EAA 297 – KITTYHAWKERS NEWSLETTER

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ANNUAL DUES ARE DUE!!!

PRESIDENT SENDS

Hello, and Happy New Year to everyone!

Since our last newsletter our clubhouse restoration came together so that it was "good enough" for a fantastic Christmas party. The food was superb, Ken took home another non-rotorwing model for his collection, and Miss Emma ended up owning da bath bombs. It was a great ending to a tumultuous 50th Anniversary year.

2019 promises to be our best year ever. We will have the renewed clubhouse which will include: an updated stove, an updated sink, new cabinets for storage, a BIG TV for video and a theater sound system. We have also secured an updated grill for outdoor cooking.

I hope we can find some new and fun ways to utilize our clubhouse to promote flying.

Our meeting this Saturday at 10:00 AM at Stag Airpark will be devoted mostly to planning our Ladies Day Luncheon for next month and discussing the finishing touches on the clubhouse.

Many, many thanks to everyone who has been involved in the clubhouse restoration!

See y'all on Saturday,

Aubrey

DECEMBER CHRISTMAS PARTY

As you all well know, Hurricane Florence was an unwelcomed guest in our clubhouse. The damage created by her flood waters almost caused our annual Christmas event to be cancelled. But the combined skills and determination of our members, ably lead by our President, were ultimately successful, and our clubhouse was functional enough to host the party. A hearty thanks to all who contributed to that significant effort.

Our Christmas Party was a fun filled evening that was enjoyed by all. Many of our chapter regulars were there to enjoy the evening and the Johnson's brought along Rachel Corbett to join the festivities. Her attendance made the evening special. It was also good to see Cindy Spencer there to join in the holiday cheer. Her helicopter rescue and long-term recovery from Florence made for an exciting story.

Our very own Christmas Elves Ella Rhodes, Jane Johnson, Flo Holbrook, and Billy Hughes masterfully decorated the clubhouse. The Christmas Tree was beautifully decorated, and they camouflaged the partially reconstructed clubhouse with carefully placed lights and decorations to create a festive atmosphere for our party. Well done!

Master Chef Ken McGee was frying a turkey as the social hour got underway. With the turkey and ham carved, and the dished displayed, Ken gave a blessing and dinner was served. From salads to dessert the selection of dishes was delicious and extraordinary. We would all like to extend a very stuffed "thank you" to all who prepared and shared their favorite dishes. No one left the table hungry.

Following dinner President Aubrey conducted the "official" portion of our gathering. The proposed list of chapter officers was announced and they were approved by unanimous acclamation. Aubrey Thompson volunteered to man the helm for an additional year. We appreciate his leadership, enthusiasm, and willingness to continue in that important capacity. This year Drew Holbrook will serve as his able Vice President. As an experience past President, he will add to the enthusiasm and effort. Bob McGowan has agreed to continue as our Treasurer and Kristen Montefusco will serve as our chapter Secretary.

The evening was capped by our traditional White Elephant Gift Exchange. Mark Thoman served as the emcee and he was ably aided by his wife Nancy and Cindy Spencer. As the gifts were selected and unwrapped, we

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discovered some distinctive "treasurers". Re-gifting was certainly in vogue. During the exchange Ken McGee, egged on by Gary Henderson, created comic relief as they played with their newly opened gifts. It is true that pilots never really grow up….

Our party was a delightful success, and a festive evening that all enjoyed. For me it marked the beginning of the celebration of Christmas! Thank you!

And it was during the drive home that I realized that my camera remained forgotten in the car, and that I had failed to take any pictures of the event. Sorry…..

LADIES DAY LUNCHEON

Following our February meeting, our chapter will host its' annual Ladies Day Luncheon. Our very own Master Chef, Maestro Ken McGee, will prepare an especially delicious, and exotic, menu for our chapter's ladies. It is a noted, five-star occasion, and our ladies' favorite (only) dining experience. It is a memorable dining experience that you will not want to miss, and that you will long remember. An unsurpassed culinary experience not to be equaled.

Maestro Ken enjoys cooking with wine, and sometimes he adds it to the food. He will prepare a series of delectable delicacies that will be mouthwatering; pallet pleasing; and "fit for the gods." His dishes are prepared to perfection; considered the best ever; and consistently have an unmatched depth of flavor. Noted critics have called them, "a yummy party in your mouth." Ken has taken his art to the next level. I have heard his preparations described as; mouthwatering; lip smackin'; fallin' off the bone, to die for, and sinful. He uses nothing but the finest natural and organic ingredients, manfully spiced with a little S & P. They are drenched in sauces that are created with his own artistic flare. Any gourmet would find them rustic, aged, and pallet pleasing.

