

# Naval Air Development Center (NADC) Unsung Heroes of TACAMO by TCVA Historian Vern Lochausen

It is likely that many TACAMO Veterans haven't heard of or don't recall the significance of NADC to the TACAMO mission. Let's look at what the dedicated military, civilians, and contractors at NADC accomplished.

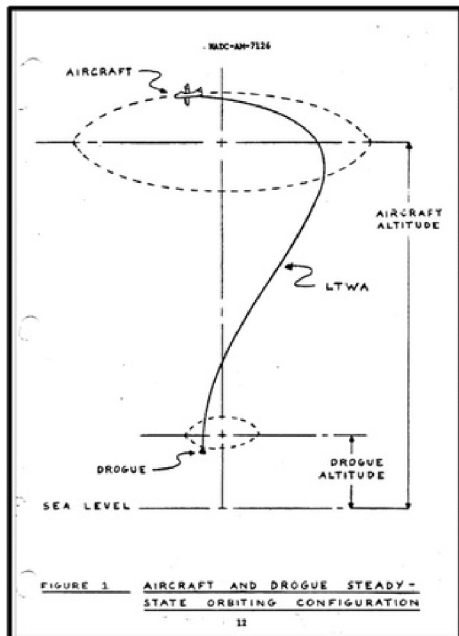
In the beginning... Before the Hercs, came NADC/NAS Johnsville, Pennsylvania to design and conduct a proof of concept. It was early 1962 and the project was known simply as "CNO's Number One Priority Project. LCDR Walt Reese (TACAMO Hall of Fame Class of 2012) was tasked to bring a nearly abandoned Lockheed WV-121 Super Constellation from the back flight line at NAS Patuxent



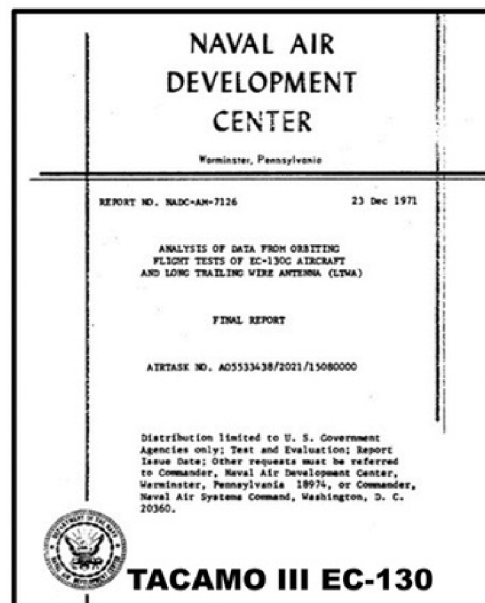
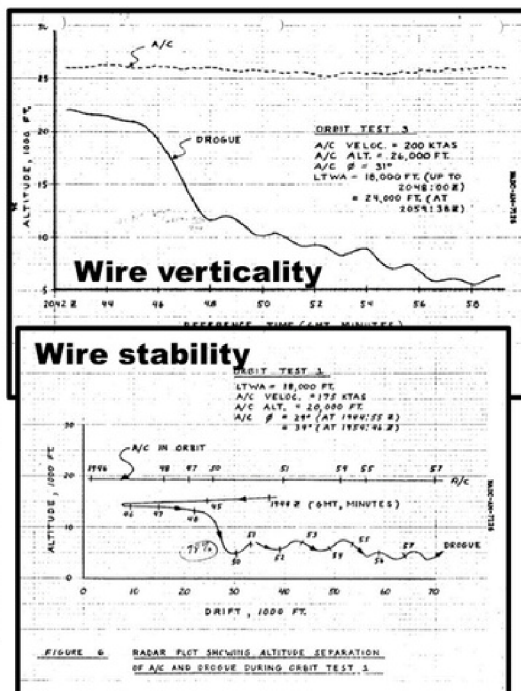
River up to flying condition, strip out all the weather and warning gear, and bring it up to PA for a Very Low Frequency, (VLF) long wire 'winch' installation. That done, Walt along with Project Engineer Leo Markushewski and Communications Engineer Lou Pelosi Sr. undertook flights along the US East Coast with Navy Auxiliary Air Station Chincoteague, VA (now NASA Wallops Island) monitoring VLF and radar tracking of the aircraft. Wires went out, radar images and the rudimentary data was collected. Orbits were flown, a moving block of airspace was often reserved with the FAA, and most of today's VLF operations issues were discovered. Those included lightning strikes, icing on the wire, wind shear, failure to retract (cut and drop the wire) and overfly of a carrier battle groups' airspace. The charts and graphs from those flights are among PMA-271's library holdings that are the 'birth certificates', certified by NADC engineers, for TACAMO VLF.

