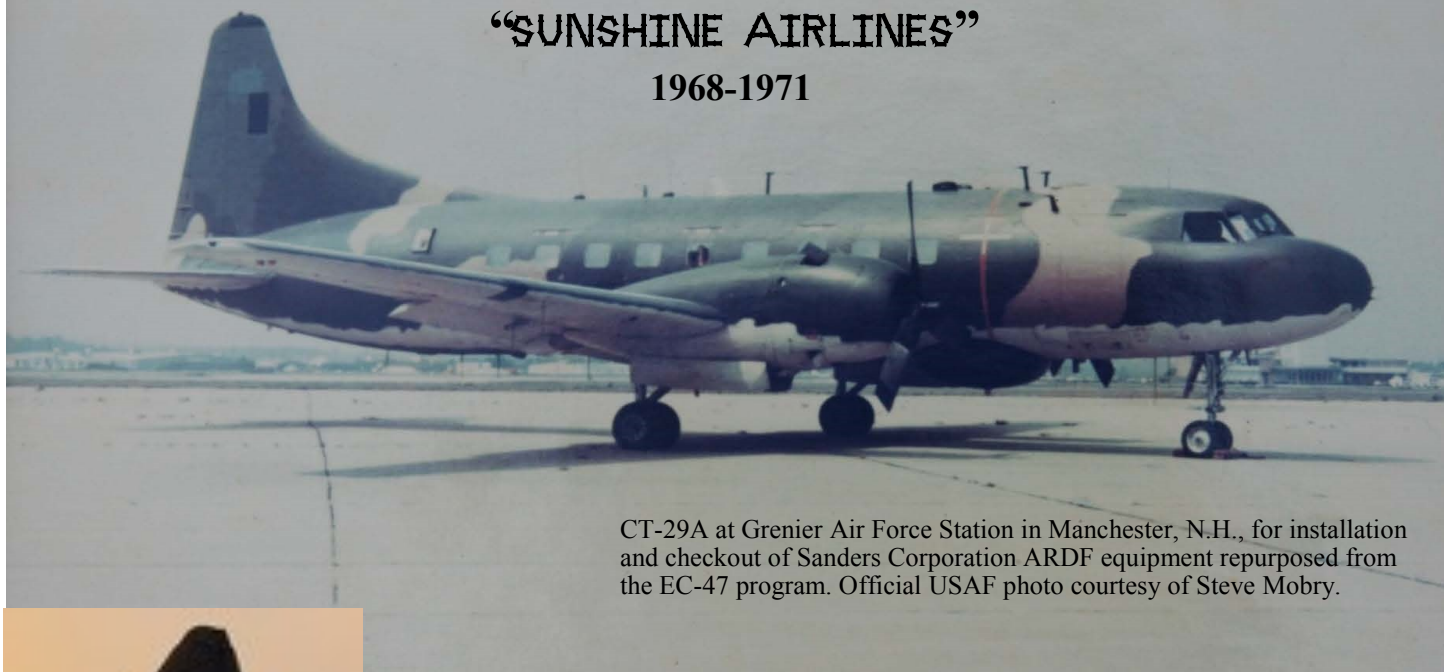


RIVET KITE/SENTINEL STRING

CT-29A AIRBORNE RADIO DIRECTION FINDING

“SUNSHINE AIRLINES”

