The Da Nang Glider

Larry Westin - March 16, 2001
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In the middle of 1969 Colonel Jack January was assigned as the aircraft commander of Batcat crew 31, 554th Reconnaissance Squadron. On June 4, 1969, crew 31 was scheduled for a standard combat mission. Col. January replaced the assigned aircraft commander Banner for this mission. This was Col. January's 18th flight since arriving for duty at Korat RTAFB, with the 553rd Reconnaissance Wing, on April 9, 1969. The airplane was Lockheed Super Constellation USAF model EC-121R serial number 67-21487.

After takeoff the Lockheed EC-121R was flown out to the orbit area. After arrival at the assigned orbit, the airplane was placed in cruise condition for a planned 8 hours on station.

As was normal practice with the 553rd Reconnaissance Wing, one pilot, either the aircraft commander or the co-pilot, would be in the left cockpit seat (the aircraft commanders seat). The right cockpit seat (co-pilots seat) was occupied by one of the navigators, and one of the two flight engineers on board would be at the flight engineers station. The off duty pilot, navigator and flight engineer would rest until switching positions with the on duty crew members.

As the aircraft assumed its normal orbit the pilot in the left seat was 1Lt. Mason Ezzell, and the right seat was occupied by Lt. Hardee one of the navigators for the mission, the duty flight engineer was Sgt. Welch. This mission was flown on the blue orbit near Khe Sanh, at an altitude of 19,000 feet. Khe Sanh is on the northwestern part of Vietnam, not too far south of the DMZ, and a little east of the Vietnam border with Laos.

Shortly after assuming the assigned orbit all 4 engines stopped. An important point to understand is that the Lockheed Super Constellation required hydraulic pressure from an operating engine for the flight controls to operate. With all 4 engines stopped there was no hydraulic pressure, and the controls were essentially frozen. With all engines stopped the airplane began to decelerate quickly, nosing over with the left wing dropping.

Lt. Ezzell tried to correct for the unusual attitude but the controls would not respond because of a lack of hydraulic pressure. In a letter to me Mason Ezzell describes the immediate action he took to save the airplane and crew.

"My first reaction was to grab the hydraulic release lever, just to the side of my right leg, and pull it up to disengage the hydraulic system and allow for manual flying of the aircraft through the cable system. Now I was flying the aircraft without any hydraulics assist and it was like trying to control a large bull. My concerns were to keep the wings level and maintain control while letting the aircraft continue in a gradual descent, so the aircraft would not stall and go out of control. All this took place in less than a minute,

although it seems like a life time."

Colonel January was laying down in the bunk immediately behind the flight deck as he was off duty when the incident began. In a letter Col. January sent to me about the incident he begins his story of the Da Nang glider with: "Some say Silence is Golden, however if you are enjoying a nap in a four engine aircraft, in a bunk behind the flight deck, I say Silence is anything but Golden."

Lt. Ezzell now had the airplane stabilized and heading for the coast, but still with all 4 engines stopped, Col. January entered the cockpit switching places with Lt. Ezzell, while the navigator vacated the right seat and Lt. Ezzell took over now as co-pilot.

Lt. Ezzell continue in his letter to me: "Since we did not know if we were going to have to bail out or possibly ditch the aircraft the crew was notified to now put on there water wings. Now everybody had to take off all their equipment and put the water wings on and then put all their equipment back on. When I rang the bell to let them know that they might have to bail out we suffered the only injury of the trip. The person, who opened the rear door, was hit in the head by the door as it pop open. He was not hurt seriously and just had a slight cut."

As Col. January entered the flight deck the first visible indication of the problem was that all four feather switch/indicators were bright red.

Before continuing just a short description of the EC-121R propeller system. Each Wright R-3350 engine on the EC-121R is equipped with a 3 blade, constant speed, full feathering, reversible, Hamilton Standard hydromatic propeller. "Feathering" a propeller means rotating the propeller blades about 90 degrees so each blade is streamlined with the wind, which gives minimum drag. If the propeller does not feather on an engine giving little or no power, the propeller will wind mill which creates substantial amounts of drag. A wind milling (non feathered) propeller on the failed engine of a Lockheed EC-121R can cause so much drag, even with the other 3 engines operating at normal power, to prevent the airplane from maintaining altitude, if the landing gear and flaps are down. Image at left shows the propeller on the number 1 engine feathered. When an engine was lost it was most times necessary to reduce the weight of the airplane by dumping fuel. In this photo you can see fuel being dumped from immediately behind engine #1 and also from the left tip tank.

