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AERONAUTICA

French Connection flies a Piper for the first time

By Jason Piper
Business Manager

Flying with a top notch formation aerobatic team isn't something that most people get to do in their lives. I recently was invited to hang around with the French Connection Airshow team. An opportunity which I jumped at with the grace of an elephant in heat.

Most people who have flown into Flagler County Airport over the past year and a half have seen the team in their CAP 10's, or their aerobatic school planes which are identical except for the smoke system and the paint scheme.

Montaine Mallet flies the lead aircraft. She learned to fly at the age of 19 while studying aeronautical engineering in France. After graduation,

she began to work for Avions Mudry, who manufactures the CAP 10 aircraft. When she started aerobatic training, her instructor was Daniel Heligoin, who was Avions Mudry's chief test pilot as well as her future husband and wingman. Montaine is now known as one of America's leading female airshow pilots.

Daniel Heligoin started flying in France at the age of 16 in gliders. Heligoin was then accepted into the French Air Force where he was a fighter pilot and instructor. During his Air Force career he flew everything from Skyraiders to the Mirage 3.

He flew Fouga Magisters as a member of the French Air Force Jet Team (comparable to the Blue Angels). Heligoin was also France's

Unlimited Aerobatic Champion in 1971 and 1972. His flying exploits would make you green with envy.

Together, they came to America in 1973 to represent Avions Mudry. Heligoin started an airshow routine while Mallet began teaching aerobatics. From 1973 to 1977 Heligoin taught Mallet formation aerobatics. 1977 was their first big year as an airshow team. The show has continuously evolved to become what it is today.

Upon my arrival at the airport we had breakfast at Wing's restaurant. I was thrilled to be there, but hoped this was the first and last time I would see my breakfast. I was then treated to an incredible aerobatic feat.

What did I see, you ask? Dew Point, the world's only aerobatic dog, that's what I saw. I bet you're skeptical, but it's true. Adam, a Mudry instructor and the dog's owner, told D.P. "Clearing turns!" The dog did a 360 degree turn, looking around. After that, on command, he would do aileron rolls left and right. I was impressed, and I hadn't even gotten on the ramp yet.

The morning was spent critiquing student pilots performing their routines in the aerobatic "box," but I'll tell you about that next week, along with my lesson in the CAP 10. Shortly after lunch (great) I donned my parachute, confident that riding with Heligoin I wouldn't need it.

But it's a rule so you have to wear it. I was briefed how to take pictures, and informed that I couldn't talk to them during the routine. Makes sense, Daniel doesn't want me yacking his ear off while we are overlapping wing tips with Montaine. Everything the team does is in harmony. Even starting the engine and running through the checklist. We taxied out, in formation of course, and even that was impressive.

After takeoff, I just sat there with a dumb grin on my face. It almost seemed like it wasn't real. That couldn't be another airplane out there. It seemed like it was attached to us. Don't get me wrong, it didn't look easy. Heligoin was working every second. The throttle and control stick never stopped moving.

At 62 he's sharper than a tack and



Coming through inverted on the top of a loop in the CAP 10 aerobatic monoplane. This picture was taken from the number two aircraft. In the lead is Montaine Mallet.

overflows with experience. You can't help but learn from him, just hanging around him you pick things up.

We reached altitude and the fun really started. Daniel reminded Montaine to use English on the radios so I could be ready for the maneuvers. A helpful thing, because my arms and my camera became very heavy in the 4g pull-ups into some of the maneuvers. I could barely hold the camera to see through it.

They performed a loop, barrel roll, clover leaf, and hammerheads. I was cursed with the camera. I wish I could have ditched it and just

enjoyed the ride. I got a few great pictures of Daniel's head and our feet. Like I said, the camera was heavy. I switched cameras and we did the mirror formation.

If you haven't seen them perform, this is their trademark. Mallet rolls inverted and Heligoin (and myself on this day) slide in below her, right side up. Top Gun style, but this was no movie. If it wasn't the glare off the canopy, I could have read her gauges. I wish I had a picture of my face during that maneuver. It would be a mix of terror, joy, and amazement. I finished my film and we did a few more maneuvers.

The hammerhead was my

favorite. Going straight up, looking at Montaine off our left wing tip, smoke billowing from the belly of her plane. Then in a second yawing left and going straight down with her off the right wing. In between her rudder seemed close enough to touch. Amazing, simply amazing.

Coming up this weekend is the airshow at Flagler County Airport. I'm sure my friends Daniel and Montaine will steal the show. Tickets are on sale on campus from the cheerleaders, flight team and water-ski club.

The tickets are \$6.00 each in advance or \$8.00 at the gate. Go up there and check out their operation. Gates open at 9 a.m., show starts at 1p.m.

I'm sure they'd love to talk with you, they are tremendously nice people. The team will also be at the Daytona airshow, but you know what the crowd at that is like. They can't stop and chat with too many people. But they do their talking with their CAP 10's and man, can they make those airplanes sing!



A vertical down line on the second half of a hammerhead, with smoke coming from the lead aircraft. Picture was taken from Daniel Heligoin's aircraft.

I was thrilled to be there, but hoped this would be the first and last time I would see my breakfast.

Express delivers affordable fun for builders of all skills

By Gregory Lee
Aeronautics Editor

Kit planes have become very popular options for many fliers these days due to rising costs of used and new aircraft. Meeting this need is Express Design, Inc. who is offering a "bare bones" version of their Express kit plane.

The bare bones kit option provides kit builders the chance to save \$7,000 off the usual all included kit. By seeking out their own supplies builders can save anywhere from \$3,000 to \$5,000 in building costs. According to President David Ullrich "If a builder simply takes the materials list and orders everything

on it, as a package from our supplier, he'll save at least \$3,000. That's a significant amount." This can be a boon for first time builders who may want to save some money for an error fund. After all if you're not an A&P technician mistakes are bound to happen.

Things that builders would have to seek out on their own are: tires, wheels, tubes, brakes, pulleys, cables and engine mounts. However included are composite components, control systems, windows, landing gear, seats, control systems and metal weldments. "We had requests from a number of consumers to provide them this kind of option, and we listened," said EDI President David Ullrich "Quite a few people

have already built an airplane, accumulated parts in other ways, or simply have their own sources for more favorable pricing on the stock items like nuts and bolts."

The Express is a four to six seater composite built airplane designed for cross country flying. It is also capable of speeds of 225 mph. With speeds like this and more than adequate seating the Express should be popular with builders looking to be first time airplane owners.

There has been a recent resurgence of kit plane builders as demonstrated by the recent Oshkosh air shows and by the recent win of the Flying Magazine Cross-Country Race which was won by a Questair Venture.



The Express is now offered in a new kit format that will save builders considerable amount of money. With seating capacity for up to six passengers and a top speed of 225 mph the Express is sure to be a big hit with both new and experienced kit builders.

Trade News...

Explorer Marks Another First

MESA, Ariz.— The second flying model of the eight-place, twin turbine MD Explorer helicopter successfully completed its maiden flight on Friday, Sept. 17, at McDonnell Douglas Helicopter Systems' facilities here.

The new helicopter's first flight lasted approximately 40 minutes and consisted of basic flight maneuvers. The ship was flown by experimental test pilots Greg Ashe and Chan Morse.