1968-1971

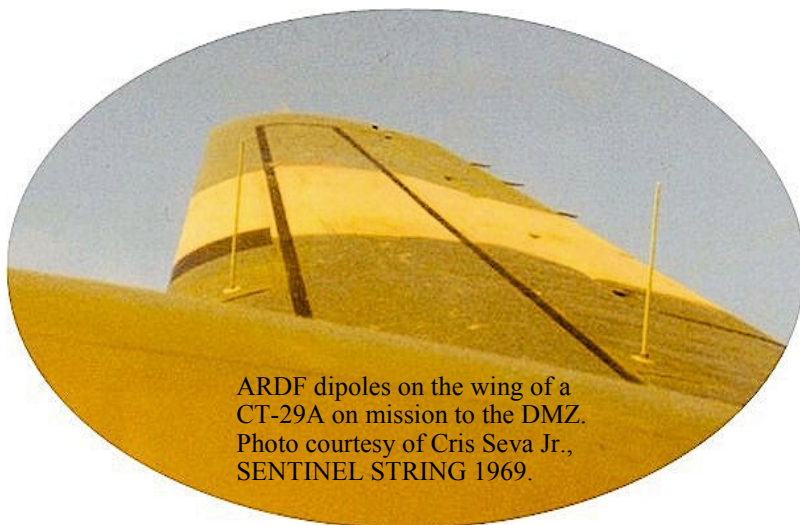


CT-29A at Grenier Air Force Station in Manchester, N.H., for installation and checkout of Sanders Corporation ARDF equipment repurposed from the EC-47 program. Official USAF photo courtesy of Steve Mobry.



SENTINEL STRING aka *SUNSHINE AIRLINES*: When asked about the origin of the Sunshine Airlines nickname, Steve Mobry (left photo) responded, “The Navigator was required to see two checkpoints ahead of us on the DMZ (we flew 1,320 feet south of the demarcation line) or we had to abort. He had a gigantic camera lens looking through the belly of the plane, so any little cloud forced us to abort, which was particularly troublesome in spring and summer. I believe his checkpoints were only about a mile apart. So, within a few weeks of start-up, the ground troops at Skivvy Nine hung that nickname on us - and it stuck.” Mobry, a USAFSS Korean linguist, worked with renowned TEWS navigator and USAFSS unit commander, (also known as “Mr. ARDF”) Major Dave Eddy, during OT&E missions (June-Aug. 1969) at Grenier AFS. Mobry was then assigned as the first unit SENTINEL STRING Korean linguist AMS and STAN/EVAL expert. There is more from Mobry later in this article.

The T-29A was an early trainer model based on the Convair Aircraft Corporation CV-240 (2 engines/40 seats) original design as a replacement for the Douglas DC-3. The CV-240 flew for the first time on March 16, 1947. A total of 46 T-29A models were manufactured by Convair in San Diego, Calif., from 1949-51. It made its first flight on Sept. 22, 1949.⁽¹⁾ The Air Force used it for training navigators, earning it the unofficial *Flying Classroom* moniker.⁽²⁾ In 1958, the General Dynamics Convair Division in Fort Worth, Texas, modified four T-29A aircraft to the CT-29A configuration under the CAROL ANN program to install a tri-metragon camera system used covertly while flying routine courier/passenger flights out of Wiesbaden Air Base, Germany. The program name changed to OCEAN GEM in 1963 before being discontinued a few years later. After aircraft 49-1917 crashed in February 1967, General Dynamics again modified the three remaining OCEAN GEM aircraft (49-1912, 49-1933 & 49-1910) to the RIVET KITE configuration. This configuration upgraded the camera system and added the Sanders COMINT collection and ARDF equipment already installed and operational in the EC-47 PHYLLIS ANN ARDF program in Vietnam. RIVET KITE was the aircraft codename; SENTINEL STRING (also referred to as G-119) was the backend payload operated by USAFSS personnel. The CAROL ANN/OCEAN GEM and the RIVET KITE/SENTINEL STRING modifications are described in the book *The History of BIG SAFARI* written by retired USAF Colonel Bill Grimes. In his description of the CT-29A aircraft and the Sanders equipment, Grimes uses familiar language from the EC-47 program. Here is an excerpt referencing systems delivery and ARDF accuracy:



ARDF dipoles on the wing of a CT-29A on mission to the DMZ. Photo courtesy of Cris Seva Jr., SENTINEL STRING 1969.

The RIVET KITE operator consoles were removed from the aircraft to ferry the CT-29As across the Pacific Ocean. The consoles were flown by C-141 to Osan, where they were reinstalled once the RIVET KITE aircraft arrived. According to Jeff Higginbotham, who was with the RIVET KITE aircraft at Grenier Field in Manchester, New Hampshire (where the Sanders Associates equipment was installed), in order for the DF equipment to provide accurate readings, RIVET KITE had to be cross-trimmed, or skidded through flat turns—rather than banking. During flat turns, centrifugal force caused the fuel to slosh outboard, which often resulted in losing an engine.”⁽³⁾

The next chapter begins with a SENTINEL STRING article written by Steve Mobry as published in the Freedom Through Vigilance Association (FTVA) quarterly Remain In Touch newsletter. Additional “war stories” provided by USAFSS linguists, Morse operators and analysts that flew these ARDF missions along the southern portion of the Korean Demilitarized Zone while assigned to Detachment 1, 6922 Security Wing and the 6903 Security Squadron, aka SKIVVY NINE, are also included.