On the Lockheed EC-121R there were two means to feather a propeller, manually, and through the automatic feather control. The automatic feather control would feather a propeller **IF** the throttle was more than half way advanced, AND the BMEP (torque) of the engine fell below about 104, AND BMEP remained at or below that level for at least 1 ½ to 2 seconds. The reason for the automatic feather control is to feather a propeller quickly when an engine fails at a critical time, especially during take off.

Once the automatic feather control feathered the first propeller, and it didn't matter which propeller was feathered, it automatically disabled itself from feathering any other propeller. Lockheed designed the automatic feather control so it could feather only a single propeller.

Second method to feather a propeller on the Lockheed EC-121R is for the flight engineer to manually feather the propeller. All of the feather controls in the EC-121R are located at the flight engineers station. The manual feather control consists of four large push button switches, each individually covered with its own plastic guard. To feather a propeller the flight engineer must lift the plastic cover and depress the switch for the propeller which is to be feathered. When the switch is depressed a circuit is made to a DC electric feather motor, which pumps oil to the nose hub of the propeller. The oil pressure forces the blades to rotate to the feather position. At the same time a red light in the switch is turned on. You REALLY want to know when a feather switch is depressed.

This view of the flight engineers panel was taken during a ground run up of a replacement engine. Note at the bottom of the panel there are 4 plastic guards which prevent accidental feathering of a propeller. The flight engineer had to raise the plastic guard, then push the feather button. When the button was depressed a bright red light illuminated.

The feather switches actually have three positions, push to feather, neutral, and pull to unfeather. After a propeller is fully feathered the flight engineer pulls the feather switch back to the neutral position. With the feather switch in neutral the feather pump motor is deactivated.

To unfeather a propeller the flight engineer must pull the switch out. Pulling the switch out activates the feather pump motor again, but in this case the oil is directed to the

back of the hub where the oil pressure forces the propeller blades to rotate back to the low pitch position. Once unfeathered the feather switch is returned to neutral to turn off the feather pump motor.

If an engine was feathered, and later an attempt is made to restore power inflight, the engine is first started with the propeller still feathered. Once the engine is restarted and turning, the flight engineer then pulls out the feather switch to unfeather the propeller. After the propeller is unfeathered the flight engineer again returns the feather switch to the neutral position which turns off the feather pump motor.

As Colonel January entered the cockpit he could see all four feather switches with bright red lights on. Looking out the cockpit window he watched the blades come to a stand still as if at a perfect attention.

Colonel January continued saying “my first goal was to prepare the crew for bailout and head for open water, where recovery wouldn’t be hampered by the jungle and those pesky enemy troops.

“The flight engineer initiated the standard engine start procedure, starting engine #3 first, then #4, #2 and finally #1 in that order. Number 3 engine started without incident and gave the electrical power needed for communications with rescue and other assistance agencies.” With Col. January now flying the airplane, Lt. Ezzell was sending out May Day and handling the radios.

Number #4 engine was then started and gained full power, and #3 propeller returned to the feather position. When #3 engine was restarted again, and gained full power, #4 propeller returned to the feather position. This sequence repeated numerous times.

Number 2 engine was started, then #1 engine and both were left at low power to provide stable electrical and hydraulic systems. “To my pleasant surprise neither #1 or #2 propeller returned to the feather position for the rest of the flight.”

While the cockpit crew was fully involved in making every effort to achieve stable power, the back end crew prepared for bailout. This preparation involved finding and putting on your parachute, destroying sensitive material, etc. Little communications occurred between the cockpit crew and the back end crew. Radio contact was maintained with the ground and rescue services so others were aware of the rapidly changing situation.

By now open water had been reached and there were rescue aircraft flying along side. Now Col. January headed the airplane toward the nearest U.S. air base, Da Nang. As power was reduced to loose altitude to land, the number of feathering incidents with number 3 and 4 propellers greatly reduced. As Da Nang came into view an overhead circling approach was made to achieve the final goal, “the aircraft and crew were on the ground safely.” All four engines were operating before engine shutdown.

Most of the above is directly from the letter Col. January sent to me, along with two telephone conversations I had with him. And I thank him for taking the time to document this incident for me. Additional information from a letter from Mason Ezzell, along with telephone conversations with Masson help to put more of the pieces of this incident together.