## Tactics Development - The C-130 Data

- Refinement of tactics for C-130 - 1971 tests



Orbit side view



By May of '62, Navy put Collins Radio of Dallas, Texas on contract to develop a prototype, TACAMO I system. In mid '62, LT Jerry Tuttle showed up in the Submarine Communications office in the CNO's part of the Pentagon. Fresh out of Naval Post Graduate Schools Communications Engineering program, Jerry was instructed by his admiral there to Take Charge and Move Out on the CNO's Number One Priority Project. So came the name we have today. By November of '62, Collins had 3 vans installed in KC-130 148806 and LT Tuttle took it all over the Atlantic with a flight crew, small comm crew, and some Collins reps. With subs and shore stations monitoring their VLF, Tuttle and crew proved out VLF propagation and the Collins VLF set. Once again, with Navy Chincoteague monitoring, the WV-121 orbits were repeated and adapted for the Hercs, with NADC doing the analysis and test reports.

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Meanwhile, Navy Electronics Command (NAVELEX) manager Lyle Bercier went to Lockheed Marietta and signed for 4 C-130E models whose Air Force side numbers became Navy Bureau of Aeronautics BUNOs 151888-891. Delivered to TACAMO Dets at Barbers and Pax River in late 63 and early 64, these birds later flew to Addison Field where Collins installed the TACAMO II vans. After testing and crew training, the new Hercs returned to base and began operating as directed by regional submarine headquarters.

From 1962 on, the Navy contracted with Collins Radio for ever more capable VLF TACAMO systems. TACAMO III in development and production between April 67 and October 69, TACAMO IVB between 71 and 76, TACAMO Improvement Programs and II (74-82), Electro Magnetic Pulse protection (78-83) and VLF High Power Transmit Set (HPTS) (86). At each stage of these developments, the TACAMO Laboratory, at...you guessed it...NADC supported requirements generation, specification development, system evaluation, and along with various NAVAIR test units, proved out the new systems. Several other lesser known projects included evaluation of VLF Scattergain, Transverse/Trans Electric VLF receivers, and some things I can't write about. NADC engineers flew with the squadrons over the years to better understand how the systems were operated. These led to early "Human Factors Engineering" that went into layouts and systems integrations. That kind of work also informed early E-6 design and integration concepts.



But the role of NADC didn't stop with all of these TACAMO mission systems upgrades. When the Navy started looking for a Herc replacement aircraft, who better to do some Analysis of Alternatives than the TACAMO experts in the NADC TACAMO Lab? Comparisons of a variety of jets were conducted and briefed to the NAVAIR Program Office and Pentagon leaders. NADC analysis of some preliminary flight testing showed that a Boeing 707 with CFM 56 engines was 'a serious candidate for the Airborne VLF mission.' Once the ECX program began, NADC engineers and managers led by Harry Ubele were there, shoulder to shoulder with PMA-271 folks at design reviews, evaluations, and more. When it came time to consider other missions, as directed by the Joint Chiefs of Staff and Secretary of Defense, NADC TACAMO Lab folks put together a team that worked with Fleet and Air Force folks to figure out what to select from Air Force Airborne Command Post equipment and how to cross deck and integrate it along with the E-6B MILSTAR and HPTS architecture. It seemed like if TACAMO needed upgrades or evaluations, NADC was the team to call. But then enter the Congressionally mandated Base Realignment and Closure (BRAC) commission. Yes...that is a four letter word. BRAC reasoned that Pax River and other Navy development and acquisition agencies could do the TACAMO work. The NADC laboratory facilities and some of the TACAMO personnel transferred to Pax and San Diego. NADC became a ghost town, and finally over the years transitioned into an industrial park, Warminster Community Park and other community and commercial activities. The airfield was closed and also converted to commercial use including hotels, a seniors' center and stores.

Near the end of NADC's career, Mickey DiPasquo (TACAMO Hall of Fame Class of 2014) and team gathered and transferred what has become a treasure trove of documents, decision papers, requirements documents, and key analyses and test results. They reside in the TACAMO Program Office Library at Pax. Those empowered this story and some of the recent considerations underway in the Program.

### Author's Note:



*This story was prepared in conjunction with a briefing I am giving to the South East Pennsylvania Cold War Historical Society which includes NADC veterans and families. It was my honor and pleasure to work with the TACAMO Lab at NADC during my time in TACAMO. Great credit is due to TACAMO Hall of Famer, Mickey Dipasquo for her significant leadership in many NADC projects, most importantly the E-6A acquisition and E-6B ABNCP. And her kind editing of this story, giving credit to her NADC peers by name.*



Lyle Bercier



Vern & Colleen Lochausen with  
Walt Reese (TACAMO Hall of Fame Class of 2012)



Mickey DiPasquo  
(TACAMO Hall of  
Fame Class of 2014)