The first MD Explorer flew on Dec. 18, 1992. It has since accumulated more than 88 hours in the air.

"It's like any other flight test program," said MD Explorer program general manager Jerry Ryan. "We fly it and try it. Test it and adjust it. Fly it again. Then fly it one more time just to ensure the results we got the first time were as good as we thought they were."

Company engineers record every item of data from every flight and ground test. Then they analyze it, question it and compare it against other data and against logic and common sense.

"Then we do it all again to be sure we're right," Ryan said.

That's the way the MD Explorer's rigorous flight test program has proceeded. PAA certification is scheduled for the fourth quarter of 1994.

The MD Explorer project, which began in the concept stage in the mid-1980s, was announced formally by McDonnell Douglas in 1989. The new helicopter will enter service in 1994.

Like its sister ship, the MD 520N, the MD Explorer operates with the company's exclusive NOTARTM system for anti-torque and directional control.

The MD 520N, which entered service in 1991, is the quietest heli-

copter yet certified by the FAA and early indications are that the MD Explorer is equally quiet.

The first flying MD Explorer completed its 88 hours in 80 actual flights.

So far the helicopter has exceeded 20,000 feet in altitude and 172 knots true air speed. It has surpassed 3.0 "Gs" (three times the force of gravity) and achieved 40 knots in sideward and rearward flight.

Additionally, according to Flint, fuel economy "is everything we thought it would be" and installed engine power is "fully in line with performance requirements."

And MD Explorer test pilots continue to praise the "impressive field of view" from the aircraft.

"The aircraft has been extremely reliable throughout the test program, Flint said. "We flew the first 35 hours in nine weeks, which is incredible for a test aircraft."

"We only missed one flight and had only one delay because of aircraft reliability," he said. The delay and cancellation were aircraft instrument-related and not associated with critical flight control or engine, drive-train or rotor systems.

A third and fourth flying MD Explorer will join the airborne fleet later this year. The certification process will include more than 900 hours of flying by four aircraft.

Wegner Joins Beechcraft

Arthur E. Wegner is chief executive officer of Beech Aircraft Corporation, Wichita, Kan. He joined the company in July 1993.

He earned a bachelor of science degree from the U.S. Naval Academy in 1960. After service with the U.S. Navy, he received a master's degree in business administration from Harvard University in 1969.

Mr. Wegner comes to Beech Aircraft after 20 years with United Technologies Corporation (UTC), having served most recently as executive vice president and president of UTC's Aerospace and Defense Sector. Prior to that, he was president of the Pratt & Whitney Division and senior vice president, Power, for UTC.

Prior to joining United Technologies in 1973, Mr. Wegner served as a consultant with Cresap, McCormick and Paget, and as vice president, planning & administration for the Rust Engineering Division of Litton Industries.

Mr. Wegner was chairman of the board of governors of the Aerospace Industries Association and holds membership on the boards of a number of professional, charitable, and philanthropic organizations. He is a member of the board of the General Aviation Manufacturers Association.

Wanted: Aeronautica Writers

The Aeronautica section needs writers to contribute stories weekly. The beat would cover events here on campus and in the surrounding area. Experience is not necessary nor is being an air science major. Come up to the Avion, ask for Greg Lee, or call extension 6049.

Tests rip shuttle tires to shreds

Modified CV-990 will test shuttle landing gear

By Joshua Mussaf
Managing Editor

The landing of the space shuttle is one of the most important and final phases of a mission. Because the shuttle is a large glider upon reentering the Earth's atmosphere, the shuttle pilot and commander have only one attempt to land the shuttle at its designated landing site.

Recently, NASA's Convair 990 (CV-990) arrived at Kennedy Space Center (KSC) for a series of landing tests designed to assist in the upgrade of the space shuttle landing capabilities.

The four-engine CV-990, called the Landing Systems Research Aircraft (LSRA), was selected because it can achieve a landing speed of about 230 mph which duplicates the landing

speed of the shuttle.

Up to 25 missions over a six-week period will be carried out at KSC's 15,000-foot long Shuttle Landing Facility.

Many of the flights will involve more than one landing, and the actual number of test runs could be as high as 50. NASA's LSRA project pilot is C. Gordon Fullerton, a veteran of two space shuttle missions.

To perform the test, a landing gear test fixture was installed in the lower fuselage of the CV-990 between the aircraft's own main landing gear. During tests, the shuttle tire is lowered onto the runway by a hydraulic system after the CV-990's landing gear has contacted the ground.

Test sensors give engineers data on the tire under varying loads, slip angles, temperatures and pressures.

Test results will give shuttle program managers an indication of how much wear the shuttle tires can withstand under a variety of operational conditions.

The load on the test tire, which can be up to 150,000 pounds, is then removed until the next test run. The CV-990 main landing gear remains in a locked down position and all three gears are in contact with the ground before the test system is activated.

A four-flight series of shuttle tire tests was carried out at Dryden Flight Research Facility, Edwards, California, before the LSRA was flown to KSC.

The Dryden flights verified the operation of the landing gear test system while also serving as the first tests to collect tire data under test load conditions.

Most of the tests at KSC will be with the new commercial tire developed specifically for the space shuttle. Positive test results could allow space shuttle program managers to expand the current crosswind limitations prior to launch and during landings.

Program manager, Bob Baron said discussions are underway with the civil aircraft industry to use the LSRA for tire and landing gear tests in connection with development of future civil transport aircraft.



The results of load testing on shuttle landing gear (top) could allow for more flexibility of future space shuttle missions. NASA modified a Convair 990 (bottom) to conduct the tests at the Kennedy Space Center.

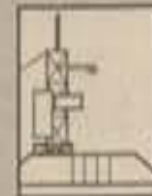


Orbiter Update



Columbia (OV-102)

The Space Shuttle *Columbia* is sitting on launch pad 39B with the Rotating Service Structure in place around the orbiter. Work this week will involve the main engine hydraulics and late payload stowage in preparation for launch of STS-58 which is currently scheduled for 10:53 a.m. on Thursday, October 14.



Endeavour (OV-105)

The orbiter *Endeavour* is currently in the OPF bay 1. Managers decided to return the Wide Field Planetary Camera for servicing and optics tests. Launch is not expected to be affected. *Endeavour* is scheduled to launch in early December on STS-61 to retrieve and service the Hubble Space Telescope.



Discovery (OV-103)

Discovery is currently in the OPF bay 3 where technicians are removing and replacing two fuel cells. The shuttle arm was inspected for minor damage from satellite handling and the payload bay deconfigured. *Discovery* is scheduled to launch again in mid-January with the Wake Shield Facility and Spacelab-2.



Atlantis (OV-104)

The Space Shuttle *Atlantis* is still undergoing modifications and refitting at the Rockwell International Plant in Palmdale, California. *Atlantis* is the last orbiter to receive the overhaul, which will allow for longer missions and landings assisted by a drag chute. *Atlantis* is scheduled to launch in April of 1994.



Next shuttle launch set

By Brian Gamage
Space Technology Editor

The target date for launch of the Space Shuttle *Columbia* on STS-58 has been set for Thursday, October 14. STS-58 will be the 58th space shuttle flight.

Mission managers on Friday conducted a Flight Readiness Review at NASA's Kennedy Space Center to determine whether *Columbia* is ready for launch.