As far as I know there was never an incident with any model of the Lockheed Constellation, or Super Constellation, before or since, where all four propellers feathered inflight as they did on June 4, 1969.

Col. January also supplied some information about the aftermath. Somewhat later I read additional information from the official histories of the 553rd Reconnaissance Wing. As you might imagine, there was some reluctance to fly the aircraft again. With all propellers standing still inflight it makes it difficult to carry on with the business of flight.

Quite a bit of effort was put forward to find the culprit. An incident review board was appointed by the theater commander to review the problem. In addition to maintenance technicians from the 553rd Reconnaissance Wing at Korat RTAFB, and Da Nang, South Vietnam, the Senior Lockheed Research Engineer who originally designed the Constellation propeller system reviewed the problem.

Even with all the expertise available the exact reason for all 4 propellers feathering was never identified for certain. The airplane involved was now officially titled by the 553rd Reconnaissance Wing as the “Da Nang Glider.” Because of the inability to positively identify the cause a large number of components were replaced on the airplane as follows:

Engines #3 and #4; Prop feathering pumps on #3 and #4; Prop feathering motors #3 and #4; prop governors #3 and #4; propellers #3 and #4; torque switches #3 and #4; spark plugs #1 and #2; plug and receptacle connector #1 at the flight engineers station; prop synchronizing box; both bus sectionalizing relays; all 4 prop feathering relays; all 4 time delay relays; prop feathering switches #1, #3 and #4; and the prop reversing coordination relay panels #3 and #4 were overhauled at depot and reinstalled.

Even with all the items above replaced some additional steps were taken before the test flights began. The auto feathering system was temporarily by-passed and a special panel installed to indicate any unknown attempt to activate the auto feathering system. Two “no-can-feather” switches were installed in the feathering systems for #2 and #3.

Several high speed ground runs were made at Da Nang, South Vietnam. With the ground runs showing no problems it was time to flight test the airplane. By this time Col. January had been transferred from the 554th Squadron to the 553rd Wing as the Chief of 553rd Wing Stan/Eval.

The flight test crew for the “Da Nang Glider” was named “Flight Test Crew 007.” The

crew was made up of: Chief of 553rd Wing Safety; Chief of 553rd Wing Stan/Eval; 553rd Wing Quality Control/Flight Test Officer; 553rd Wing Stan/Eval flight engineer; 553rd Wing Quality Control/Flight Test flight engineer.

The first test flight was 2 hours in length and flew around Da Nang, South Vietnam. On the second test flight the airplane was returned to Korat RTAFB during a 4 hour flight.

Eight more test flights were conducted out of Korat for a total test flight duration of 24 hours. Beginning with the third test flight some of the modifications made at Da Nang were deactivated. On the eighth and last test flight all precautionary modifications had been removed. At the end of the test flights the title "Da Nang Glider," which the airplane was officially referred to by the 553rd Reconnaissance Wing, was dropped. Col. January was the aircraft commander for all the test flights.

On September 16, 1969, the airplane returned to normal reconnaissance operations with Flight Test Crew 007 in the cockpit, and crew 33 in the back end.

Col. January declined to give me the serial number of the airplane involved. However since the last Batcat loss occurred on September 6, 1969, and this airplane resumed flying standard reconnaissance missions on September 16, 1969, it was not involved in any other mishap I am aware of. It was later returned to the United States where is was eventually scrapped.

UPDATE 05/30/05 - reviewing the official history of the 553rd Reconnaissance Wing reveals the serial number of this airplane was 67-21487, Lockheed construction number 4480, previously Navy Bureau number 143206 before conversion to EC-121R. When it came time to return aircraft back to the United States for eventual scrapping, 67-21487 was part of the first group of EC-121R's sent by the 553rd Reconnaissance Wing to Davis-Monthan AFB in late 1970.

My thanks to Colonel Jack January and Lieutenant Mason Ezzell for taking their time to send me detailed letters, and talk with me on the telephone about the incident, as well as a copy of the 553rd Operations Newsletter describing what steps had been taken to make sure the incident was not repeated, and other documentation providing additional information about this incident.

Readers who can provide additional details about this incident are asked to contact the author of this article, Larry Westin.

Postal Address
Larry Westin
21721 Verde St
Tehachapi, California
U.S.A. 93561-9437
Phone (661) 823-4707

E-Mail
Larry Westin
westin@westin553.net