You will wash them down with carefully chosen wines whose delicate aromas and flavors are selected specifically to enhance the enjoyment of each course.

All will be elegantly and exceptionally served in an enchanting; clean; and comfortable environment within a delightful and modern "under construction" décor. Ya know, people just keep coming back.

Gentlemen, be sure to inform your Lady of this special day. It would be a sad waste of opportunity to miss it, and we will not be held responsible if you fail to inform; invite; cajole; or drag her. If you should later incur her ire, I am afraid that you will find yourself entirely on your own…. Good luck.

So please escort the love of your life to this unique and remarkable event.

ANNUAL DUES ARE DUE

Ladies and gentlemen your annual dues are due. Please seek out our esteemed Treasurer Bob McGowan and offer your annual $35 dollars. Collectively these dues barely meet the chapter's annual expenses, which include our EAA fees, insurance, and monthly clubhouse rent. This year, reconstruction of the clubhouse, created an unexpected expense. If you are so inclined, any additional contributions would be sincerely appreciated. Thank you.

MARINE KC-130's

It has been a difficult eighteen months for the Marine's flying the KC-130. In this short period they have endured fully half of the fatal mishaps that have occurred since the end of the Viet Nam War. Following each, members of our chapter have asked me detailed questions concerning the mishaps. Thinking that it would be of interest, I have chosen to including my thoughts here. In this article I can be more detailed and informative than I could be in a casual conversation.

In general, these mishaps are very uncharacteristic of the Marine KC-130 program. The Marine Corps purchased the KC-130 in the early nineteen sixties and in the fifty-six years since there have been only eight fatal mishaps. Four of these occurred during the Viet Nam conflict, and there have been only four in the forty-three years since. That is an extraordinary record in military aviation. Especially when that period includes millions of flight hours, executing a wide variety of combat, and non-combat, missions around the globe. The Marine Corps purchased the KC-130 to provide tactical and strategic aerial refueling, but the Marine's task this flexible and capable aircraft to perform every different mission that it is capable. That includes every mission from high altitude daylight aerial refueling to night tactical landings on unimproved airstrips. The Lockheed C-130 has proven to

be a very safe and reliable aircraft, and it has amassed the safest accident record of any aircraft the Marine Corps has ever purchased. But flying is inherently risky, and regrettably mishaps will happen, so let's discuss the two most recent

Mississippi Mishap. During the afternoon of July 10th, a KC-130T from VMGR-452 (a Marine Corps Reserve Squadron based at Stewart ANGB in New York) crashed in Mississippi. The aircraft wreckage was spread over a five-mile area which would indicate an in-flight structural failure. There were lots of rumors discussed but initial reports indicated a propeller failure. Without knowing the details, I considered this the most probable cause. But I mistakenly assumed that "propeller failure" meant a failure of the propeller control mechanism. That is the hydro-mechanical device that controls the blade angle during flight. It is similar to the control system that was installed on Hamilton Standard propellers flown on the later model piston airliners. If the prop control mechanism failed, and the blade pitch went from a normal cruise setting to a minimum blade angle, during high speed cruise flight, the instantaneous drag created could result in both loss of control and structural failure.

The post mishap accident report has been recently published, and the primary cause of the mishap was propeller failure. But not a failure of the control mechanism. A propeller blade on the number two engine (port inboard) suffered structural failure due to a crack and corrosion. That type of failure is very rare. The blade separated, at near supersonic speeds, and penetrated the fuselage on the port side, passed through the cabin, and then lodged in the starboard side of the aircraft. Apparently, this caused enough structural failure and vibration that the number three propeller and reduction gear box (starboard inboard) failed and left the aircraft. The number three propeller struct the starboard side of the fuselage forward of the wing and tore through the structure of the fuselage. The propeller then traveled down the length of the aircraft to strike the starboard horizontal stabilizer. The starboard horizontal stabilizer was torn from the aircraft. The combined damage to both sides of the fuselage caused a complete structural failure of the fuselage forward of the wing. The cockpit and forward fuselage separated from the aircraft. The wreckage fell to the ground, from 20,000 feet, in three large pieces. The wreckage was spread over a five square mile area. Needless to say, the flight crew could have done nothing to control the aircraft. From their prospective the airplane exploded and then disintegrated while they were simply cruising along.

