

**KC-130 SUITABILITY TRIALS**  
*Assembled by*  
**Ken Killmeyer Historian**  
**USS FORRESTAL Association**  
With photographs  
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Prior to conducting KC-130 carrier suitability trials aboard FORRESTAL tomorrow a special wide landing line had to be painted down the ship's centerline from the turn down on the flight deck all the way to the bow. The wide landing line would be very beneficial as a guide for the pilot of the KC-130.

As would be expected the task of painting such a line on the flight deck would fall to the Aviation Boatswain's Mates of V-1 Division.

Aviation Boatswain's Mate (Aircraft Handling) First Class Arnold "Duke" Ellington assigned Aviation Boatswain's Mate (Aviation Handling) Second Class John P. Reeves as the petty officer in charge of painting.

Approximately twenty other men from V-1 Division began the task late this evening. They worked all night measuring and painting the wide line with traffic white paint. The headlights on the tow tractors were used to provide ample lighting for the job. And the painting was completed in plenty of time.

It's not very often that an Aviation Boatswain's Mate gets summoned to the ship's navigation bridge to speak with Commanding Officer of the ship, Captain Dick H. Guinn.

But, Captain Guinn needed to commend the Petty Officer in Charge of painting the wide centerline down the middle of the flight deck for the KC-130 suitability trials. ABH2 John P. Reeves was humbled by the compliment that Captain Guinn gave him; so happy and proud of a job well done that his feet hardly touched the ladders when he departed the bridge.

### **30 OCT 1963**

*A FORRESTAL First. Conducting KC-130 carrier suitability trials. Touch and Go landings.* Steaming in company with USS LAWRENCE DDG-4, USS DAHLGREN DLG-12, USS LUCE DLG-7, and USS MYLES C. FOX DDR-829 in the Cherry Point Operating Area on course 135 at 10 knots. Destroyers are screening against submarines. SOPA is COMCARDIV FOUR, RADM Samuel R. Brown embarked in FORRESTAL. COMDESDIV 82 embarked in USS LUCE. Officer in Tactical Command is Captain Dick H. Guinn. Boilers 1B, 2A, 3A, 4B, and generators 1, 3, 5, 7, and 8 are on the line. Readiness Condition 5 and Material Condition Yoke are set. 0000 LTJG D. A. Nanfeldt assumed the OOD watch. 0020 secured from Flight Quarters. 0400 ENS F. R. Houmiel assumed the OOD watch. 0416 held steering casualty drill. 0429 secured from steering casualty drill. 0458 speed 5 knots. 0512 speed 10 knots. 0516 speed 5 knots. 0530 Flight Quarters. 0645 commenced launching aircraft. 0646 speed 8 knots. 0733 completed launching 35 aircraft. 0749 changed course to 340. 0755 changed course to 335. 0804 speed 5 knots. 0805 *commenced maneuvering on various courses at various speeds while conducting touch and go landings of one KC-130 Hercules, with all arresting cables removed.* 0912 speed 15 knots. 0915 made daily inspection of magazines and smokeless powder samples; conditions normal. 1023 *completed KC-130 HERCULES touch and go landings.* Changed course to 150. 1155 speed 25 knots. Directed USS LUCE and USS DAHLGREN to proceed to scheduled event. 1200 LTJG D. F. Gatti assumed the OOD watch. 1202 changed course to 138. 1215 launched two C-1A aircraft. 1230 manned All Air Defense Stations. 1239 completed launching 5 aircraft. 1300 completed recovering 26 aircraft. 1315 exercised the crew at General Quarters Drill. 1339 speed 20 knots. 1346 speed 5 knots. 1354 speed 15 knots. 1416 completed launching 20 aircraft. 1436 completed recovery of 26 aircraft. 1438 secured from GQ Drill. Secured from All Air Defense Stations. 1525 speed 15 knots. 1533 completed launching 11 aircraft. 1530 speed 12 knots. 1545 completed recovering 15 aircraft. 1600 ENS B. S. Wickers assumed the OOD watch. 1645 speed 16 knots. 1710 completed launching 16 aircraft. 1735 speed 14 knots. 1745 speed

18 knots. 1751 speed 15 knots. 1755 speed 25 knots. 1839 speed 12 knots. 1847 completed launching 12 aircraft. Speed 25 knots. 1921 completed recovering 17 aircraft. 1952 speed 15 knots. 2000 LTJG D. A. Nanfeldt assumed the OOD watch. 2005 completed launching 16 aircraft. 2056 speed 25 knots. 2207 completed recovering 15 aircraft. Speed 25 knots. 2315 secured from Flight Quarters.