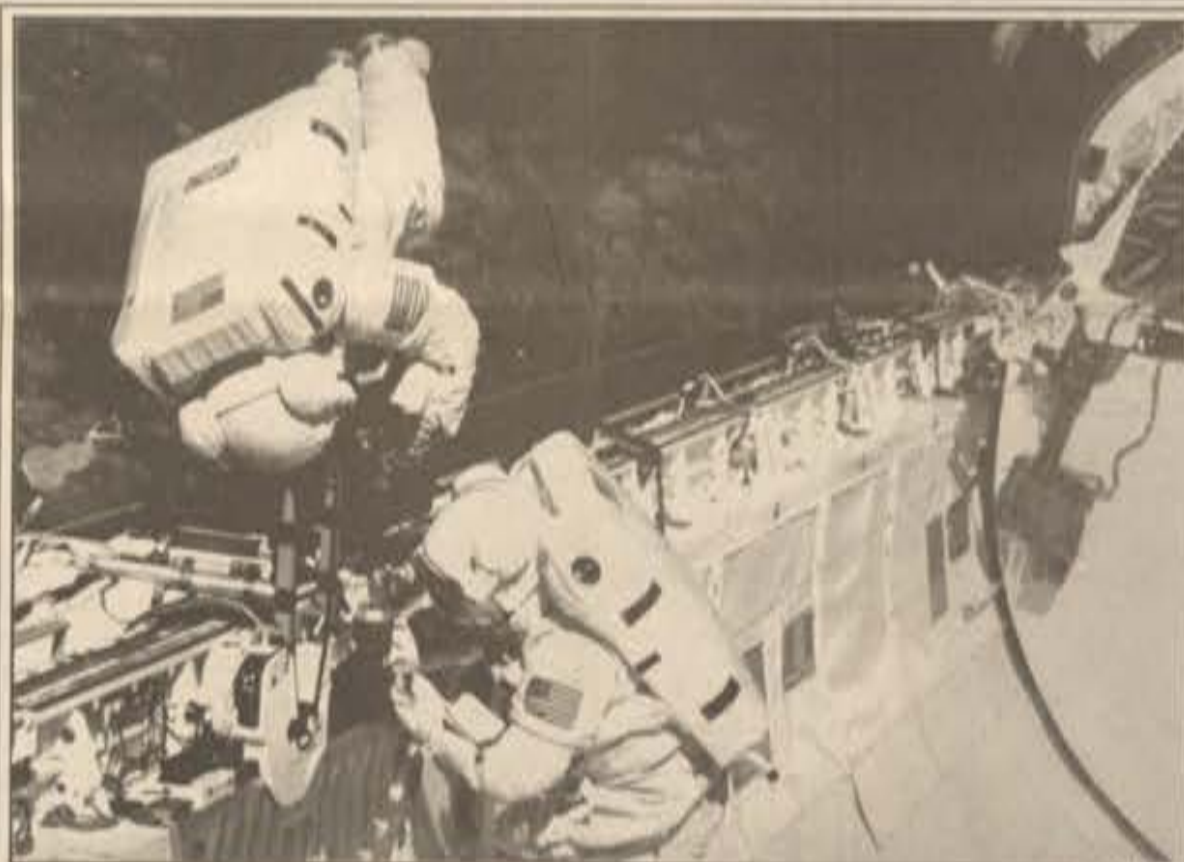
The vehicle and its payloads were declared ready for launch following the pre-mission inspection. The inspection is part of every flight's checklist before NASA will commit the orbiter and its payloads to launch.

Columbia will carry into orbit the second Spacelab Life Sciences laboratory, which will investigate the effects of weightlessness on people and animals. The 7-member crew will be kept company by 48 rats, five of which will be decapitated and dissected in orbit.

The launch window for STS-58 starts at 10:53 a.m. EDT the morning of the 14th and extends for 2 1/2 hours.

The 14-day mission, the longest planned shuttle launch in the history of the program, will be commanded by John Blaha and piloted by Rick Searfoss. Rounding out the crew will be mission specialists Rhea Seddon, Bill MacArthur, David Wolf and Shannon Lucid and payload specialist Martin Fettman.

Hey, I got here first!



Astronauts James Newman (bottom) and Carl Walz, both mission specialists aboard STS-51, practice space walking techniques in the shuttle's cargo bay. The space walks were part of the last shuttle mission intended as practice for the upcoming Hubble Space Telescope (HST) repair mission. Walz is using a power ratchet tool that will be used to remove and replace parts on the HST.

NASA plane spots new flashes of light

NASA Press Release



Huge unexpected flashes of light that NASA researchers recorded in the upper atmosphere have scientists wondering what really happens in the region of the ozone layer.

The flashes occurred above a severe thunderstorm in the Midwest this summer and were recorded on video taken with a special low-light-level, all-sky camera aboard NASA's DC-8 Airborne Laboratory, based at Ames Research Center, Mountain View, Calif. The DC-8 flew along side of the line of thunderstorms at an altitude of approximately 40,000 feet.

Professors Davis Sentman and Eugene Wescott, from the Geophysical Institute of the University of Alaska, Fairbanks, released preliminary data on the flashes last week.

Their video captured 19 examples of huge flashes of light that appear above storm clouds and extend up into the upper atmosphere.

The flashes, which last for less than 1/30th of a second, are estimated to be about 25 miles tall, 6 miles wide, and greater than 240 cubic miles in volume.

Most scientists previously did not know such flashes existed.

"In form, they look like carrots or tall jellyfish," Wescott said. One flash was recorded for about every 300 cloud-to-ground lightning strikes during the NASA mission.

Since the flashes are associated with thunderstorms and lightning, scientists suspect the flashes may be a form of electrical discharge.

If so, the flashes could present concern to high-altitude research aircraft and could be responsible for creating a host of chemical reactions in the upper atmosphere, including modifications of upper atmosphere ozone.

Other theories suggest that the flashes could be glow discharges similar to light emanating from a neon tube or possibly a more passive phenomenon involving the absorption of naturally occurring ultraviolet light or even x-rays.

More research is needed before scientists can understand what causes these flashes. Most flashes did not appear to come directly from the storm below.

Pilots and other sky watchers have reported seeing momentary flashes above thunderstorm clouds as early as 1886, but these rare sightings generally were ignored by the science community because these sightings were undocumented and unexpected. Sentman's and Wescott's research indicates that the flashes may not be as rare as previously thought.

"For years, it has been believed that the area in which these flashes occur is quiet, calm, tame, almost boring," Sentman said.

Sentman and Wescott suspected otherwise. Their interest in the phenomenon, originally referred to as "upward propagating lightning," grew in 1989 when unusual illuminations on a video taken with a ground-based television camera.

Other upper atmosphere flashes have been identified by researchers at NASA's Marshall Space Flight Center, Huntsville, Ala. after searching through video recordings of thunderstorm activity made during several space shuttle missions.

Delta Clipper may be cheaper access to space

By Mike Dienhart
Opinion Editor

The Delta Clipper-Experimental, currently undergoing flight tests, may be the first step in a transportation system that will offer economical access to space.

"Basically, we're starting with a clean sheet of paper," said Dr. David Webb, Director of Space Education, Research and Technology here at Embry-Riddle while speaking of McDonnell Douglas' Delta Clipper-Experimental (DC-X).

