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BACKGROUND PAPER

ON

HISTORY OF TRAINING DEVICES CAREER FIELD, AFSC 34XXX

1. When you think of the Air Force, you naturally think of airplanes and pilots. But how many people realize that for nearly 50 years those pilots received much of their initial flight training on the ground from enlisted soldiers and airmen. The purpose of this paper is to acquaint the reader with the history of the Aircrew Training Devices career field in the United States Air Force. I will first discuss the early development of training devices and the first technical training courses for them in the Army Air Corps. I will then look at the changes that occurred after the United States Air Force became a separate service, and finally, I will look at how the career field was phased out. I served as a flight simulator technician at various locations on KC-135A, B-52G, B-52H, and F-4E aircraft simulators from 1976 until the field was almost closed in 1990.

(12:--)

2. The modern family of aircrew training devices, or simulators, traces its origins back to the late 1920s in a Binghamton, New York piano and organ factory. Mr. Edwin A. Link, Jr. was a young barnstormer concerned with the expensive costs of flying lessons. He was convinced that a device was needed that would prepare a pilot for actual instrument flying without the cost and risk to man and plane entailed by actual flight practice. The first

model Link trainer was put into use in 1929, but it did not catch on as a commercial flight training device. In fact, the best business Mr. Link had in the early 1930s was selling his trainers to amusement parks. The United States Navy purchased a trainer in 1930 and experimented with it, but nothing came of it. Mr. Link's break came in 1934 on the heels of the Air Corps disastrous experience flying the U.S. Mail. This catastrophe had shown the Air Corps that its pilots were not qualified to fly by instruments alone. In those early days of aviation, few pilots were qualified to fly in inclement weather relying solely on instruments. Mr. Link put on a demonstration in one of his trainers for the Army at Newark, New Jersey. This demonstration impressed the Air Corps Officers present and orders for the first six Link Trainers were placed in June, 1934. (9:10-14A; 10:--; 11:--)

3. In September 1938 the Chief of the Air Corps (CAC) told the Commandant of the Air Corps Technical School that the increased use of Link Trainers would require the training of enlisted men for maintaining and operating the trainers and that a course should be prepared for training such men. The first official technical training course for the Link Trainer was started on 1 January 1939 at Chanute Field, Illinois as the Enlisted Men's Link Trainer Specialist Course. The Link Trainer Division was created to develop curriculum and administer training for this course. (9:351-354)

4. This first course of instruction was five weeks long and

designed "to train especially selected enlisted men in the construction and operating principles, maintenance repair and inspection of the Link Instrument and Radio Pilot Trainer."

(7:--) This course was designed to train Link Trainer Mechanics, Military Occupational Specialty (MOS) 969. A separate course for Link Trainer Instructors, MOS 970, was started in November 1939, at Randolph Field, Texas. After three months, the CAC approved a plan to integrate the Instructors course at Randolph with the Specialist course at Chanute Field. The combined Link Trainer Instructors Course started during the 1940 school year at Chanute Field. (8:--; 9:351) This course in basic trainer maintenance also included subjects such as navigation, radio aids to navigation, meteorology and air regulations. The course was extended to 12 weeks and the following line was added to the original Specialist course purpose statement: "to qualify enlisted men for duty as instructors of pilots receiving instrument flying training in the Link Trainer." Each student instructor received three kinds of instruction. He had to learn to fix the trainer, to fly the trainer, and how to instruct pilot students in instrument flight procedures. (8:17-18)

5. The Link Trainer Mechanics course was retained and focused on advanced maintenance of the Link Trainer. Students were required to have completed the Link Trainer Instructors Course prior to entering this course. On 12 October 1943, a separate Link Trainer Instructors Course was once again started at Randolph Field and the Mechanics course was restructured to be complete

within itself. Personnel without prior completion of the Instructors Course could now be enrolled. (1:2329-2331) The purpose of the school is stated in Army Air Forces Training Standard, 5 October 1943:

The Link Trainer Mechanic will be expertly qualified to perform 1st and 2d echelon maintenance and have sufficient knowledge of 3d and 4th echelon maintenance pertaining to the trainer to quickly isolate malfunctioning units and replace them. He will be thoroughly familiar with pertinent forms, requisitions, reports, technical orders, files, and the Army Air Forces supply system. (1:2330)

6. An advanced trainer was introduced around this time, which could train an entire crew. Where the Link Trainer only trained pilots, the Link Celestial Navigation trainer (CN) could be used to train the pilot, navigator, bombardier and the radio operator. These devices were much larger than the Link Trainers and required a separate building of their own. The enlisted mechanics, operators and instructors for these devices were required to have the following prerequisites: a score of 110 or higher on the Army General Classification Test, mechanical or electrical experience or training, and be high school graduates with a course in physics. Separate technical courses were established for this device, with completion of a Link Trainer course desirable prior to entry. (2:1633-1642)

