CHAPTER
613
March 2004

www.eaa-chapter613.org

The Storied Career of N34, The FAA's Last DC3

The DC3/R4D known as "N34" has had a distinguished career with the Federal Aviation Administration (FAA), culminating with its appearances at air shows and at stops on the National Air Tour during the celebration of the Centennial of Flight. (See page 7 for the history of this aircraft)

Upcoming Events

March 21 (Sun) – **09:00** – Chapter 613 Pancake Breakfast – Franklin County Airport.

April 13th - 19th (Tue - Mon)
Sun N Fun 2004 – Lakeland, Florida

June 12th (Sat) – 9:00 to 5:00
International Young Eagles Day
Franklin County Airport (FSO)
Highgate, Vt.

Views and News By Bill Morelli

Hobie Tomlinson continues his series in the "Flight Advisor Corner" starting on page 3. This months it's Aircraft Upset Recovery" part IV continued from last month.

Have you flown Young Eagles? See page 7 for information on what expenses are tax deductible.

Can a man survive a fall from 102,800 feet? The answer is yes and on page 8 is the amazing account (submitted by Chuck Robitaille) of just such a fall.

Cabin Fever Frolic 2004! This years get together has come and gone. The food was excellent and I'm sure a good time was had by all. A few photos are on page 9.

Correction: The cover photo on the Feb 04 newsletter of Harry Yawney's aircraft was taken by Tyler Hart, not Bruce Uvanni.

February Minutes

By Marge Butterfield

As members walked into the meeting area at the Franklin County Airport, they immediately saw the Valentine's Day decorations. **Donald Taylor's** touch was everywhere…right down to the Valentine chocolates on each plate.

There was a good turnout, which kept Donald busy, as he was the cook. He outdid himself, as the pancakes were definitely light and cooked to perfection. **Josh and Beth Schwartzberg** were the only ones who flew in for the event. Following the breakfast, a meeting was called to order by President, **Terry Griffin**, at 10:30 a.m. The minutes of the meeting are as follows:

- Thanks were extended to **Donald Taylor,** Brad Monette and Bill Cheney for setting up for the pancake breakfast.
- Thanks were also extended to **Donald Taylor** for the fine job he did in cooking for the breakfast.
- The next breakfast will be held at the Franklin County Airport on Sunday, March 21st.
- **George Coy** and **Donald Taylor** volunteered to be the cooks for the March pancake breakfast.
- The Secretary's Report was accepted as published in last month's newsletter.
- Treasurer, **Steve Couzelis**, was unable to make it to the meeting, so **Terry Griffin**

read the Treasurer's Report that Steve had provided for the Chapter. A motion was passed to accept the Treasurer's Report.

- With respect to the upcoming scholarships, **Terry Griffin** advised that he was trying to get in touch with the Scholarship Committee Chairman, **Frank Gibney**, as to the status.
- Sun 'n Fun starts on April 13th. If anyone is looking for a room, you can contact **George Coy** as he had booked a block of rooms.
- The two dates and times for the Group Photo of those members who are going to Sun 'n Fun will be published in next month's newsletter.
- **George Coy** announced that on June 25th, 26th and 27th, there is going to be a Fly-In for ultralights, powered parachutes and kites at the ultralight field at the Franklin County Airport. The FMCA (Family Motor Coach Association) have rented the Franklin County Fairgrounds for the last week of June. George thought that perhaps our Chapter would be interested in putting on a pancake breakfast during that time and also holding a Young Eagles Rally.
- **George Coy** also announced that Ron Shadroy of the Agency of Transportation is trying to form a group to work on some sort of aviation camp activity for those kids who have previously attended ACE Camp, which is sponsored by VAAC. The age group for ACE Camp is 11 – 13 and this new camp would target kids older than that. George was wondering if the Chapter would be interesting in donating money for this cause or if any members would be interested in helping out.
- **Terry Griffin** introduced **Beth and Josh Schwartzberg** to everyone at the meeting. Beth and Josh are both pilots. Josh is a FAA Senior Medical Examiner for Class I, II and III medicals. You can call Josh at 1-877-DOCJOSH to schedule an appointment.
- Young Eagles Coordinator, **Donald Taylor**, recognized the pilots who flew "10 or more for 2003". The pilots' names had been published in *Sport Aviation Magazine*. Donald reminded pilots to make sure you let him know when you give any Young Eagle rides so that he can keep track of them for the newsletter. If a pilot flies 10 or more Young Eagles, our chapter gets credit for them which represents a dollar value for each ride given. One-half of these credits can be applied towards the tuition fee for the Air Academy Camp at Oshkosh. All of the credits for 2003 were sent to Donald, however, each pilot who flew more that 10 young eagles will need to sign their respective credit sheet. Once this is done, we will send in the credits with the remaining tuition fee for the candidate chosen for the Air Academy Scholarship.