Indeed, it is a clean sheet, with a design that took the aerospace industry by surprise and the economic potential to revolutionize the world as we see it today.

The Delta Clipper is a fundamental part of the Ballistic Missile Defense Organization's (BMDO) Single Stage Rocket Technology (SSRT) program. This program was chartered to demonstrate the practicality, reliability, operability and cost efficiency of a fully reusable, rapid turn-around single stage rocket.

With the reliability and operability of the DC-X being proven currently at White Sands Missile Range (WSMR), NM, it is necessary now to take a look at its economics.

To date, about \$120 million have been put into the Delta Clipper program over a period of 18 months by the BMDO. In return, McDonnell Douglas has produced a scale test vehicle, 42 feet tall, to prove that SSRT works. This vehicle is the DC-

X, currently at WSMR after completing its third test flight last Thursday.

The DC-X is the first in a four-step program, the final step being the fully operational vehicle McDonnell Douglas has dubbed the DC-3. Any aviation enthusiast might catch the reference to the Douglas DC-3, the airplane that, after first flying in 1935, blew the commercial aviation scene wide open.

The next stage, pending final approval of funding from Congress is the Space Experimental-2 (SX-2). The SX-2 will be a larger version of the DC-X and will also cost about \$120 million to produce.

After the SX-2 expands the test envelope begun by the DC-X, the DC-Y will be produced.

Finally, after the DC-Y flies, McDonnell Douglas will produce the Delta Clipper-3 (DC-3). Dr. Webb estimates that to reach the fully operational DC-3 stage will cost around \$2 billion total. While this may seem to be an extraordinary amount of money, it must be compared to the \$10 billion cost (in 1970 dollars) of producing the first space shuttle.

One might ask why there is a need to produce a new vehicle when the shuttle is currently providing the country's space access. To answer this question, it is necessary to make some comparisons between the shuttle and the Delta Clipper.

NASA releases a figure of \$500 million as the cost for each shuttle flight, not including any possible delays. The Government Accounting Office (GAO),

the agency that keeps tabs on government expenditures, reports that the cost is closer to \$1.2 billion. The projected cost for each flight of the DC-3 is \$50 million.

The true measure of any transportation system however, is the cost per pound of payload transferred to its destination. Determining this cost requires only simple math. The largest payload ever taken to orbit by the shuttle weighed 37,000 pounds.

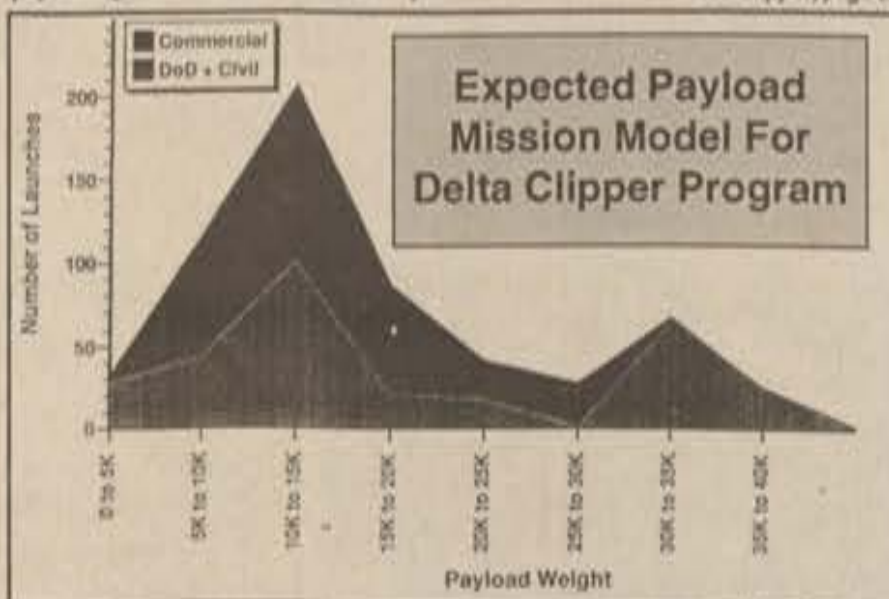
Dividing the \$500 million cost figure released by NASA by the 37,000 pound payload gives a result of \$13,500 per

pound of payload. If the figures released by the GAO are used, \$1.2 billion is divided by 37,000 with a result of \$32,000 per pound.

Estimates for the DC-3 are that it will cost only \$400 per pound to deliver a satellite to low-earth orbit. With this figure so radically different from any others in our experience of space flight, the methods by which the DC-3 will achieve this must be examined.

"This is the first space launch vehicle

see Clipper, page B7



As the payload weight increases the number of launches for both defense and commercial contractors will decrease.

Critic's Corner:

Baldwin shows *Malice* toward Kidman's ovaries and feelings

Malice
 Starring: Alec Baldwin
 Nicole Kidman
 Bill Pullman
 Rated: R
 Rating: ★★★
 Length: 1:55
 Playing: AMC Volusia 8

By Keith Towers
 Movie Critic

How do I choose which movie to review each week, you ask? Well, I watch previews on T.V. and out of the new movies coming out, I decide which one most ERAU students would be most interested in.

This past week, I decided to review *Malice* rather than *Cool Runnings* because I figured more people would be interested in it based on the *Basic Instinct* type of preview.

This may not be the best system for choosing a movie to review, and if I were doing the movies last year, *The Crying Game* would not have been on my list to review, because I never heard of it until it was reviewed in this paper.

Well, I opened up my faithful copy of Friday's Daytona Beach *News-Journal* to see where and when *Malice* was playing, and lo and behold, they had a review of both *Cool Runnings* and *Malice*.

They lauded the movie about the Jamaican bobsled team while trashing *Malice* as a weak, ineffective Hitchcockian rip-off.

Well, totally ignoring the *News-Journal*, I went to see *Malice* anyway. After seeing this movie, I was stumped as to why they gave it

only one star and why it failed to receive so few words of praise. I don't know, but I thought the movie was a fresh plot with some fine twists.

Starring Nicole Kidman, Alec Baldwin, and Bill Pullman, this movie about malpractice and deceit used some very effective plot twists to lead the audience in a guessing game as to what was going on, and I for one always guessed wrong.

George C. Scott and Anne Bancroft each have small roles that play large parts in the film, although Scott was not exceptional, unlike Bancroft. Bancroft plays Kidman's mom in a great scene of comic relief and revelation. There's nothing quite like a woman who appreciates a good scotch.

Kidman and Pullman play a couple who are happily married, or so it seems. Pullman is an Associate Dean of Students at a college which is being besieged by a rapist/murderer.

Bebe Neuwirth (Lilith of Cheers) plays the detective in charge of finding the rapist. She is in touch with Pullman over the occurrences and this sub-plot is a major point to the story, which I will not give away.

Both Pullman's and Kidman's performances were solid in believable roles, but I found Baldwin's character the most interesting. He plays a very talented doctor with a lust for women and money. Normal goals for most men, but he goes about achieving the goals in an unorthodox manner.

He plays the head-strong, power-hungry surgeon with some convincing lines and deliveries. I've known many people like him in my life. They want to control everyone and everything around themselves. Baldwin does act just like one of these people. They seem nice enough when you first meet them, but after getting to know them, you

find out their true nature. Baldwin is just the same.

