



Doerr

Delta Darts at Duluth

by FRANK DOERR

It was January 1959 and just a month after my 22nd birthday. When I made my monthly call to my draft board I learned my number would be coming up in February. Even though the active duty would have been a shorter period if I had waited to be drafted (like Elvis had been a year earlier), I chose to enlist in the Air Force with the expectation of learning a new trade and seeing the world.

For the previous two years and 10 months I had been working for a regional airline as an FAA certificated Airframe and Powerplant mechanic. My duty station at the time was Minneapolis, Minnesota as part of a four-man maintenance crew. Nearly all my activities at this location were outside where winter temperatures were frequently far below the comfort zone. The airline flew Douglas DC-3s (which had been developed into the C-47 Skytrain) and Fairchild F-27s (Fokker F27s manufactured in the U.S. under license), both twin-engine prop planes. Several flights were in and out during the day and two DC-3s remained overnight for early morning departures. On cold nights, and since we didn't have the luxury of a heated hangar, we were required to run the DC-3 engines every two hours to be assured they could be started at departure time. It happened that one night while seated in the comfort of the heated station area between run-ups I fell asleep and

slept past the appointed time to do the final run-up prior to departure. As departure time approached I attempted to start the engines to assure an on-time departure of the flight. One engine started, but the other fired briefly and then refused to start. I knew exactly the reason why as this was a common problem. The spark plugs fired one time and during the sequence, moisture formed on the warmed spark plug electrodes and this moisture promptly froze and the plug electrodes were now grounded out by ice as a conductor on the electrodes.

The solution was to apply heat from an engine-driven ground heater to the cold engine and remove a spark plug from each of the fourteen cylinders to thaw the ice from them. This delayed the departure time of the flight and was a big embarrassment to me and to the airline. I was so frustrated with the situation and so ready to join the Air Force — to be trained for a totally different career, hoping that I would be able to see the world and never again have to work on radial engines in freezing temperatures. My initial hopes were met when I tested for job knowledge abilities and scored high enough in each of the four general categories so I chose electronics.

Following Phase I basic training at Lackland Air Force Base (AFB), Texas, I was assigned to Lowry AFB, Colorado for phase II basic and electronics training.



Somehow, while at Lackland, it was discovered that I had experience as an airplane mechanic and I was scheduled for another job knowledge test. Since my recruiter had assured me I was headed for the electronics career field, I was a bit upset with the new development. Thanks to some friendly (off the record) advice from the training instructor, I took the test and marked all the answers incorrect. That ended any further interest in changing my chosen career field.

After seven weeks of phase II basic and PAT (Personnel Awaiting Training) activities, formal electronics training began. The PAT period was due to Air National Guard personnel getting priority for the schools because their active duty period was limited to six months. The electronics training was in three segments for a total of 27 weeks. The first segment lasted 10 weeks and consisted of fundamental and advanced math with some basic exposure to hands-on electronics. Depending on how well the students were doing, some were graduated and promoted to E-2 (Airman Third Class at the time, today an Airman) after the first segment, some graduated and promoted after the second segment, and those who were able to continue were there for the entire 27 weeks before graduation and promotion. The first group was assigned to North American F-100 Super Sabres, the second group to Boeing B-47 Stratojets, and the third group to Convair F-106 Delta Darts.

My next duty assignment was to the 343rd Consolidated Aircraft Maintenance Squadron, Duluth AFB in cold, cold Minnesota (so much for seeing the world). This was the home of the 11th Fighter Interceptor Squadron and 24

F-106s, a mix of Lockheed T-33 Shooting Stars, C-47s, De Havilland L-20 Beavers (later redesignated U-6A) and a couple Kaman H-43 (later HH-43) helicopters. The aero club had a Beechcraft T-34 Mentor that had been modified and registered as a civilian aircraft.