Post mishap microscopic examination of the failed propeller, and research of the historical maintenance records, indicate that scheduled inspections of the propellers, required during the 2011 overhaul of the aircraft, at the Air Logistics Complex at Warner Robbins AFB, were not completed. This discovery resulted in the grounding of all Navy and Marine C-130 aircraft. All of the fleets, propeller assemblies were removed and overhaul inspections were completed. There were more propeller blades on the mishap aircraft that were found to have similar cracks and corrosion. And there were similar cracks and corrosion found on other propeller assemblies throughout the fleet. It certainly causes one to wonder who, at what level, failed to perform their assigned tasks in a proper manner.

If you would like to read the most well written article, and view a rather chilling mishap reconstruction video, follow this link to the US Naval Institute News article on the mishap and investigation.

https://news.usni.org/2018/12/06/marine-corps-corroded-propeller-blade-that-broke-loose-caused-2017-kc-130t-crash

Japan Mishap. During the very early morning (2:00 AM Local) of December 6th of this year, a Marine KC-130J from VMGR-152 (based at MCAS Iwakuni, Japan) was involved in a mid-air collision over the Pacific Ocean. The media has reported little more than the numbers and names of the lone survivor and the deceased. The Pilot and Radar Intercept Officer (RIO) of the F/A-18 ejected from their aircraft. Both were rescued from the ocean but the pilot later died. A search and rescue operation was commenced, but no crewmembers from the KC-130 tanker were located. After several days the recovery operation was secured and the five members of the tanker crew were declared deceased. At this time the post mishap investigation is still in progress and the mishap report has not been published.

The following discussion is my own conjecture. It is based on my experiences while conducting aerial refueling operations in the KC-130.

The time of day and the weather conditions certainly were a factor in this mishap. Flight at night, over water, is a challenge. Whether the sky is overcast or full of stars, it is still very black. There is rarely a visible horizon, and there are no lights on the surface to provide any spatial orientation. You fly completely enveloped in a sphere of black. This means that you must maintain your orientation by using your cockpit instruments or a heads-up display. Even during clear weather conditions, the only reliable reference to level flight is the cockpit indications. But aerial refueling is a very visual event. It requires a good visual reference on the tanker aircraft to maintain formation position and to complete the refueling evolution. During the actual refueling event the receiver pilot uses the tanker as his visual reference. That means that at some point during the rendezvous, in all that darkness, the receiver pilot must transition from an "inside", instrument scan pattern, to an outside, formation type of scan pattern.

Night Vision Goggles (NVG's) were designed, and have been in use for decades. They help overcome the challenges of flying at night by amplifying the ambient light. These devices allow a pilot to see visual references that he could not see with the "naked" eye. The Marine Corps demands the use of NVG's on almost every flight at night. During night flight over water there still may not be a visual horizon even with the NVG's so a pilot will still have to rely on his cockpit instruments. I believe that the F/A-18 has a HUD display that is visible inside the NVG. This allows the pilot a more simplified scan pattern because he can look through the "goggles" and see outside references and also see his cockpit indications. While NVG's certainly help a pilot "see in the dark" they do not turn "night into day".

There are two fundamental issues that a pilot must understand when using NVG's. First, they do not amplify the light in your peripheral vision. Imagine driving, at night, with a set of binoculars strapped to your head. You might be able to see the few degrees along the horizon that is within the field of view of the binoculars, but you cannot see anything to the left or right of this limited field of view. Pilots are trained to continuously swivel their heads in an effort to establish a wide view of the horizon and make up for the loss of peripheral vision. But when your focus of attention is drawn to a particular object, then your field of view is less than 10 degrees wide. Second, NVG's hinder a pilot's depth perception. For accurate depth perception nature has provided us with two eyes (binocular vision). As we focus on an object our brains then are able to accurately judge our distance and also our closure rate. When looking through NVG's that natural ability is negated. A pilot can only judge his distance from any object by comparing its' observed size in relation to a known size. Imagine the warning in the mirror "objects may be closer than they appear". At night, overwater, judging distance and closure rate from another aircraft can be a challenge.

The time of this mission, around 2:00 AM, must also be considered a factor. I am sure that the accident board is carefully studying the exercise schedule to determine whether all crew day, and crew rest, regulations were followed. I am also sure that they were. Squadron commanders and operations officers know full well the potential ramifications if they were not. Especially in a training exercise. But even if all of the regulations are carefully followed, a flight in the middle of the night is not something that anyone, no matter how tough, gets completely used to. It is simply not in our very human "circadian rhythms". Even with the regulated number of hours of rest, a flight in the middle of the night adds an additional layer of fatigue to an already difficult situation. How many of you would enjoy the idea of driving long distance at two in the morning? The news report stated that the squadrons were performing a "surge exercise". This means that they were testing the squadrons ability of maintain an increased operational tempo similar to combat. It is possible that this was not the first mission that this crew had flown. Fatigue, or simply a lack of alertness, must be a consideration in this particular mishap.