Neuwirth, as the concerned detective, is fantastic as she tries to help Pullman figure out just what that sneaky Kidman is up to.

Directed by Harold Becker, director of *Sea of Love* and *Taps*, this film was nothing exceptional in this aspect. It wasn't corny or bad direction, but the direction was just the usual fare.

Another part of this movie is that it is not what you expect it to consist of from the previews. The twists and turns keep you interested, while some fine performances draw you deeper into the plot.

To pick on the *News-Journal* again, the critic stated 'Becker must have been anesthetized during the filming of this argument for health care reform.'

I don't see how this movie can be an argument for health-care reform when on one hand it shows such competence in Baldwin's character. I just don't think there are many messages in today's Hollywood movies, but that is not the point of popular entertainment.

To conclude, *Malice* is a fine mystery/thriller which will probably make plenty at the box office, much to the chagrin of the *News-Journal*. Of course, if they had their way, *Cool Runnings* would take home the Best Picture Oscar. Knowing Disney movies, I would assume it probably is the level of *The Mighty Ducks*, dorky, camp comedy.

But I shouldn't criticize a movie I haven't seen, as the *News-Journal* shouldn't, because if they had seen *Malice* I don't think they would have trashed it like they did.

Malice is good stuff.

- ★★★★ - Can't miss!
- ★★★ - Worth watching.
- ★★ - Wait until dollar theatre.
- ★ - Read a book instead.

Mel Torme delivers yet another crowd pleaser with *Live at Michael's Pub*

By David Gass
 Music Editor

After having read the headline for this music review, you may ask yourself why Mel Torme? The answer is very simple: Because he is a great and talented music artist whose talent has only improved over the years.

You may also ask who is Mel Torme. He is definitely more than just the singer that Judge Harold T. Stone adored on the television series *Night Court* years ago. You know, the guy that Stone wanted to join on a worldwide tour and leave his job as a judge? Yes, Torme has been loved and listened to by fans for many years now and continues to do so.

In his latest CD, *The Great American Songbook* by Mel Torme and The Great American Songbook Orchestra, he delivers yet another promising hit for those with an appetite for "swing" music. This album was recorded live at Michael's Pub and includes 15 tracks of some great music.

This new cd offers a combination of instrumentals and from Duke Ellington and many other. The Great American Songbook Orchestra includes: John Colianni, John Leitham, Donny Osborne, Bob Milikan, Ross Konikoff, John Walsh, Frank London, Tom Artin, Rich Wiley, Timothy Newman, Jack Stuckey, Adam Brenner, Jerry Weldon, Jeff Rupert and Dave Schumacher.

There are plenty of lively tunes on this album that Mel Torme and The Great American Songbook Orchestra perform. In fact, just about every track on this cd is rather lively. The combination of Mel Torme's voice and a band such as The Great American Songbook Orchestra almost promises a lively and exciting album.

The CD begins with an instrumental called *You Gotta Try*. This song definitely starts the album out with an exciting start. It immediately begins with a bang and continues nonstop until the song is over.

Mel Torme begins singing on the



Mel Torme and The Great American Songbook Orchestra have just released a new album entitled *Live at Michael's Pub* which includes old favorites of yesteryear.

second track entitled *Ridin' High/I'm Shootin' High*. This song continues the high tempo of the cd which the previous track started.

Torme starts the third track, *You Make Me Feel So Young* with a joke about the meaning of the song and then continues with the song in a kind of mello but smooth voice.

Torme sings a Duke Ellington classic by the name of *I'm Gonna Go Fishin'*. This track is rather upbeat and among some of the best classic that are performed on this album.

The song *Rockin' in Rhythm*, the seventh track on *The Great American Songbook* is a relaxing and quiet song that may be a little mello but is worth listening to.

The track *It Don't Mean a Thing If It Ain't Got That Swing*, an old Duke Ellington song, is by far the best performance on the entire album. With the upbeat tempo of *The Great American Songbook*

Orchestra and the richness of Mel Torme's voice, the song is purely enjoyable to listen to.

Just *One of Those Things/Green Dolphin Street* is yet another upbeat song that may be considered among the best on the album. The track starts out with a high tempo and stays that way until it fades out. The second to last track on the album, *All God's Chillun' Got Rhythm* continues with the upbeat music that has been dominating throughout the album.

The final song on the album, *The Party's Over*, is rather short. In fact it is less than a minute long but ends the album with the same pleasing music that was performed on the whole album. All of the tracks on this album were good. Even though you may not be a huge Mel Torme fan, but you still like "swing" music and are open-minded with your choice of music, give it a try. It's good stuff.

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Up Evil is Front 242's latest smash on Billboard

By Mike Dienhart
Opinion Editor

A few weeks ago I was talking to a friend of mine, whose name I promised I wouldn't mention, about my lack of new music.

I've got something of a collection and it ranges fairly wide over the music spectrum (excepting of course, country) but I'd been through it many times and I needed something new.

After my anonymous friend heard this he presented me with his favorite CD. It was Front 242's 1988 release, *Front by Front*. I enjoyed it immensely and told my friend this, to which he responded that I better have liked it because he knew where I lived.

About a week ago, I saw on the reviewable music board in the office a new CD by Front 242.

I requested it, and now here I am writing a review on it. The CD is 06:21:03:11 *Up Evil*, but for the rest of this review I'll just call it *Up Evil* since we aren't supposed to print the word that the string of numbers represents.

I liked *Front by Front* because it was good music. It moved, and took me with it. This CD is much the same, but in a different way.

The first other group that came into my

mind when I listened to this CD for the first time was Trent Reznor's Nine Inch Nails. NIN, NIN is also great music, just right for those psychopathically depressed moods everyone gets into now and then.

After a while though, I realized that I identified *Up Evil* with NIN because they both use a sort of background static to set the tone of the CD.

That however, is where the similarity ends. Front 242 definitely has their own sound, and the songs on *Up Evil* are relatively upbeat.

The first song, "Crapage", was a great way to start the CD. The song segues into a steady rhythm from a beginning that seems to be only random noise. I've heard this style before somewhere and it's got to be art when a group can take noise and shape it into a rhythm that makes you want to get up and move.

The next song that caught my attention was number four, "Motion." Like its title suggests, this song has a beat that I think is very characteristic of the Front 242 that I've heard to date. This is the track that I thought to be closest to the dance-style songs I heard on *Front by Front*.

My favorite track, by far, on this CD is the seventh, "Hymn." It has a very moving beat that steadily dragged me into it until I

was beating time with most of my major appendages without even realizing it.

The only song that I felt pulled this CD down was "Fuel," right after "Hymn." The song reminded me too much of my dad's old record player that had an incredible tendency to skip over the same section of a record until someone kicked it hard enough to send it into the next song. "Fuel" starts out repetitive, and just doesn't get any better.

In the way of lyrics on *Up Evil*, let's just say there weren't too many. Then again, maybe there were, but you would need to be holding the music sheets in front of you to follow them as they are not provided with the CD. A few of the songs on *Up Evil* did have understandable phrases that were repeated over and over like a mantra, but in general they only added to the beat.

Overall, I'd say this is an excellent release by Front 242. As it is just under an hour long, it's a CD that you're getting your money's worth for.