## **8 NOV 1963**

### ***FORRESTAL continues KC-130 carrier suitability trials. Touch and Go landings.***

Steaming in company with USS DAHLGREN DLG-12 and USS LAWRENCE DDG-4 enroute from the Jacksonville Operating Area to the Virginia Operating Area on course 325 at 20 knots. Boilers 1A, 2A, 3A, 3B, 4B, and generators 2, 4, 6, 7, and 8 are on the line. 0000 LTJG D. F. Gatti assumed the OOD watch. 0304 speed 10 knots. 0310 speed 8 knots. 0400 ENS B. S. Wickers assumed the OOD watch. 0515 speed 15 knots. 0603 changed course to 310; speed 10 knots. Commenced maneuvering while launching aircraft. 0734 completed launching 40 aircraft. 0800 LTJG J. T. Henrizi assumed the OOD watch. *Maneuvering on various courses and various speeds while conducting KC-130 Hercules evaluations.* 0902 completed KC-130 operations. 0920 commenced recovering aircraft. 0800 LTJG D. A. Nanfeldt assumed the OOD watch. 1006 completed recovering 40 aircraft. Set course 300; speed 15 knots. 1128 commenced recovering aircraft. 1129 completed recovering 2 aircraft. 1121 launched 1 C-1A Trader aircraft. 1143 speed 20 knots. 1200 LTJG J. T. Henrizi assumed the OOD watch. Secured from Flight Quarters. Commenced making preparations for entering port. 1335 speed 20 knots. 1400 stationed the Special Sea and Anchor Detail. 1427 entered international waters. Maneuvering while conforming to channel. 1417 passed Thimble Shoals Light abeam to starboard. 1532 passed Fort Wool abeam to port. Passed Old Point Comfort abeam to starboard. 1556 anchored in anchorage Yankee, Hampton Roads, VA, in 11 fathoms of water with 70 fathoms of chain out to the port anchor. Boilers 1A, 2A, and generators 1, 2, 3, and 7 are on the line. 1612 secured the Special Sea and Anchor Detail. The OOD shifted his watch to Deck House Four.

## **21 NOV 1963**

### ***Conducting KC-130 Hercules suitability trials.***

Steaming in company with USS CONY DD-508 in the Jacksonville Operating Area on course 295 at 15 knots. Boilers 1A, 1B, 2B, 3A, 3B, 4A, 4B, and generators 2, 3, 4, 7, and 8 are on the line. 0000 LTJG D. F. Gatti assumed the OOD watch. 0017 speed 14 knots. 0020 commenced carrier qualifications. 0224 speed 10 knots. 0238 directed USS CONY to operate within UHF range. 0252 secured from Flight Quarters. 0309 speed 12 knots. 0400 ENS B. S. Wickers assumed the OOD watch. 0503 speed 14 knots. 0737 speed 10 knots. 0756 speed 8 knots. 0800 LTJG P. E. Lembach assumed the OOD watch. 0852 launched 1 aircraft. Directed USS CONY to follow in FORRESTAL's wake. 0909 speed 25 knots. 0920 launched 4 aircraft. 1012 speed 20 knots. 1200 LTJG D. A. Nanfeldt assumed the OOD watch. 1200 *completed launching and recovering KC-130 Hercules aircraft.* Changed course to 260, speed 27 knots. 1220 released USS CONY to exercise independently within UHF range and to return to FORRESTAL at 1600. 1227 speed 30 knots. 1250 speed 20 knots. 1251 speed 15 knots. 1254 speed 12 knots. 1300 commenced launching and recovering aircraft for CarQuals. 1330 exercised the underway Rescue and Assistance Detail. 1335 launched one C-1A TRADER aircraft. 1404 launched one C-1A. 1407 secured the underway Rescue and Assistance Detail. 1445 manned all fueling stations. 1454 completed launching and recovering aircraft for CarQuals. Maneuvering while making approach along port side of USS KASKASKIA AO-27. 1521 Navigator, CDR L. W. Moffit assumed the conn. 1542 secured from Flight Quarters. 1552 first shot line over. 1553 commence maneuvering while maintaining station alongside USS KASKASKIA. 1600 ENS F. R. Houmiel assumed the OOD watch. 1608 commenced pumping fuel. 1800 LTJG T. J. Deevy assumed the OOD watch. 18161 completed pumping JP-5. 1920 1st. LT J. J. Bruce, USMC, convened the Summary Court Martial in the case of one Seaman. 1941 completed pumping NSFO.