It was October 1960 when I arrived at Duluth and began further training as a maintainer of the Automatic Weapons Control Integrated System designated as MA-1. The base had recently converted from the Convair F-102 Delta Dagger aircraft to F-106 aircraft and was in a frantic training environment prior to the F-106s becoming operational. The Delta Dart was a new aircraft and may have been among the few that had been upgraded to vertical tape instrument displays replacing the round instruments. The avionics differences between the F-102 and the F-106 were quite significant. Each of the electronic systems of the F-102 (power, radar, communications/navigation/landing, automatic flight control, and computer) were separate job specialties with their individual personnel Air Force Specialty Codes (AFSC, an alpha-numeric code for a specific job) and work centers. The MA-1 system integrated these systems into one AFSC and one work center with the maintainer being responsible for working on the entire suite. We had nine technical representatives from the electronics system manufacturer (Hughes Aircraft Company's Aerospace Group) whose job it was to train us in the classroom and on the flight line in maintenance of the system. Needless to say, our work center had more people assigned than any other work center on the base.

A new experience for me was the time accounting procedure used. We all were given Work Unit Code (WUC) books that we used to provide extensive detail describing the time spent actually working on an aircraft. This information created jobs for others who processed the reports for determining things like staffing needs and maintenance man-hours per flight hour.



◀ Convair F-106 Delta Dart on display during an open house at Duluth AFB. Note missiles are extended position from the internal weapons bay.



for each aircraft. It seemed an unreasonable extra burden on the maintenance crew member to spend so much time documenting work performed when the WUC book choices given were often generic and did not seem to relate to the reality of the work to be done.

An example of this shortcoming quickly became obvious. There were two gyros mounted on the radar antenna. They were enclosed in wax and had to be electrically heated for the wax to melt before being powered up. With the extreme cold weather

at Duluth, often the power would be automatically applied to the gyros before the wax had melted, causing a high rate of gyro failures. The gyros were not identified by an assigned WUC therefore the data renderers and retrievers saw this only as a high rate of antenna failures, thereby rendering the data system useless in pin-pointing the actual problem. Ironically, I was personally able to benefit from this experience much later as an employee of the McDonnell-Douglas company when I was tasked to assign work unit codes to items of automated electronic support equipment in support of the F/A-18 USN/USMC fighter aircraft.

As with any aircraft flight line whether airline or military, time is of the essence in restoring the aircraft to flying status when it requires maintenance. The MA-1 system had several built-in-test features to facilitate maintenance, but spare "black boxes" were inventoried back at the Intermediate Level work center and our troubleshooting didn't always lead us to the failed unit. The transit times to and from the source of replacement boxes resulted in extended aircraft down time. Our methods were greatly improved following the unfortunate landing of an F-106 from a different base that ended up in a fireball on the runway. Our east-west runway had a deceptive approach at the east end - the terrain fell away rapidly beyond the fence. As this particular pilot made his approach, he was using ground reference in judging his altitude and obviously assumed he was flying over flat, level ground. As a result he slammed into the turf short of the runway. His landing gear separated and the airplane skidded down the runway for several thousand feet. The pilot exited safely onto the runway and by the time



▲ Another F-106 on display during an open house at Duluth AFB. Note missiles are not visible, being carried in an internal weapons bay for clean supersonic flight.

the fire trucks arrived, the plane was destroyed by fire. The damage was confined to the area aft of the cockpit and we were able to salvage the radar equipment rack (located just aft of the radome in the nose). We mounted it in a converted van vehicle where we could carry a full set of radar black boxes. Our initial de-brief with pilots as they left the airplane gave us a head start on locating the faulty unit(s) and as soon as we could get ground power and cooling hooked up to the aircraft, the box swapping process began. Often, we would have the problem fixed before the work order could be prepared and issued through normal channels.

Late in my tour of duty I was assigned as pilot de-briefer for the weapons system phase of the de-briefing. System discrepancies were discussed with the pilots and reported to Maintenance Control for them to issue work orders. I also evaluated the recording tapes and kept records on the weapon station qualifications for each aircraft. This was great duty! By this time I was an E-4 and had developed new friendships with many of the pilots. It was a real pleasure to meet and visit with several of them at the "all-hands" F-106 reunion that I attended in 2013 at the National Museum of the U.S. Air Force.