I enjoyed this CD and think that if you liked their previous releases, you'll like this one too. I give this CD four out of five repeat buttons because it is definitely worth it. It has nothing to do with the fact that Scott, my anonymous friend, still knows where I live.



Front 242's unusual cover catches the eye of the viewer



Show was recorded at the Palace in Detroit, Michigan.

The Cure's latest album *Show* displays the bands unique ability to perform

By Tim Hall
Staff Reporter

It's here, the latest release from the Cure. The name of the CD is "Show" and it is a compilation of live tracks from their recent tour. It is full of their more popular tunes as well as some very hot instrumental stuff.

Overall I thought the CD was excellent. That is probably because every time I played it around my girlfriend, she became as horny as a toad for some reason. I guess she really digs the Cure, but that's not the only reason I liked the CD, it also has some great songs.

Hearing songs like "Pictures of You," "Just Like Heaven" and "Never Enough" (our personal favorite) sung live in concert seemed to freshen them up a little bit. Not that they needed it of course, but you get the feeling that these guys were just

cutting loose on stage and improvising solo sections as they went along.

Sometimes all that is left of the originals is a familiar rhythm filled with some really groovy guitar riffs.

The Cure has been around for quite some time, but here's a little refresher anyhow. It is a five man band; Boris Williams on the drums, Perry Bamonte on guitars and keyboard, Simon Gallup on bass, Porl Thompson on guitars and keyboard and Robert Smith, vocals and guitar.

"Show" was recorded at the palace, of Auburn Hills, Detroit, Michigan by Effanel Music Inc. NY.

So if you have not figured it out by now, I would definitely recommend adding this CD to your collection. It can do wonders for your sex life, not to mention the fact that it is cool listening even when your girlfriend is not around.

Even if your not a big Cure fan or aren't

even sure what the Cure plays, this album might just get you hooked on them.

I guess if you have to put The Cure in a category it would probably be somewhere along the lines of progressive/alternative in spite of them having been around for ages.

If your not into progressive bands, don't trash The Cure because of how I stereotyped them, try it, you'll like it, I promise. So give up your fear of the new, and give it a listen.

It can do wonders for your sex life, not to mention...cool listening even when your girlfriend is not around.

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AXA

By Matt Macri
Co Historian

Top 10 reasons AM's rushed Lambda Chi:
10. To wrestle with trigger
9. Tiny

8. To gain respect
7. Fast cars, fast food, fast woman
6. More fun than Disney
5. Free steroids for greek week
4. To party with Michael Jackson
3. It's where you belong, jail
2. Look really good in green
1. Scared for their lives...



Members of Lambda Chi Alpha fraternity pose for a group picture after a recent car wash at Hooters.

Aerospace Society

By Matt DeVitto
Historian

At this week's meeting, we will be having an astronomy night with Dr. Fleck of the Physics Department. He will be speaking to us about the life cycle of a star. The date for the canoe trip has been

changed to this Saturday, October 9th, so everyone pack your life vests.

The trip to Wet 'n' Wild was fun for all who went. Everybody got soaked. The speaker from McDonnell Douglas at last week's meeting was informative and interesting. See you at the meeting tonight at 7 p.m. in room E-611.

AHP

By Dominick J. Dunnigan
Historian

The pledges have begun their journey to brotherhood. Their first lesson is complete after a busy yet productive week. As expected, a few have realized that procrastination is not a key tool in the "Country of Rich." Let's hope they get it together for next week's lesson to avoid a Special Delivery.

Chris, our public relations Brother, organized a group to participate in a walk-a-thon last Saturday. The group consisted of Chris, Derek, Doug, Bawston, and myself. We walked a distance of four miles in the DeLand area, and raised approx-

imately \$200 for the American Heart Association. Chris is currently organizing and planning for upcoming charity events.

Football season has started and is well on its way. Unfortunately we lost our first game on the 26th, but we were glorified with victory this past Sunday. Our coach, Sam Greco, is confident that the team will go to the playoffs again this year. Games are every Sunday. See you there to cheer on the team!

Trivial Hiit: White Four Wheelin', don't be deceived by what appears to be a harmless dip in the terrain but which is ACTUALLY a Bronco-eating sinkhole!!

Have another prosperous week!

Rugby Club

By Dominick J. Dunnigan
Historian

The Daytona Beach/Embry-Riddle Rugby Club suffered its first defeat of the season against the West Palm Beach Pirates Saturday, Sept. 25. The Pirates are considered to be one of the toughest Clubs in Florida this season, and with the final score being 20-22, our team had nothing to be ashamed of. Daytona/Riddle led off the game by scoring the first 3 points on a penalty kick, but it was then tied up a few minutes later by a West Palm penalty kick. Midway through the second half, Daytona once again took the lead with a 5 point try followed by the 2 point conversion kick. At the end of the first half, the score was 10-3 in favor of the Coconuts (our Club's nickname).

The second half was led off by a big scoring drive by West Palm, but Daytona came back once again and took the lead, late in the game.

However, West Palm Beach made the game winning try and conversion in the final seconds to put the deciding score in favor of the Pirates. The Coconut's record now stands at 2-1 for the season.

Our Club coach, Jerry Keating, said the game, although a tough defeat, "was one of the best played and exciting games" he had ever seen by our Club thus far. Also, the "B" side scrimmage following the West Palm game was said to be an outstandingly played game by the mostly Embry-Riddle players. Unfortunately, this too was a loss. However, "Rob-Bob", "Surfer", and myself (the Club writer), had a good time of taking off some heads and causing "hatred and discontent" among the other team.

Don't forget that this weekend is the big (and only!) home game. Come on out Saturday, and support the Club. We look forward to seeing you there. The Club will be passing out flyers with more information on the game.

ERFSEDS

By Eric Goss
Public Relations

Thanks to those who came to this week's meeting. Saturday, the 2nd, we had a Sun intro. Session. It was interesting and informative. The calendar has been revised.

The new calendar is in the glass case. Check it out.

T-shirt designs are due by 3p.m. on Tuesday the 5th. Please turn them in to the club box in Student Activities. At the next meeting, Dr. Webb will be speaking about the Delta Clipper. Hope to see you there.

Air Force ROTC

By Daren Tilman
Public Relations

The summer has come and gone with 24 out of 27 juniors returning from Field Training at Air Force Bases around the country. Cadets took rides in T-37 aircraft, qualified on the 9mm, underwent survival training, and many other activities over a four week period.

This semester has been extremely busy so far with over 200 cadets participating in Commander's Call.

Special Operations, intramural sports, and Arnold Air Society. Also, the eighth of eight EXPS scholarship applicants was awarded to Michael Yates.

With so many cadets involved in ROTC, this semester promises to be filled with fun activities, educational experiences, and good camaraderie. Anyone interested in joining AFROTC or applying for scholarships should go to the Air Force building located next to Doolittle Hall.

Clubs Policy

- All articles must be type-written, double spaced or on disk format (unformatted in Word Star or Microsoft Word).
- Deadline for submission of all club material is **Wednesday at 5 p.m.**, one week prior to publication.
- Photos may be submitted with club articles.
- All submitted material becomes property of the Avion with the exception of disks.
- The Avion reserves the right to edit all submitted copy.
- For more information stop by or call *The Avion* office at (904) 228-6049.