On a larger scale is the discussion of aircrew qualification vs. aircrew proficiency. In our own general aviation regulations, we pilots are not allowed to take a passenger unless we have landed at least three times in the last ninety days. But you and I both know that if you have a passenger aboard, and this is your fourth landing in the last ninety days, while you have satisfied the regulation, you are probably a bit "rusty". Marine Aviation has established a similar set of Training and Readiness standards. These standards establish an exact number of days between the repetition of every specific flight event. Repeating each event within the maximum number of days will maintain a qualification in that event. (i.e: Night Aerial Refueling) Due to decades of funding constraints,

most pilots have repeated these events only often enough to maintain their qualification. This economically driven approach may satisfy the statistical inspection, but few pilots get to fly enough sorties and flight hours to establish a true proficiency. They may be "qualified" but are they really proficient and confident to perform these difficult and demanding tasks? Would you consider yourself a proficient pilot if you only ever logged three landings every ninety days? But the FAA declares you "qualified".

Let's finally discuss the aerial refueling mission. During this relatively simple exercise the KC-130J "tanker" aircraft probably flew out to the exercise area to be established "on station" at least twenty minutes before the section of two F/A-18 "receiver" aircraft were scheduled to arrive. The "tanker track" was located in a Warning Area south and east of Japan over the Pacific Ocean. Similar to the Warning Areas off our own coast line, they are away from normal commercial traffic and under the control of the military agency that provides radar surveillance. The tanker probably was flying at an altitude between 18,000 and 22,000 feet MSL. There were probably multiple sections of receivers that were scheduled to aerial refuel this same evening, with the same tanker aircraft. This would maximize the training effectiveness of the evolution. While on station, the tanker would be monitoring the airspace control frequency, and also the discreet frequency that the aerial refueling was to be conducted on. All of these locations, altitudes, and frequencies would have been part of the very detailed preflight brief that would have been conducted prior to takeoff.

The F/A-18's probably took off from MCAS Iwakuni. They may have flown an additional training event prior to tanking, or they may have turned southeast and headed directly toward the tanker track. Immediately following take-off, they would have been under departure control. As they climbed to their assigned altitude they would be handed off to the airspace control for clearance into the Warning Area. As they approached the tanker track, they would be reassigned the aerial refueling frequency and handed off to the tanker. Now comes the most exciting part of aerial refueling; the rendezvous.

The tanker is flying at his assigned altitude at an airspeed of 210 KCAS to 230 KCAS. The receivers are closing on the tanker at an altitude probably well above the tanker at an airspeed in excess of 450 KCAS. That means that if the receivers were approaching the tanker from the rear, in a classic tail chase, they would have had a closure rate of over 200 knots. If the receivers were approaching the tanker from the front, they would have had a closure rate of in excess of 600 knots. Consider that while in the dark, over the ocean, on NVG's. To avoid mid-air collisions a minimum of 1000 feet altitude would be maintained between the tanker and the receivers. In other words, when the receiver aircraft made initial radio contact with the tanker, his instructions, from the tanker, would have included the current tanker altitude, and an altitude assignment that was 1000 feet higher. The receiver's instructions would have also included the warning, "Do not descend below your assigned altitude until you can see ('have a tally') on the tanker".

I can recall at least three separate occasions where I would have suffered the same fate had it not been for that 1000-foot altitude separation. And all of three were in daylight. I watched the flight of jets close on me, and pass directly over my cockpit, having never seen me. At that moment I recognized the potential for disaster and the value of the procedure.

The preceding discussion has been a description of the standard procedures. Now I will describe several different possible scenarios that might have occurred immediately prior to the collision.

During the rendezvous I am sure that the RIO ("guy in back") of the F/A-18 had a "lock" on the tanker aircraft on his radar. I am also sure that he was repetitively informing his pilot the bearing and range of the tanker aircraft. While the pilot was flying his aircraft on the gages, with an inside scan, he was also then looking outside, based on his RIO's description, attempting to pick up the tanker visually. His ultimate objective was to acquire the tanker visually. He cannot proceed until he has a solid visual on the tanker. Only when he has visual contact can he then join in formation and begin the refueling process. As he got closer several different things may have happened.