****50/50 Raffle****

Mike Chrastina was the lucky winner of the 50/50 raffle, bringing home a grand total of $23.50. Congratulations Mike!!

Flight Advisor Corner

EAA Flight Advisor™ by **Hobie Tomlinson**

AIRCRAFT UPSET RECOVERY IV

Last month we were discussing aircraft upset recoveries and had worked through the list unto wake turbulence. I want to finish up this series of articles this month by completing the rest of our list of possible upsets. We will look at the remaining items, which include asymmetric flaps/aileron jam (deflected), rudder jam (deflected), control jam /failure (surface faired), recovery blockers (gotcha's) and wind up with a brief summary.

Asymmetric Flap is the first item we will look at. The susceptibility to this condition varies between aircraft, but suffice to say that it is possible in any aircraft equipped with flaps and that only in large aircraft are any asymmetric flap protection systems found. These systems basically "shut down" the flap drive system if a preset variation between left & right wing flap position is detected.

Flap asymmetry is obviously the result of a flap or flap drive system failure and can occur any time the flaps are out of the "UP" position, but usually occurs when the flaps are "in transit". It will be immediately apparent by a rolling moment & the need for sustained aileron input to maintain level flight. The first step is to maintain your current airspeed (AOA) or "unload" the wing (reduce AOA) slightly to keep aileron effectiveness. Be sure not to slow below the maneuvering speed for the lesser-extended flap, or exceed the flap limit speed for the greater extended flap! The next step is to return the flaps to the previous setting. As almost all flap asymmetry events are produce by one flap moving, while the other is "jammed", restoring the previous flap setting will usually remove the asymmetry problem. The flaps are then left at whatever setting they are at while the aircraft returns for landing.

Aileron Failure/Jam with the surface deflected is very high on the criticality list and is right up there with "Uncommanded/Runaway nose down" in that it has to be analyzed and dealt with very quickly if recovery is to be successful. As aileron effectiveness increases with increasing airspeed (lower AOA) and decreases with decreasing airspeed (higher AOA), it is imperative that we immediately get the nose up and reduce power. In multiengine aircraft, immediately reduce power of the engine on the rising wing to idle. The verbalized command for this is " Throttle Split-Left (or Right)" depending on the roll direction. This will use sideslip and dihedral effect to counter the rolling motion of the failed aileron. This is very effective on swept wing aircraft because of strong yaw/roll coupling. On single engine aircraft the sideslip is induced by use of "opposite rudder" to the rolling moment. Once the rolling moment has been contained and the aircraft starts to slow down (Higher AOA) the aircraft will become controllable. This is because the lower aileron effectiveness at high AOA is overpowered by the sideslip induced dihedral effect of opposite rudder or asymmetric thrust. The airspeed at which ailerons will overcome a fully deflected rudder is called "Crossover Speed". For this recovery it is critical to immediately get and stay below crossover speed! This is especially "time critical" because if the aircraft bank gets much beyond 60 degrees it will not be possible to get the nose up. At this point recovery becomes unobtainable because reducing power will not slow the aircraft down and the elevator will only "tighten" the turn. The increasing speed only increases aileron effectiveness and recovery is no longer possible!