Army ROTC

By Dominick J. Dunnigan
Historian

On Thursday September 23 Embry-Riddle's Army ROTC Eagle Battalion conducted their annual rappelling clinic. The clinic, planned by cadet Tad Holburn, took place at the Tiger Bay Rappelling Tower.

First and second year cadets from ERAU, Bethune Cookman College, and Stetson University were given instruction on the basics of rappelling by cadets Rich Hedge, a recent graduate of the Air Assault school and Dean D' Ambrosio, a graduate of the Northern Warfare Leadership Course in Alaska. Upon completion of the initial

training and demonstrations, it was time for everyone to show what they had learned. All the cadets who participated successfully made their first of many rappels down the forty foot tower under the watchful eye of the tower Rappel Masters; Master Sergeant Scott and Sergeant First Class Jarrett.

Due to the excellent planing and instruction, the cadets not only left the clinic with new skills, but greater confidence in themselves and their abilities.

Upcoming events for the Eagle Battalion: the Ranger Challenge Team goes to the University of Central Florida for their first competition. Carry on the tradition-WIN!

ΔX

By Dominick J. Dunnigan
Historian

Oh My! And once again, what a week it's been! Congratulations to our brand new pledges - this is one decision you will never regret. If this past week is any indication, it's going to be one HELL of a semester. Friday night's spaghetti binge was an enormous success, largely in part to the culinary skills of brother Weird Al. Outstanding Job. So what was that mystery seasoning anyway?

Moving right along, the H20 Holocaust continues with Sigma Pi joining the fray. Sigma Chi Ron took a "ditch digger" in their front yard and showed us all the true meaning of a wooden leg.

After much anticipation, we finally did clean up our Adopt-a-highway section. Jeffrey and Hawg drove by

periodically to make sure we weren't having any trouble. Who says D-Chi's don't look after each other?

HEARD IN THE MAIN HOUSE: Psycho Ward- "Turn off that damned alarm, Marmaduke!"; Penthouse- "Quit laughing Salamander, just get me a steak for my eye!"; Lily Pad- "Do we know each other?!"

Hey "Putzy", I hear they do it differently in NY! That reminds me, Sam- Pat Benatar called looking for her undergarments, you might want to check the trunk of your car. Speaking of trunks, have you been to the Spot lately, Eveready? The D-Chi quote of the week: WHAT THE???

I'll leave you with one final thought: I had a friend who was a clown. When he died, all his friends came to the funeral in one car.

SCAT

By Daren Tilman
Public Relations

SCAT, or The Society of Commercial Aviation Technicians is a club created for, and run by students who are taking classes in the Aviation Maintenance field.

We have started the year off having just come back from a trip to Delta Airlines' flight line in Orlando. The midnight excursion allowed members a chance to get to know the ins and outs of MD 80s, B-727s, B-767s, and the glass cock-

pit MD 11. The second trip to Delta's flight line will be on October 15.

This Saturday (October 9) SCAT will host the semester picnic at Ponce Inlet. Come for the fun, the sun, or just for the food. If you haven't signed-up for the Volleyball competition, make sure you do so now. Check your mailboxes or the glass display case in P building for additional information.

The next club meeting is on October 18 at 7:00 p.m. in room P153.

ΣΠ

By Daren Tilman
Public Relations

This is to those of you who are unenlightened to the greek system. Get a dog and name it life so you can have one. This does not say that greek life is for everyone, but this is for all those fourth year dorm-rats who think that fraternities are nothing more than paid friendships. Your mind may wallow in the quagmire of doubts as to why one must pay a monetary sum each semester. I'll tell you why. Every cent that you pay

encompasses every greek gala affair and every expedition during your tenure as a greek. When you visit another chapter of your fraternity you are guaranteed a place to stay, food to eat, and beer to drink. Brotherhood is for life, not just the few years spent at college. Brotherhood is giving 110% and taking only what you need. This is not a sermon; only an article to broaden your horizons as to what possibilities are available to you at this university.

Hail Sigma Pi, long live the brotherhood!!!

AIAA

By Chad Salo
Committee Chairperson

The Embry-Riddle student chapter of AIAA has been very active lately. The first Cape Canaveral Section dinner meeting of the year was held on September 23, 1993 at the cocoa Beach Country Club. John M. Powers, of Rockwell International, gave an interesting speech about the NAVSTAR Global Positioning System. His presentation included a system overview, a description of the GPS basic opera-

tions, and general information for the users of this system. The next section dinner meeting will be held on October 28.

Eighteen student members had a great time on the AIAA canoe trip September 25 at beautiful Wekiva springs. Even with the occasional "chilling" moments and sore muscles, fun was had by all.

If you are not yet a member, but would like to join AIAA, please fill out an organization information sheet in Student Activities, or attend our next meeting on October 14 at 6:30 in SH-2.

Sailing Club

By Bryan Rosko
President

Morning, fellow sailors! Once again we had another perfect weekend of sailing, sun, and great food. Saturday was a feast with the help of First North. Attention RA's: if you're looking for a good wing function idea, bring the gang down to the Halifax Sailing Center some weekend. We provide the boats and lessons, you provide the food. Sound like a good deal? Call me at 257-4270 for info.

The intercollegiate racing season is in full swing now. Last weekend we saw action at Rollins college where the Riddle team placed a respectable fourth. Yes, there were more than four schools competing, in fact, seven all together. University of Florida took top honors at the regatta, where the winds were nearly dead calm. Congratulations to Sacha Fecchio, Jason Tobin, Sara

Sandlund, Bill Keppel, and Mark Shannon for putting in a great effort for the team. If you are sitting there reading this article wondering how you can get involved in racing, get off your bum and call Jason Tobin at 252-3439. You are worthy!

Hey windsurfers- we're going to arrange a phone list of all the people interested in windsurfing. This will provide a means of getting together when the wind is blowing and you want to get lessons, go to the inlet, etc. To get on the list, write down your name on the sign-up sheet on our glass case (across from barbershop).

To all club members, watch your boxes for next meeting info. Also, if you haven't paid your dues, you shall die! See Leyla McLendon ASAP to get on good terms. That includes the officers by the way!

Final note: Big Birthday Bash coming soon, be ready. It's a simple matter of weight ratios!

GSA

By Kerwin McKenzie
Secretary

The GSA will have Mark Willis as guest this Friday, October 8, 1993 at 4:00 p.m. The meeting will be held in the Endeavor Conference

room next to the Career Center. Later this month, October 22, 1993, MAS alumnus Walter Houghton will speak in A109 at 4:00 p.m. Willis will speak on Airport Emergency procedures. Please plan to attend.

THIS THURSDAY, OCTOBER 7 AT 8:30 P.M.