References:

- (1) <http://www.uswarplanes.net/t29c131.html>
- (2) <https://sacmuseum.org/what-to-see/aircraft/t-29a-flying-classroom/>
- (3) [Big Safari—Google Book Review](#)

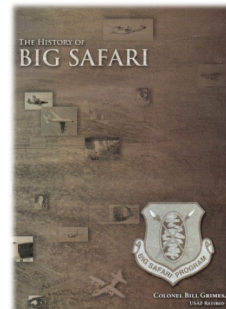


Sentinel String was an ARDF program out of Osan AB supported by three CT-29A aircraft targeted against N. Korea. I was involved in the Stateside testing in New Hampshire and was the first linguist AMS and Stan/Eval. I sent Larry Tart a picture and an article for his books, but it didn't make the cut. The airplanes had R-2800 engines; way bigger than the original ones, along with a couple of big cameras on board. USAFSS crew of six - two linguists and four ditty boppers, plus maintenance - usually one. We flew 1,320 feet south of and parallel to the Korean DMZ at 15K feet; seldom made a round-trip ... nope, whenever we passed a check point, had to see the next check point in our belly camera or else we aborted. We made lots of attempts in the summertime, but had few completions. Got stalked by MIG's at least twice during the program's 2 1/2-year life. DF system was fancy - and worked well for a system that couldn't fly a circle around our targets. Daily flights on oxygen is a real pain - and messed up my ears to the point of being grounded for

about a year. AMS had a large plastic bubble outside the fuselage in one of the window spaces. We could stick our head out and check lots of things on that side of the plane. I saved an engine one day by visually detecting a pre-ignition knock situation and notifying the flight engineer. He shut it down and we went home early. Told me it would have cooked the heads if it was left running much longer. A very interesting tour. BTW, we did get combat pay... so, it wasn't all bad. Being at Osan had its own reward. Steve Mobry, FTVA RIT, March 2017.

You Can't Make Stuff Up Better 'N This: How this story unfolded. . .

The ec47.com website co-managers, Joe Martin and Tom Nurre, exchange Christmas gifts. Joe usually gets cigars, and Tom gets really cool aviation books. He was reading *The History of BIG SAFARI* at about the same time Kerry Sandstrom (USAFSS electrical engineer, TEMPEST) posted comments in online media asking for general feedback from others familiar with the BIG SAFARI book. Tom answered with comments on learning about so many USAFSS/ESC "intelligence collection systems" that had been "fast-track" engineered or procured and installed on a myriad of aircraft, particularly a reference to airborne radio direction finding (ARDF) equipment installed by Sanders Corporation at Grenier Air Force Station, N.H., on three CT-29A aircraft that the General Dynamics Convair Division in Fort Worth, Texas, had fitted with an upgraded camera system under BIG SAFARI project RIVET KITE/SENTINEL STRING. This project name "rang a bell" as Joe and Tom had found a photo of a National Security Agency (NSA) Evaluation of SENTINEL STRING ARDF System results graph for the period of Jan. 1–May 31, 1971, during their research and development of the EC-47 ARDF History Exhibit constructed on Goodfellow AFB in 2013-14. Tom referred to SENTINEL STRING in his response to Kerry, and the wider conversation ensued with almost immediate feedback from Ron Marcoullier (6903 Security Squadron (Skivvy Nine) analyst, Feb. '70-Sept. '71). Ron mentioned that the SENTINEL STRING and Skivvy Nine analysts shared office space for a few months. "That, coupled with the overall small size of the combined units meant pretty much everybody knew everybody else. Also, combine the fact that Skivvy Nine's fantastic fastpitch softball team consisted of some great players from Sunshine Airlines and the 03rd made it an even closer association." Joining the discussion, Steve Mobry (USAFSS Korean linguist), confirmed the Sunshine Airlines nickname and other information included in the opening paragraph of this article. Marcoullier also suggested we contact Marcel Jeanfrau (SENTINEL STRING airborne analyst, July '70-Aug. '71). On the phone and through emails, Marcel shared the following: "I flew on the SENTINEL STRING/BENCH SMOG aircraft from September 1970 until July 1971 as an airborne analyst. We had three airframes: 49-1910, 49-1912 and 49-1933. They were all three configured identically, with three intercept positions, an AMS position and an analyst position. The AMS pressed the button to obtain a LOP when tipped off from an intercept position. All three aircraft were also configured to do photo recon from a very small isolated compartment in the rear of the aircraft. When we flew photo missions, the cover term was BENCH SMOG, otherwise SENTINEL STRING was for ARDF only. On BENCH SMOG missions, we would fly at 15,000 feet for the initial west-to-east leg along the DMZ, then drop back to 13,000 feet for the remaining duration of the mission so the aircrew could come off oxygen and operate more comfortably. Also, the aircraft's virtual ceiling was 15,000 feet, so it was straining to maintain that altitude."