Rudder Failure/Jam with the surface deflected is the reverse of the above problem and has been more common, being the nemesis of the B737 (Colorado Springs, Co. & Aliquippa, Pa.). In this instance the rudder induced sideslip & dihedral effect is creating unwanted rolling motion and the problem. The recovery procedure is to immediately lower the nose and increase airspeed (Lower AOA), which increases aileron effectiveness. We now want to get and stay above crossover speed! On multiengine aircraft, immediately reduce power of the engine on the rising wing to idle, as the aircraft will be rolling with the rudder direction. The verbalized command for this is the same as above, "Throttle Split-Left (or Right) depending of the roll direction. This will greatly reduce the sideslip angle and dihedral effect, making the aircraft controllable. Single engine aircraft are at a distinct disadvantage here. The only way to contain the rolling input of the rudder at the lower speeds needed for landing is the fly the aircraft in a bank opposite the rudder input. The single engine recovery thus becomes, immediately lower the nose (lower AOA) and increase aileron effectiveness. Once above crossover speed, bank the aircraft against the roll until the aircraft is maintaining a heading. The aircraft must now be flown in a bank (slip) until landing, being sure to maintain a speed, which will let the ailerons overpower the failed rudder.

Control Failure/Jam with the surface faired is next on the list. This could either be caused by the control jamming (i.e. loose objects, forgotten tools, forgotten gust lock) in the control system movement area or by the control system failing (i.e. disconnecting – forgotten cotter pins, safety wire, broken cable or with powered flight controls, hydraulic failure). Lets look at the controls one at a time.

Elevator failure is obviously the most critical, as it leaves us with only thrust vector effect & possibly trim to control the aircraft pitch attitude. If the elevator has failed out of the neutral position, the recovery procedure is the same as for "Uncommanded Pitch Up (or Down) as has been previously discussed. Uncommanded pitch up can be contained/recovered with an immediate very steep bank (90 degrees or more) to create time to analyze, retrim and correct. Uncommanded nose down gives us no such luxury and must be quickly dealt with by retrimming and reconfiguring the aircraft.

If the elevator has jammed in the neutral (or faired) position, we can use elevator trim as well as thrust vector effect. The important thing to remember in the case of a jammed control is that the trim effect will reverse! That is, nose up trim will produce a nose down effect and vice versa. This is because the tab can no

longer displace the jammed surface, (remember a trim tab always moves oppose of the surface movement desired) thus it becomes a "mini" surface, which has moved in the opposite direction! If the elevator is free to move, the trim will work normally. The other tool to use is "Thrust Vector Effect". On most aircraft, adding power will move the nose up, and decreasing power will lower the nose. Aircraft with high thrust lines, (i.e. Lake amphibian, DC10) can initially have the opposite response. Thrust vector effect is especially pronounced on single engine aircraft, which have the elevator in the propeller slipstream. This is because changing the power setting will change the "effective airspeed" sensed by the stabilizer by an amount equal to the airspeed change plus the propeller slipstream change, magnifying (or decreasing) the effect of any given trim tab setting. This is one of the reasons you hear proponents of controlling altitude (i.e. pitch) with power, although I definitely do not subscribe to that philosophy and don't even want to go there!

Aileron or Rudder failure with the surface faired is not as critical an event. If the ailerons are the problem, the aircraft can be banked with gentle rudder inputs, due to dihedral effect. If the rudder is the problem, banking the aircraft with ailerons will cause it to turn. The issue with large aircraft that have powered flight controls is the loss of all hydraulic systems due to structural damage. Because these aircraft are multiengine, some pitch control can be obtained by varying the thrust setting (thrust vector effect) and some directional control obtained by the use of asymmetric thrust settings. That this works was dramatically demonstrated in Baghdad recently when a DHL crew successfully landed an Airbus freighter after all hydraulic flight controls were lost due to a missile strike.