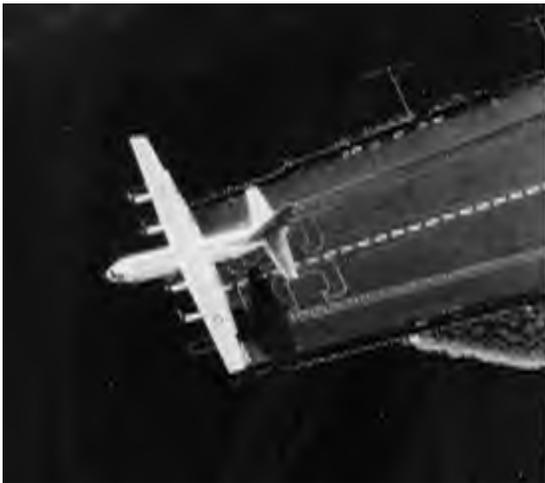
22 NOV 1963

*President John F. Kennedy killed in Dallas, TX. Conducting KC-130, Hercules suitability trials.*

Steaming independently in the Virginia Capes Operating Area on course 042, speed 28 knots. COMCARDIV FOUR, RADM Samuel R. Brown embarked in FORRESTAL. General Condition of Readiness 5 and Material Condition Yoke are set. Boilers 1A, 1B, 2B, 3A, 3B, 4B, and generators 2, 3, 4, 7, and 8 are on the line. 0000 ENS B. S. Wickers assumed the OOD watch. 0400 LTJG P. E. Lembach assumed the OOD watch. 0615 held steering casualty drill. 0627 secured the steering casualty drill. 0800 LTJG D. F. Gatti assumed the OOD watch. 0830 exercised the crew at General Quarters. 0930 secured from GQ Drill. Manned all Air Defense Stations. 0937 Flight Quarters. 0948 speed 14 knots. 0956 speed 5 knots. 1022 commenced firing run to starboard. 1023 completed firing run to starboard. 1035 speed 22 knots. 1045 recovered 1 aircraft. Speed 27 knots. 1101 speed 22 knots. 1104 commenced firing run to starboard. 1105 completed firing run to starboard. Speed 25 knots. 1108 speed 27 knots. 1115 secured from all Air Defense Stations. ENS F. R. Houmiel assumed the OOD watch. 1147 *commenced launching and recovering KC-130 Hercules aircraft. Maneuvering on various courses at various speeds while launching and recovering KC-130 aircraft.* 1338 *completed launching and recovering KC-130 aircraft.* 1342 changed course 110. 1345 speed 27 knots. 1352 speed 30 knots. 1453 speed 18 knots. Commenced launching and recovering aircraft for CarQuals. LTJG T. J. Deevy assumed the OOD watch. Maneuvering while conducting CarQuals. 1536 *In accordance with COMCIAMTFLT message 220007Z November 1963, the National Ensign was lowered to half-mast to mourn the death of John F. Kennedy, President of the United States.* 1549 class C Fire reported in compartment 02-177-1-Q. 1600 secured from fire quarters. 1602 Deputy Assistant Secretary of Defense for Equipment, Maintenance, and Readiness departed the ship. 1647 set lighting measure green. 1800 LTJG D. A. Nanfeldt assumed the OOD watch. 1815 speed 27 knots. 1820 completed launching and recovering aircraft for CarQuals.