7. The number of students graduated from the Link Trainer Division shows the importance of the enlisted man to the flying training program during the war years. Between 10 January 1941 and 18 March 1944, a period of a little more than three years,

the Link Trainer Division graduated a grand total of 4900 students. Of this number, 4678 students were graduated from the Instructors Course and 222 from the Mechanics Course. Upon training completion, students were assigned to training bases both in the United States and overseas. Each trainer required one instructor-operator, while one maintenance mechanic was assigned for every five trainers. (1:2335; 11:--)

8. The Link Trainer Division continued to operate until 18 March 1944 when the division was shut down. Its purpose had been to meet the requirements for trained personnel. Once the requirements were met, it was decided to close it. After a period of inactivity, the school was reopened on a token basis to replace the small number of vacancies that were periodically created through attrition. (1:--; 2:1633-1642)

9. Although the Link Trainer Division was disbanded in 1944, the training of simulator technicians was not stopped then. The course of instruction was realigned under the Department of Advanced Aircraft Maintenance and the courses were renamed Synthetic Trainer Operator, Mechanic, and Instructor. These courses were developed to reflect the rapid development of new flight training devices. Simulators were getting more specialized to reflect individual aircraft as well as more technically advanced. No longer was there only the single Link Trainer. This created the need for specialized courses on these devices. For example, in 1947, there were seven individual courses for four different devices. At this time, there were

also separate courses for operators, mechanics and instructors.

(3:455-462; 4:670-671)

10. Once the Army Air Forces became a separate United States Air Force in September 1947, the Training Devices career field was redesignated with an Air Force Specialty Code (AFSC) of 34XXX. AFSC 341XX, Instrument Trainer Specialist retained the same primary duties as the original Link Trainer Instructors. These personnel were used primarily at basic flight training school locations and continued to train officer pilot trainees in instrument flight procedures. AFSC 342XX, Flight Simulator Specialists were trained on a specific aircraft type simulators and served primarily as operators and mechanics at operational bases. Here, pilots concentrated on emergency procedures and systems familiarization of the aircraft they were assigned to. AFSC 343XX, Bomb/Navigation Tactics Trainer Specialists were operators and repairman on Bomb/Navigation Tactics trainers used to train bombardiers and navigators only. These were the descendants of the original Link CN trainers. (4:112; 5:AAR-5,ABR-11; 6:161-162)

11. On 1 January 1976, the career field underwent another major change to reflect the advances in computer systems. All training devices AFSCs were aligned under the 341XX career field. Each AFSC was then split into two AFSCs to allow for distinction between the old analog and newer digital computer systems. Thus, AFSC 341X1 and 341X2 were now Analog and Digital Instrument Trainer Specialist, 341X3 and 341X4 were Analog and Digital

Flight Simulator Specialist, and 341X5 and 341X6 were Analog and Digital Bomb/Navigator trainer specialist. In addition, 341X7 was added to reflect a new field, Missile Trainer Specialist which was developed for a new generation of digital trainers for missile systems. (12:--)

12. In the early 1980s, the Air Staff issued Program Management Direction that all aircrew training devices maintenance would be converted from organic enlisted maintenance to Contractor Logistics Support (CLS). Once implementation of this program started, the number of personnel in the 341XX career field rapidly fell from a high of almost 2700 in 1983 to 97 by the end of FY90. (Figures from Air Force Magazine Yearly Almanacs) All maintenance and operation of training devices is currently accomplished by civilian contractors. (12:--)

13. The contributions of the enlisted men and women in the Training Devices career field were great. From its very beginning in 1939 until its end in the late 80s, it was an entirely enlisted career field. All maintenance and operations were performed by highly skilled personnel. Every aircraft in the Air Force inventory had a simulator associated with it and enlisted members were there to operate and maintain it. Every pilot, every navigator, every bombardier owes something to those enlisted members who maintained and operated that trainer where those aircrew members perfected the skills which allowed them to complete the mission.

14. Recognition of these individuals is non-existent. The only

mention of training devices in individual unit histories center around the arrival and departure of a device at a base, and the monthly simulator utilization reports required by higher headquarters.

15. The contributions of the enlisted personnel in the training devices career field are best summed up in an entry made by the Station Historian at Chanute Field, Illinois in the entry for 1 March 1944-30 April 1944:

The story of their accomplishment will never be as thrilling as some of the other accomplishments of this war, and probably they will never be paid the tribute received by many others. But a tribute has already been paid, no doubt, and will again be paid quietly and without fanfare. It will be paid in the hearts of the crew of an American bomber who feel their craft buck slightly at the cry of "Bombs Away" over the enemy city, but have never seen the earth since they left their base, having been carried straight to their target by a pilot and a navigator both possessing a skill in blind flying learned in a device called a Link Trainer and taught by a soldier who had never seen a battle ground but who knew the operation of the synthetic trainer. That tribute will also be paid silently by the fighter pilot who feels the clean hard jar of his wheels hitting a runway which he hit squarely just as he had learned to hit a theoretical runway set up on a Link Trainer desk. These are accomplishments of the first order, the kind of accomplishments that throw the balance in favor of success rather than failure, in favor of life rather than death. (11:2335-2336)

This was true in 1944 and remained true until the career field closed!

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