As I mentioned earlier, I had worked as an airplane mechanic for an airline before joining the Air Force. I had also learned to fly and had flown over 100 hours by the time I came to Duluth. I joined the base aero club the following spring. My first check ride was in the club's T-34. This was my first experience flying an airplane with a retractable landing gear and a controllable propeller. I was an E-2 and my instructor was 1Lt Win



◀ Veterans and spouses at the 2013 "All Hands" F-106 reunion held at the National Museum of the U.S. Air Force pose in front of the Museum's Delta Dart.

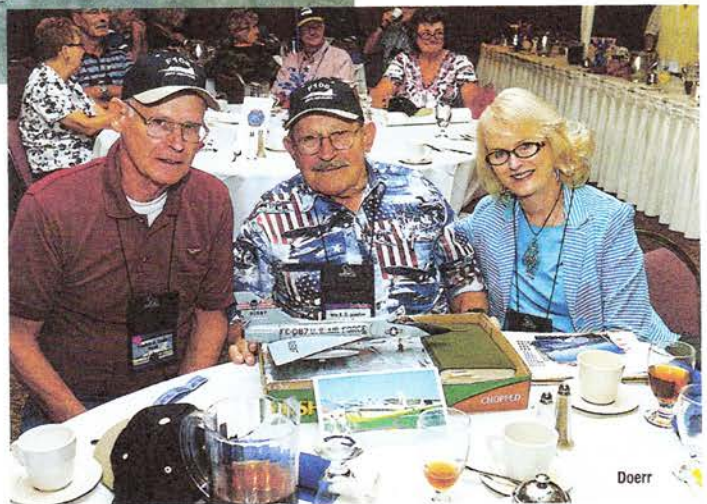
▼ Author Frank Doerr (left) visits with Win DePoorter and his wife Jan during the 2013 reunion.

DePoorter, an F-106 pilot. I flew a total of three dual flights with Lt. DePoorter, then I flew my final check flights with the base test pilot before being cleared to carry passengers. I met up with Win DePoorter again at the 2013 reunion.

One fond memory from the reunion occurred while exchanging stories with a small group of other attendees. I mentioned the time one of our F-106's returned from a night mission missing one of the external fuel tanks which was later found to have landed inside the fence at a nearby Bomarc missile site. [Editor's note: The Bomarc was a long-range surface-to-air missile deployed from the late 1950's into the early 1970's for air defense of North America.] Was I surprised when another member of this small group announced "I was that pilot!" He proceeded to tell the "rest of the story."

It seems that there had been the usual rivalry between the fighter squadron and the missile squadron and this pilot decided to give a "wake-up call" to the Bomarc site as he returned from his mission that night. He came in fast and low, pulled up over the site and hit afterburner as he climbed out vertically. He said all of a sudden he had all sorts of warning lights flash on and realized that was when the fuel tank separated from the aircraft. When he landed, he was told to report to the squadron CO immediately! The base commander was also present during this session. The pilot kept cool and didn't let on that he knew what had happened. It was a very formal meeting and word has it that both the CO's had a great laugh over the whole incident shortly after the session had ended and the pilot had departed.

There were times when we were stretched to our limits in both personnel and material as we maintained



readiness for the war that never happened, but I wouldn't exchange the experiences I had those four years in the Air Force for a million dollars.

The F-106 community has held a reunion every two years since the first one at Dayton, Ohio in 2013. The next one will be at Tuscon, Arizona. Frank encourages all members of the F-106 community, especially those who have not attended these reunions, to contact: bobski9933@aol.com. 🌟

Frank Doerr returned to the airline following release from active duty and later moved on to work for the McDonnell Aircraft Company. He retired from Boeing 38 years later — starting with McDonnell prior to the merger with Douglas, then later, the merger with Boeing. He currently does volunteer aircraft maintenance for Wings of Hope — an aviation related charity based at St. Louis that flies ambulatory patients (mostly children) to and from specialty hospitals for treatments — free to the patients.