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THE PRIDE OF THE ENLISTED MECHANIC

by SMSgt Al Kinman

To all, but the pilots of the aircraft that soar in clouds in glory of high flight, the United States Air Force enlisted mechanic has gone unnoticed. But without the skills and pride of the enlisted mechanic, the United States Air Force air power would not exist. In the blue skies the pilot is the master, but until the pilot starts his takeoff roll, the ownership belongs to the skills and pride of the enlisted mechanic.

As Staff Sergeant Stephen M. Moriset stated for an article in TAC Attack of April 1981, *"I know that I'll never slip the surly bonds of earth, but I can fix your laughter silvered wings; I know I'll never strap a fighter on my back or travel those footless halls of earth, but when I walk down the flight line, you come to me to see if you can do those hundred of things you never dreamed of; I'll never soar where neither lark nor eagle dare, but my spirit is with you on each of your flights"* (4:13). The image of the pilot slipping the surly bonds of the earth in an airplane safely, is only possible through the heritage of skills and pride of the enlisted mechanic. This paper will show the development of the enlisted mechanic. This heritage started during World War I, when skills were developed through technical schools. Then in World War II, the Army developed a command for training the enlisted mechanic and mobile training units were even sent to the battle lines.

Then in 1944, the Second Air Force started the crew chief concept through "Pride In Ownership". The crew chief then developed the on-the-job training program. When new aircraft and technologies revolutionized aircraft maintenance in the seventies and nineties, the enlisted mechanic remained the backbone of the United States air power and the key to the safety of the pilot and his aircraft.

Flying is an inherently dangerous occupation today and even more so in the early days of the Air Force. In 1921 major aircraft accidents occurred at the rate of 467 accidents per 100,000 flying hours (5:21). In 1949, on an average day, Air Force aircraft accidents would kill one person, injure another, wreck one airplane, inflict major damage on three and minor damage to two (5:21). The safety of the pilot and his aircraft have been entrusted to the skills of the enlisted mechanic ever since the United States Aeronautical Division was established and flight training for pilots began. Technical training for the enlisted mechanic assured a safe aircraft for the pilot. New aircraft designs and advanced pilot training reduced the dangers of flying in the Air Force, but the technical training of the enlisted mechanic has been instrumental in reducing the Air Force accident rate today to approximately 1.5 aircraft accidents per 100,000 flying hours. This vital technical training of the enlisted mechanic to maintain safe aircraft began during World War I.

During World War I, the same universities that provided ground training for future pilots also provided training for the airplane maintainers. The War Department established the Enlisted Mechanics Training Department at St Paul, Minnesota and at Kelly Field, Texas (1:4). In May 1918, the Training Department changed to the Air Services Mechanics School. The Air Corps trained 15,000 technicians between 1920 and 1940. With the outbreak of World War II, the Air Corps trained over 600,000 technicians and almost half of these graduates were aircraft mechanics (1:4).

During World War II, the enlisted mechanic usually completed basic training and then was assigned a four-month technical school in the basics of aircraft and engine maintenance and repair (6:95). By 1944, the Air Corps developed an entire command just for training of enlisted technicians. The Army Air Forces Training Command started the Airplane and Engine Mechanics Course at Keesler Field, Mississippi and Amarillo Army Air Field, Texas. This course was 112 academic days and covered a syllabus of: (1) Hand tools, (2) Aircraft materials hardware, (3) Army Air Force inspection, maintenance, and supply forms, (4) Airplane General areas such as engines, fuel and oil systems, hydraulic systems, electrical systems, propellers, aircraft instruments and loading and balance (2:2). These schools were the forerunners of the Airplane General training courses still taught today to selected enlisted airmen at Shepherd Air Force Base, Texas. After the Airplane General course, even more training was required for the skills required to maintain an airplane.

After completion of the aircraft and engine schooling during World War II, enlisted mechanics went on to specific manufacturing plants where one month courses were presented by civilian instructors of the company, such as the Bell Aircraft School at Tonawanda, New York or P-38 school at the Lockheed plant in California (6:96). Even today after the enlisted mechanic attends the courses for Airplane General training at Shepherd Air Force Base, he or she then will receive training on a specific aircraft. This training is provided by a Field Training Detachment (FTD) at bases where the mechanic will be assigned. The concept of the FTD was started during World War II.

