the dedicated efforts of hundreds of thousands of maintenance technicians. In closing, I would like to quote the last lines of a poem which is well known in aircraft maintenance circles:

...so when you see mighty aircraft, as they mark their way
through the air,
Remember, the grease-stained man, with the wrench in his
hand, is the one who put them there. (anonymous)

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