Recover Blockers (Gotcha's) are those things, which will interfere with or prevent a successful recovery. The first one is, **Surprise**. Remember, the counter to this is to "announce the problem" to prevent surprise from leaving us in the denial stage. The next is **Loss of Orientation** - which way is up? Though these events are "time critical", it is essential that we take that moment to correctly analyze our aircraft's situation. This is when a little aerobatic exposure is of immeasurable value! Then comes **Task /Stimulus Overload**. So many things are happening concurrently that the mind can be overwhelmed. During task overload the brain is trying to unload and will invariably drop the most complex task, which is usually the critical one. It is important that you rapidly prioritize tasks, then work the list from the top down and discard from the bottom up. Disregard anything that is not time critical to the recovery. A related issue to both surprise and task overload is **Under/Over Reacting**. It is very important that we use a measured response to the problem and do not create a larger problem. The advice here is "Think, then Act – Don't React! A related issue to loss of orientation is **Improper (wrong way) Control Inputs.** It is essential that we take that moment to correctly analyze our situation before attempting corrective action. *Again- Think, then Act - Don't React.* Lastly is **PIO**, due to control delays when using alternate control strategies. The aircraft will respond slower and we must accept the time delay rather that using larger inputs and reversing direction as the aircraft over responds. Examples of this would be using thrust vector effect for pitch or banking with rudder,

In Summary, take that critical moment to analyze both the event and the aircraft's orientation. Be sure to use a measure response, up to and including full control inputs. This is particularly a problem with larger aircraft where crews seldom use anything even close to full control inputs.

In a Nose High event, unload the wing; roll as necessary to start the nose toward the horizon and adjust power as required to obtain/maintain the desired speed.

In a Nose Low event, unload the wing: roll the closest way toward wings level & pull. Remember to **avoid** a rolling pull out – roll then pull! Be aware of your proximity to the terrain and adjust power as necessary.

Lots of what used to be called aerobatic safety courses have been reworked and are now billed as upset recovery courses. These are both variations of a theme and experience with either one of them is a very valuable addition to ones piloting repertoire. Exposure to the sights, sounds & feel of these types of events has no substitute for equipping one for the "real thing"! The thought for this month is: "Just because your paranoid *doesn't mean the world isn't really out to get you!* So until next month, **Think Right to FliRite**!

YOUNG EAGLES

by
Donald Taylor

Pete LaFramboise, in November, sent in his Young Eagles flights and said "Maybe we can make it 500?"

At that time we had 489. Well Pete, we made it! I just received the Young Eagle credit certificates for 2003. We had two pilots that did not report to me all their Young Eagles flights.

Chapter 613 flew 535 Young Eagles and we have 530 credit certificates to send someone to the EAA Air Academy in Oshkosh.

We surpassed our goal of 300 Young Eagle flights for 2003. Now we have to make a goal for 2004.

To date, we have no Young Eagle flights reported.

Safety Tip

As a pilot, you are responsible for making sure your vision is equal to the task of flying – That you have good near, intermediate and distant visual acuity.

Distant vision is required for VFR operations including take-off, attitude control, navigation and landing and is especially important in avoiding mid-air collision.

Near vision is required for checking charts, maps and frequency settings. Near and intermediate visions are required for checking aircraft instruments.

Learn about your own visual strengths and weaknesses. Changes in vision may occur imperceptibly or very rapidly. Periodically self-check your range of visual acuity by trying to see details at near, intermediate and distant points.

If you use corrective glasses or contacts, carry an extra pair with you when you fly.

Always remember: Vision is a pilot's most important sense.

Did You Know

Boeing 747 Jetliner Marks 35th Birthday

The jetliner that helped shrink the globe, the Boeing 747, was 35 years old on February 9th. The plane was first flown in 1969 and carried it's first commercial passengers in 1970. Since then, the Boeing Co. said it had delivered 1,341 of the super-jumbo planes, which in various versions have carried 3.6 billion passengers.

Boeing is studying development of a new model, the 747 advanced, which the company first talked about at the Paris Air Show last June. The plane if built, would seat as many as 400 to 500 passengers and would offer improved fuel efficiency and noise control. The airplane would enter service toward the end of the decade.