*Landing aboard FORRESTAL for the First time and never attempted on any other carrier before a KC-130F Lockheed Hercules refueler Transport BuNo.149798 from PAX River, MD.* Lieutenant James H. Flatley III was the KC-130 project test pilot. The KC-130 that was chosen for the exercise was on loan from the U. S. Marine Corps and delivered October 8. The KC-130 HERCULES, four-engine plane with the bulky fuselage has a wingspan of 132 feet. It made 29 touch and goes, and 21 full stops without use of a tail hook and 21 unassisted take-off's. Landings and take-off's were made at 85,000 to 121,000 pounds. To land on board the FORRESTAL, modifications had to be made with the plane to adapt it to the carrier environment. The refueling pods on the wings were removed, an improved anti-skid braking system was installed, and a smaller nose landing gear orifice needed adjustments to handle the landings. On board FORRESTAL, the ships flight deck configurations were altered. Arresting cables were removed from the after part of the ship; the KC-130 would not rely on a tailhook to land. Additionally, a white centerline was painted from the ramp to the bow to assist the pilots in landing the mammoth plane. The landing signal officer's blast shield was also lowered to ensure wing tip clearance. FORRESTAL was operating in moderately rough seas 500 miles out in the North Atlantic off the Massachusetts coast. FORRESTAL steamed into a 40-knot wind. At 85,000 pounds, the KC-130 came to a complete stop within 267 feet, about twice the aircraft's wingspan. Even with the maximum load of 121,000 pounds, the plane used only 745 feet for take off and 460 feet for landing roll. The short landing roll resulted from close coordination between Lieutenant Flatley and Jerry Daugherty; the FORRESTAL's landing signal officer. Daugherty, gave Lieutenant Flatley an engine" chop" while still three or four feet off the flight deck. During one of the last landings the KC-130 touched down about 150 feet from the stern, stopped in 270 feet more and launched later from that position, using what was left of the flight deck. Lieutenant Flatley still had a couple hundred feet left when he lifted off. The plane's wingspan cleared the FORRESTAL's island by just less than 15 feet. Painted on the forward side of the plane's fuselage, a big sign that said, "LOOK MA, NO HOOK." *In addition to Lieutenant Flatley, crewmen consisted of LCDR W. W. Stovall, co-pilot, ADRI E. F. Brennan, flight engineer and Lockheed engineering flight test pilot Ted H. Limmer, Jr., safety pilot. Although FORRESTAL KC-130 tests were successful, a C-130 never landed aboard a carrier again preserving the FORRESTAL's claim as having the largest aircraft ever to land on a carrier flight deck.* From the test data, the Navy concluded that with the KC-130 Hercules, it would be possible to lift 25,000 pounds of cargo 2,500 miles and land it on a carrier. The idea was considered a bit too risky for the KC-130 and the Navy elected to use a smaller COD aircraft. Lieutenant James Flatley III was awarded the Distinguished Flying Cross for his efforts.







From SKY POWER Magazine  
By Jeff Rhodes

“There were people out taking measurements on a Hercules, and they said they were going to land a C-130 on an aircraft carrier. I didn’t believe them. Later my CO came around and said the same thing. I still didn’t believe it, but I raised my hand to volunteer anyway,” recalls Ed Brennan. “I had no idea what I was getting in to.”

Then-Aviation Machinist Mate First Class Brennan was attached to Transport Squadron One at the Naval Air Test Center at NAS Patuxent River, MD, in the fall of 1963, and his commanding officer was serious – the Test Center was developing a program to land a Hercules on an aircraft carrier. And he was going to be the flight engineer.

The idea of landing a big airplane with a 132-foot wingspan on what some aviators have described as a postage stamp did (an still does) seem farfetched. However, there was a legitimate operational requirement to test the Hercules’ carrier suitability.

The situation was the need to resupply a carrier operating in the middle of the Indian Ocean, a common operation today, but an unanticipated requirement in 1963. The Grumman C-1A Trader, then the Navy’s carrier on-board delivery (COD) transport, didn’t have the range to get there, nor could it carry an oversize payload (like a J79 jet engine, which powered both the A-5/RA-5C Vigilante reconnaissance aircraft and the F-4 Phantom fighter/bomber at that time populating flight decks). The C-130 had both range and cargo-carrying ability, so the idea of a “Super COD” was born.

Once the project went forward, a decision had to be made whether it would be better to have pilots who had carrier-landing experience and teach them to fly multiengine aircraft. Carrier experience won out.

“I was either in the right part of the line, or the other pilots said ‘give this one to Flatley. It isn’t going to go anywhere,’” said then-LT Jim Flatley, the newly minted test pilot who was chosen to

lead the project. "In Flight Test, you have to earn your spurs. This was my first project as a test pilot, and it was a rather unique assignment."

Lieutenant Commander W. W. "Smokey" Stovall, also a test pilot, was the lead pilot on another project at the time, but he volunteered to be copilot at the time, but he volunteered to be copilot on the C-130 trials.

"The most critical guy on the crew was the flight engineer, because he knew far more about the airplane than the pilots assigned to the project ever would," Flatley noted. "This sounds cavalier for a test pilot, but at that point, we were not required to learn the aircraft, just learn to fly it."