First, the pilot may have thought he had a visual sighting, but in fact saw something else that he mistook for the tanker aircraft. He may have mistaken a bright star near the horizon for a light on the tanker. He may have seen anything that caused him to think he had sight of the tanker. He then called the tanker "in sight" on the radio and began a descent to the tanker altitude. As he closed on what he thought was the tanker, the tanker aircraft may have been outside the field of view of the NVG's. He may have collided with the tanker that he never saw.

A second possibility is that he actually did have a solid visual sighting of the tanker. He stated he had a visual and then began his descent to the tanker altitude. While looking through the goggles he may have misjudged his visual distance from the tanker and then failed to accurately recognize his excessive closure rate. Note that both of these first scenarios are built on the acknowledged weaknesses of the NVG's.

A third possibility involves a breakdown of the pilots scan pattern. As he was closing on the tanker his scan pattern, of necessity, included looking both inside and outside the cockpit. He must divert his attention from the

tanker to focus on the attitude, altitude, and airspeed of his jet. And then he must look back outside and reacquire the tanker to visually judge his distance and closure rate. This process is made longer in darkness and while using NVG's. If he looked inside the cockpit for just a little too long, and then took too long to reacquire the tanker when he came back outside, he may have inadvertently flown himself into an excessive closure rate that was unrecoverable.

Note that the immediate cause of the mishap also could have been a combination of all three of these different scenarios. But in any of the above cases, I am sure of two points. First, assuming that he was faithfully following his last instructions, the pilot must have believed he had a visual sighting of the tanker if he was willing to descend to the refueling altitude. Second, at some point during the rendezvous, he failed to see, or to recognize an excessive closure rate until it was too late.

A fourth possibility is that the section of F/A-18's completed a successful rendezvous and then the mishap aircraft struck the tanker either maneuvering to his assigned hose, or during the actual refueling evolution. I have had a couple of close calls during refueling, but because the aircraft are flying in the same direction, and at the same airspeed, it is unlikely that there would be enough damage to cause the loss of both aircraft.

When the post mishap report is published it is unlikely that the cause will be reported by the media unless there is something sensational in the findings. If I am able to read the specifics of the report in a military publication, such as the US Naval Institute, I will certainly pass the details along.

Note that in all of these scenarios; night, overwater, NVG's, fatigue, and proficiency add to the difficulty of the event and certainly contributed to the mishap. One might suggest, and it has been suggested before, that in the interest of safety and preservations of assets, we should stop performing these high-risk missions. If I remember my history correctly, shortly after WWII, a Secretary of the Navy, upset with a soaring aviation accident rate, suggested that he would give the pilots only one aircraft to train. He concluded that the pilots would be much more careful with that one aircraft. History and experience have shown that accident rates are significantly reduced when pilots are afforded the flight time to repeat these demanding events on a routine basis. They become far more proficient, more confident, and less likely to cause mishaps. But pure safety is not the goal of military aviation. The goal of training is to gain combat proficiency. More flight experience will certainly cause our pilots to be better prepared for combat.

FUTURE EVENTS

January 2019

Tuesday 1st	New Year's Day
Saturday 5th	**EAA 297 - Chapter Meeting**, 10:00 AM in the clubhouse. Lunch in the No Whining Saloon 12:00 PM
Sunday 6th	South Carolina Breakfast Club, Aiken Regional Airport, (KAIK)
Sunday 20th	South Carolina Breakfast Club, Lowcountry Regional Airport, (KRBW)
Monday 21st	Martin Luther King Jr. Day

February 2019

Saturday 2nd	**EAA 297 - Chapter Meeting and Ladies Day Luncheon**, 10:00 AM in the clubhouse. Lunch in the No Whining Saloon 12:00 PM
Sunday 3rd	South Carolina Breakfast Club, Grand Strand Airport, (KCRE)
Thursday 14th	Valentine's Day
Sunday 17th	South Carolina Breakfast Club, Greenville Downtown Airport, (KGMU)
Monday 18th	Presidents' Day

March 2019

Saturday 2nd	**EAA 297 - Chapter Meeting**, 10:00 AM in the clubhouse. Lunch in the No Whining Saloon 12:00 PM
Sunday 3rd	South Carolina Breakfast Club, Mt Pleasant Regional (KLRO)
Sunday 17th	South Carolina Breakfast Club, Lexington County Airport (6J0)
Sunday 31st	South Carolina Breakfast Club, Lee County Airport (52J)

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Parker Field (8NC7) 3 NM Northwest of Maysville, NC. One hangar space available. Contact: Richard Parker Jr. (252) 670-6385

THOUGHT PROVOKING QUOTE

Learn from the mistakes of others. You won't live long enough to make all of them yourself.