On Jan. 20, 2018, Bill "Barney" Barnhart (USAFSS X1 Morse guy, 1966-1970) made this entry in the ec47.com Guestbook: "Was on the startup for "Sentinel String" at Osan AB in 1969 until 1970. Have been in contact with a few of the airmen who flew this mission. Steve Mobry, Cris Seva Jr., Tom Matotek, Clarence "O5" Erickson, all linguists for our group. Tom "Master" Bates, Wayne "Montana" Reichelt, Larry "Creekbed" Daniels and myself, X1 Ditty Boppers. We have had a couple of mini roll calls, with one in Chicago and the other in Las Vegas." Thinking this was more than a coincidental entry, Nurre asked Barnhart about it, and he answered that he had been alerted by fellow USAFSS veteran, John Cordova: "One of my tomadachis, John Cordova, who I worked with in Misawa, Japan, had told me about seeing your post on the EC-47 website. John flew the 47 in Vietnam and Thailand. He still searches the web and will pass 411 out accordingly. Anyway, those were some interesting days at Osan AB, Korea. Did some gum shoeing some months back and I eventually got a few of the boys to come to Chicago and meet up for the first time in many, many years. I have attended a couple of reunions in San Diego and St. Louis with the Misawa group and even went down to San Antonio one year with the Roll Call boys. That's where I met a few more airmen who I knew from Japan and or Tech School. Anyway, I forwarded your email to a few of the SS boys, and hopefully you will hear from them or they will be able to help with your research. If you have contact with Steve Mobry, I am sure he can help the most."



Ten days later (Jan. 30), in response to Barney's request, USAFSS Korean linguist Cris Seva Jr. (Left photo) sent a wonderful email (and several more since) packed with information that is being consolidated into a separate "War Stories" article. Here are a couple of Seva's comments: "I was a "one term" airman, spent 13 mos at Osan, then PCS for the last 13 months to Yokota AB with the 6988th SS, crewed on RC-130s and EC-121s during TDYs to Osan and Kwangju ABs, and Itazuke AB. I enjoyed missions in all 3 aircraft, however, the mission of SENTINEL STRING was the most challenging, interesting, and exciting as we were flying low and slow along the DMZ, whereas the other two birds were "standoff" orbits, well away from the NK territorial limits." Seva added: "We were told that the equipment was from Sanders Associates in Nashua, New Hampshire, and the equipment was developed for the EC-47 and subsequently installed on the CT-29A...we had a couple of "civilian techs" there at Osan supporting

the equipment and mission...most of my fellow airmen at Yokota never heard of SENTINEL STRING...it was a short term project, lasted until early 1972 I've heard." Seva added, "Fred Straub also made videos about the early EC-47 stuff in Korea, as well as a tribute to the Pueblo Crew, and several videos including the C-130, EC-121 and RC-135." Click [HERE](#) for a link to the Straub collection of various YouTube videos. The Straub tribute to SENTINEL STRING video is [HERE](#). The navigator's equipment in the photo on the right is presented as T-29A radio direction finding equipment...certainly a remarkable resemblance to the EC-47 ALR-38 equipment & bulkhead. Please send your comments about this article and your ARDF experiences to: info@ec47.com.