Don Taylor in the FAA DC-3

In 1974, I flew my Cessna 182 – Skylane to Oshkosh. It was my first trip there and on display was a beautiful FAA DC-3.

We were allowed to go aboard so I went up and sat in the left seat and my friend took the above picture. I cannot believe it has been 30 years this year. Boy, time sure does fly!

Young Eagles and Your Taxes

It's Tax time and here's how you can deduct some expenses incurred while participating in the Young Eagles Program.

You can deduct Young Eagles expenses under the tax-exempt status of the EAA Aviation Foundation participating in the Young Eagles Program. The IRS ruled that volunteer pilots helping the Young Eagles Program can deduct direct, out-of-pocket expenses actually incurred by the volunteers that are in direct connection with and solely attributed to the Program.

If the above conditions are met, volunteers will be able to deduct direct out-of-pocket expenses such as:

- fuel and oil directly consumed by the aircraft in the demonstration flight, not to exceed 200 miles
- fuel and oil to another airport within 50 miles to meet a young person
- transportation, not to exceed 30 miles one way, to get to and from the airport
- the rental charges for a bus or van to bring a group of young people to the airport
- the rental expense of an airplane used only for the Program
- postage for mailing the registration records to the EAA Aviation Foundation
- Extra liability insurance purchased solely for flights for the program
- landing tie down fees at a non-home-based airport
- aeronautical education materials
- meals for the young person (but not the volunteer)
- film and development of pictures for the young person

Indirect expenses, such as hangar fees and annuals, are not considered out-of-pocket expenses. For the purposes of computing the expense of transporting the volunteer and/or young person to and from the airport in a passenger automobile, a standard mileage rate can be used in lieu of operating expenses.

History of N34 , The FAA's DC-3

The aircraft was built in 1945 at the Douglas Aircraft plant located on Tinker Air Force Base, Oklahoma City. OK. It was accepted by the U.S. Navy as an R4D (naval equivalent of a DC3), and was flown to the Norfolk (VA) Naval Air Station for its first official duty as a Navy transport in December of that year. During its tour in the Navy, the aircraft served in Rome, Naples, Paris, Algiers, Frankfurt, Brussels, Oslo, Stockholm, Dublin, Cairo, Kuwait, Baghdad, and many other interesting locations.

In 1956, the plane was loaned to the Civil Aeronautics Administration (CAA, the FAAs predecessor agency) and modified with the latest equipment to flight check the accuracy of navigational aids in the National Airspace System. Assigned the registration number N34, in 1958 the aircraft began its service with Federal Aviation Agency.

After 23 years of service with the FAA, N34 was scheduled to be declared surplus. However, then-Administrator Donald D. Engen concurred with Aviation System Standards employees at the Aeronautical Center in Oklahoma City who wanted to preserve the plane for its historical value. On March 29, 1985, Engen ordered restoration of the aircraft to the original colors of the Civil Aeronautics Administration. The agency flew N34 to various air shows around the country to showcase the history of the FAA and the CAA and to inform the public about the FAAs mission. In 1993, N34 was placed in storage at the Aeronautical Center.

Realizing that N34 could play an inspiring role in celebrating the Centennial of Flight, current FAA Administrator Marion C. Blakey authorized the agency to restore the aircraft to flying condition. Throughout 2003, N34 served as a highly visible reminder of the FAAs invaluable contributions to both domestic and international aviation.

One Giant Step (from Forbes Magazine) James M. Clash, 12.08.03

Submitted by Chuck Robitaille

Joe Kittinger is not a household aviation name like Neil Armstrong or Chuck Yeager. But what he did for the U.S. space program is comparable.

On Aug. 16, 1960, as research for the then- fledgling U.S. space program, Air Force Captain Joseph Kittinger rode a helium balloon to the edge of space, 102,800 feet above the earth, a feat in itself. Then, wearing just a thin pressure suit and breathing supplemental oxygen, he leaned over the cramped confines of his gondola and jumped--into the 110-degree-below- zero, near-vacuum of space. Within seconds his body accelerated to 714mph in the thin air, breaking the sound barrier. After free- falling for more than four and a half minutes, slowed finally by friction from the heavier air below, he felt his parachute open at 14,000 feet, and he coasted gently down to the New Mexico desert floor.