Even in World War II, the FTD was essential for the skills of the enlisted mechanic. The Army Air Force initiated mobile training to help the aircraft mechanics stay abreast of the rapid technological advances. Mobile training units followed operational units into the combat zones in Europe and the Pacific where they conducted conversion and familiarization training behind the front lines. By the time Japan surrendered there were 163 mobile training units that had instructed over half a million students; enabling them to provide the pilot with a sound and safe airplane (6:97). Even with the technical training provided the Army Air Force realized the need for "Pride in Ownership" by the enlisted mechanic. This was the birth of the crew chief concept.

In 1944, specialized aircraft maintenance organizations embraced the principles of "crew chief" maintenance (3:298). The crew chief system was deemed vital to the accomplishment of effective maintenance. For that reason, a crew chief and a small crew of men were assigned to each individual airplane, to remain with that airplane so long as it was undergoing maintenance. With this came the concept of the owner of the airplane, "old sarge" and his crew of technicians. "Old sarge" provided experience to the new mechanics coming into the Air Force through on-the-job training. But the formal concept of on-the-job training (OJT) was not established until the mid-fifties.

Before formal OJT programs the new mechanic was not even task qualified by the experienced mechanic. Hopefully the new mechanic eventually gained enough expertise by the time the "old sarge" retired. In the days of "old sarge", the engine oil was checked for contaminants only by feel and visual, resulting in engine failures in flight. In 1963, the Air Force first started using the spectro-oil-analysis program, SOAP, to check the engine oil (5:24). With the SOAP, engines that were about to fail were caught early, on the ground. Many times the mechanic and the training, or lack of it, sometimes resulted in airplane crashes. Technical data was rarely used unless the mechanic ran into a problem and needed a manual. Even test equipment was unheard of for use in troubleshooting during the days of the "old sarge". Only in the fifties, when the jet age arrived, did the Air Force start buying the equipment needed for troubleshooting the complex aircraft.

Even with new test equipment and troubleshooting procedures, undoubtedly, the biggest problem the mechanics had to face with the airplane was maintainability. From the beginning of flight aircraft designers had only two things in mind-performance and safety. The maintainer and his work load was not considered. In those early days the maintenance-hours-to-flying hours ratio skyrocketed. In the mid-fifties, technology leapfrogged over maintenance until 1960 when the Air Force finally realized no matter how good an aircraft performed, it was of little use sitting on the ramp awaiting repairs. The concept of maintainability was born, bringing a new era for the enlisted mechanic (5:25).

In the 1970s, the enlisted mechanic moved into a generation of sophistication of aircraft maintenance. Fault isolation equipment and remove and replace concepts allowed the mechanic to do more "on-equipment" maintenance. The mechanic today utilizes computerized equipment condition monitoring, malfunction detection, and automatic troubleshooting capabilities (7:28). Enlisted mechanics now require more training and skills than ever before in the history of the Air Force to maintain the modern aircraft.

But, even with the new generation of aircraft and enlisted mechanics of the 1990s, the "Pride of Ownership", the crew chief method of maintenance, is what keeps the airplane available and safe for the pilot. The skills and pride of the enlisted mechanic is the backbone of the United States Air Force air power.

The next flight, when the pilot soars the clouds in the glory of flight, hopefully he or she will remember the proud, skilled enlisted mechanic, whose spirit is with him on every flight.

MECHANIC'S CREED

Upon my honor I swear that I shall hold in a sacred trust the rights and privileges conferred upon me as a certified mechanic. Knowing full well that the safety and lives of others are dependent upon my skill and judgment, I shall never knowingly subject others to risks which I would not be willing to assume for myself, or for those dear to me.

In discharging this trust, I pledge myself never to undertake work or approve work which I feel to be beyond the limits of my knowledge, nor shall I allow any non-certificated superior to persuade me to approve aircraft or equipment as airworthy against my better judgment, nor shall I permit my judgment to be influenced by money or other personal gain, nor shall I pass as airworthy aircraft or equipment about which I am in doubt, either as a result of direct inspection or uncertainty regarding the ability of others who have worked on it to accomplish their work satisfactorily.

I realize the grave responsibility which is mine as a certified airman, to exercise my judgment on the airworthiness of aircraft and equipment. I therefore, pledge unyielding adherence to these precepts for the advancement of aviation and for the dignity of my vocation.

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