The trials aircraft, an in-service Marine Corps KC-13F tanker (Bureau Number 149798) at MCSA Cherry Point, NC, was delivered to Lockheed's plant in Marietta, GA, on October 8, 1963. Only minor modifications were made to the aircraft, including removing the wing refueling pods, installing a precision airspeed indicator in the cockpit, fitting a smaller nose landing gear orifice (which allowed for slower metering of hydraulic fluid and made for a smoother touchdown), and upgrading the antiskid system.

Lockheed's Ted Limmer checked out the flight crew, both of who had fighter backgrounds, in the C-130. "I got my one-hop check ride on the way back to Pax River," Flatley said. "The aircraft is so beautiful, so simple, and handles so well. Checkout was a piece of cake, especially with Petty Officer Brennan doing all the 'work.'"

The crew received a ground check out on the aircraft and much emphasis was put on slow-speed maneuvering characteristics of the aircraft. The crew began practicing landings on runway 31 at Pax River. Engineers from the Carrier Suitability Branch of the Test Center set up multiple cameras and came out to observe the first practices and take extensive measurements. "For most of the next 55 flight hours, all we did was go around the field practicing short field landings and takeoffs," said Flatley.

The glide slope to a carrier landing is characterized first by a 'rooster tail,' the carrier's equivalent of the ground effect encountered crossing the approach end of the runway.

However, a giant suck hole exists between the 'rooster tail' and round down of the carrier deck, so being able to fly the correct glide slope to landing is critical.

The crew found they could fly the glide slope-3.5 degrees to 4.0 degrees on a standard approach – easily. "It became evident very quickly that landing a C-130 on a carrier was not going to be a problem. Even the engineers stopped coming out to watch us," Flatley added.

The crew made one side trip to the Naval Air Rework Facility in Norfolk, VA, so engineers could figure out how to get the her off the ship if it broke down after landing. It was determined that the best method would be to run an I-beam through the forward cargo door and punch a hole in the other side of the fuselage and run another I-beam through the aft paratroop doors. These two I-beams would then be connected to a third I-beam suspended over the fuselage and a crane would be used to lift the aircraft off the deck, if the carrier could make port conveniently.

"If we had broken down at sea, they would have lifted the plane up with the deck crane and toss it overboard – hopefully letting us get out first," Brennan mused.

It was time to go to the boat.

On October 30, 1963 the USS FORRESTAL CVA-59 was steaming off the Florida coast near Jacksonville. Under the KC-130F's cockpit windows, one wag at Pax River painted "Look Ma, No Hook," because there wasn't one. An arresting hook wouldn't have helped, either, because the FORRESTAL's flight deck had been cleared - arresting wires had been removed to save wear and tear

on the tires, and the air wing's aircraft were either flown ashore or had been parked on the hangar deck.

"It was a blustery, squally day with a 40-knot wind, gusting to 60 knots, and huge ocean swells. The deck was heaving 20 feet up and down," recalled Flatley. "Here is where a carrier pilot with knowledge comes in handy. Every two and a half minutes or so, no matter what the sea state, the ship will steady out. There was no intention of attempting any full stop landing the first day. We did 42 approaches to the ship just to get 19 touch-and-go landings in."

The crew first made touch-and-goes on the ship's 682-foot-long angle deck and then went down the 1,017-foot-long axial deck – where, on the next trip, the actual landing would be made. This first flight lasted five and one half hours, two of which were spent in the carrier's landing pattern. Cameras placed all over the flight deck recorded the touch-and-goes from every angle.

"We had a debrief session the next day back at Pax River, and all the data looked good," Flatley said. "It was then just a matter of rescheduling the ship."

On November 8, Flatley, Stovall, Brennan, and Lockheed's Ted Limmer approached the FORRESTAL underway off Cape Cod, Massachusetts. A dotted white line painted down the middle of the axial deck showed the crew where they needed to go.

"We had made the determination to approach at five or six knots above stall speed. A normal C-130 approach would be made at about 120 knots, but we were at 79 knots indicated on the first approach," Flatley recalled. The landing was made with a six foot-per-second sink rate, which seemed like a normal field landing to the two pilots, who were used to slamming down at 17-to-20 feet per second in their carrier-based fighters.

The FORRESTAL's Landing Signal Officer (LSO) gave Flatley a traditional "cut" signal as the aircraft crossed the ramp 10-15 feet in the air. Flatley lifted the throttles over the gate and put the propellers into reverse pitch as he settled on the deck. At touchdown, the KC-130 was in full reverse and stopped in 270 feet.