Kittinger's feat showed scientists that astronauts could survive the harshness of space with just a pressure suit and that man could eject from aircraft at extreme altitudes and survive. Upon Kittinger's return to base, a congratulatory telegram was waiting from the Mercury Seven astronauts--including Alan Shepard and John Glenn.

More than four decades later Kittinger's two world records--the highest parachute jump, and the only man to break the sound barrier without a craft and live--still stand. We decided to visit the retired colonel and Aviation Hall of Famer, now 75, at his home in Altamonte Springs, Florida, to recall his historic jump.

FORBES GLOBAL: Take us back to New Mexico and Aug.16, 1960.

Joe Kittinger: We got up at 2 a.m. to start filling the helium balloon. At sea level, it was 35 to 40 feet wide and 200 feet high; at altitude, due to the low air pressure, it expanded to 25 stories in width, and still was 20 stories high! At 4 a.m. I began breathing pure oxygen for two hours. That's how long it takes to remove all the nitrogen from your blood so you don't get the bends going so high so fast. Then it was a lengthy dress procedure layering warm clothing under my pressure suit. They kept me in air- conditioning until it was time to launch because we were in the desert and I wasn't supposed to sweat. If I did, my clothes would freeze on the way up.

How was your ascent?

It took an hour and a half to get to altitude. It was cold. At 40,000 feet, the glove on my right hand hadn't inflated. I knew that if I radioed my doctor, he would abort the flight. If that happened, I knew I might never get another chance because there were lots of people who didn't want this test to happen. I took a calculated risk, that I might lose use of my right hand. It quickly swelled up, and I did lose use for the duration of the flight. But the rest of the pressure suit worked. When I reached 102,800 feet, maximum altitude, I wasn't quite over the target. So I drifted for 11 minutes. The winds were out of the east.

What's it look like from so high up?

You can see about 400 miles in every direction. The formula is 1.25 x the sq. root of the altitude in thousands of feet. Sq root of 102,000 ft is 319 X 1.25 = 399 miles.) The most fascinating thing is that it's just black overhead--the transition from normal blue to black is very stark. You can't see stars because there's a lot of glare from the sun, so your pupils are too small. I was struck with the beauty of it. But I was also struck by how hostile it is: more than 100 degrees below zero, no air. If my protection suit failed, I would be dead in a few seconds. Blood actually boils above 62,000 feet. I went through my 46-step checklist, disconnected from the balloon's power supply and lost all communication with the ground. I was totally under power from the kit on my back. When everything was done, I stood up, turned around to the door, took one final look out and said a silent prayer: "Lord, take care of me now." Then I just jumped over the side. What were you thinking as you took that step? It's the beginning of a test. I had gone through simulations many times--more than 100. I rolled over and looked up, and there was the balloon just roaring int o space. I realized that the balloon wasn't roaring into space; I was going down at a fantastic rate! At about 90,000 feet, I reached 714mph. The altimeter on my wrist was unwinding very rapidly. But there was no sense of speed. Where you determine speed is visual--if you see something go flashing by. But nothing flashes by 20 miles up--there are no signposts there, and you are way above any

clouds. When the chute opened, the rest of the jump was anticlimactic because everything had worked perfectly. I landed 12 or 13 minutes later, and there was my crew waiting. We were elated.

How about your right hand?

It hurt, there was quite a bit of swelling and the blood pressure in my arm was high. But that went away in a few days, and I regained full use of my hand.

What about attempts to break your record?

We did it for aircrews and astronauts--for the learning, not to set a record. They will be going up as skydivers. Somebody will beat it someday. Records are made to be busted. And I'll be elated. But I'll also be concerned that they're properly trained. If they're not, they're taking a heck of a risk.

Columnist Jim Clash is author of To the Limits (John Wiley & Sons, 2003) and a Fellow at the Explorers Club.

Cabin Fever Frolic

2004

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March 2004

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