"We stopped so short, I thought it was a dream or something," said Brennan. "It was like landing on a normal runway, but the big metal island (ship's Bridge) was a bit scary." It was the first time he had been on a carrier.

"Normally on a carrier, sailors and tractors move airplanes," said Flatley. "We simply backed up with reverse thrust for takeoff. You should have seen the looks on the deck hands' faces."

In addition to testing the basic feasibility of landing a Hercules on an aircraft carrier, the project was also designed to make landings at increasingly heavier weights to determine how large a payload might be brought aboard with a C-130 carrying a usable payload. As the aircraft was a tanker, simply adding additional fuel increased the gross weight of the aircraft.

After taking on more fuel to increase the KC-130's gross weight for the next landing, the crew revved up the aircraft and took off. There was only 15 feet clearance between the KC-130's wingtip and the island.

The only restriction placed on the crew during takeoff was that they could not rotate the aircraft until the wing tip passed the forward end of the ship's island. "Otherwise, we could have been looking down on the captain on his bridge when we took off," Flatley said.

Three more full stop landings were made the first day, followed by ten landings on November 22, and seven more on November 23. Lieutenant Commander Stovall made three of the landings on the last day. A total of 29 touch-and-goes were made on the four trips to the carrier.

KC-130 weighed 85,000 pounds on the first landing, and landings were made in progression up to a gross weight of 121,000 pounds. At maximum weight, the crew used only 745 feet for takeoff and 460 feet for landing. One landing at a weight of 109,000 pounds required 495 feet to stop and that was in a heavy squall. At the end of the test, the crew simply took off from the point on the deck where they had stopped.

The feasibility of landing a C-130 with a substantial payload on a carrier had been clearly demonstrated, but in the end, simply wasn't practical. "A carrier with no tactical aircraft on deck makes a skipper antsy," Brennan noted. "The captain of the FORRESTAL gave us two hours – to the minute – each trip and then we had to go."

Heading back to Maryland, Flatley recalled that, "We were bored in the cockpit, so we turned to the radio and heard that President Kennedy had been assassinated, so that was a tragic footnote to the whole thing."

The crew completed the carrier qualification tests around noon on November 23. "We got back to Pax River and started writing the final report and collecting the statistical data. We wrote up recommended procedures, so if anybody else did this, they would have the information. We went about our business and were told not to talk about it." The project remained classified officially for a year, although word got out quickly to the flying community.

Lieutenant Commander Stovall was later awarded the Air Medal for his work on the project and went on to command a fighter unit in Vietnam. He passed away several years ago from leukemia.

Machinist Mate First Class Brennan was also awarded the Air Medal, and later became a flight engineer on P-3's accumulating nearly 7,000 flight hours. He retired in 1976 as a chief petty officer after 22 years in the Navy. His retirement ceremony came at noon, and by 4:00 PM, he was on a plane to Iran to work as a Lockheed field service representative on the P-3F program. He later went back to working with C-130s, although this time, Coast Guard HC-130s, as a Lockheed Martin field service representative at CGAS Elizabeth City, NC. He retired once again and sometime later passed away.

Lieutenant Flatley was awarded the Distinguished Flying Cross, which was (and is) a difficult award to earn in peacetime. He spent the rest of his navy career in fighters and the only other time he was around a KC-130 was when he refueled from one. Even though he didn't have a tail hook, he counts his 18 landings in a Hercules among his 1,068 traps, which puts him second on the Navy's all-time list. He retired as a Rear Admiral in 1987. He served as Chief Executive Officer of the Patriot's Point Naval and Maritime Museum in Charleston, SC, the state's most popular tourist attraction for a number of years and is now retired.

As the other principal players, KC-130F Bureau Number 149798 is still in service, being flown by Marine Air Refueling Squadron 352 (VMGR-352) at MCAS El Toro, CA. A little over a year old during the tests, it now has more than 23,300 hours on it. After a 38-year career, the FORRESTAL decommissioned in 1993.

"I am always running into people who say they were there, although I don't recall seeing that many people on the deck," Flatley observed. "This has always captured people's attention. There are still folks who don't believe it."

**Post mark:** Since the above story was written, KC-130F Bureau Number 149798 was retired from service in March, 2005 and since May of 2005 is at the Naval Aviation Museum in Pensacola, Florida.