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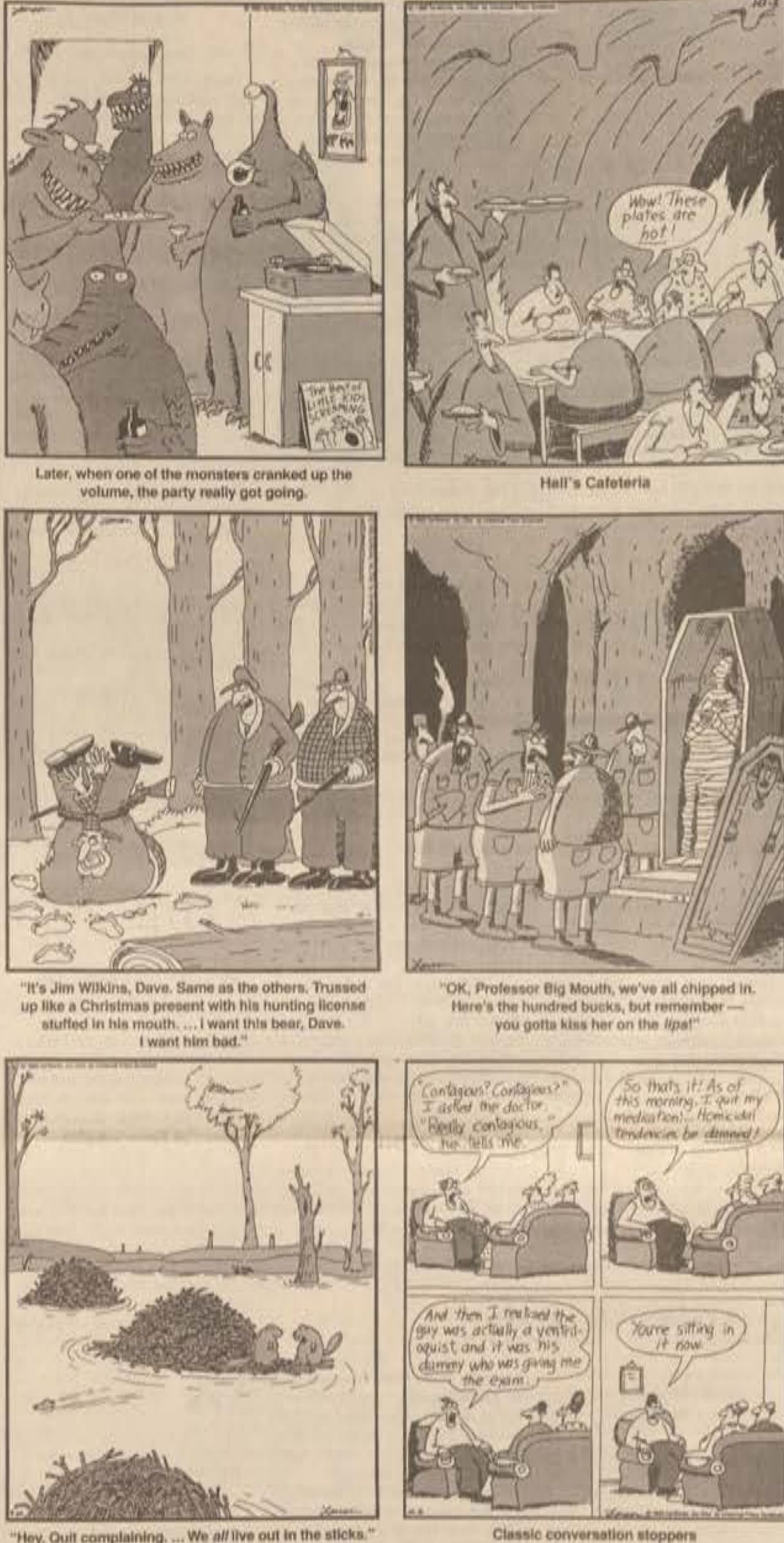
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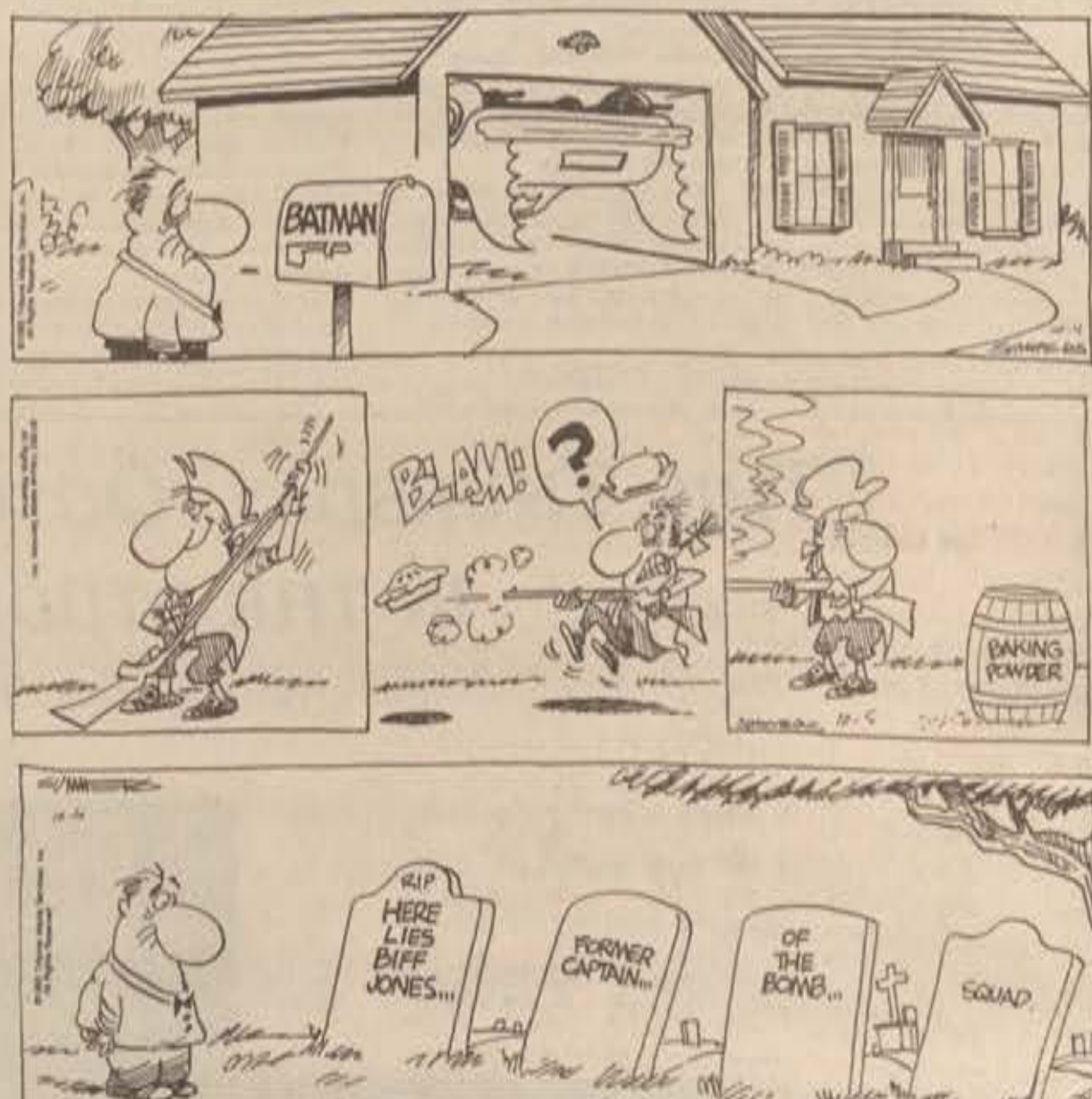
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Autos for sale

1973 VW Bug Custom interior, great beach car. Need some work \$1000 o.b.o 756-1859 (leave message).

For sale: KTM 600LC4 Dual purpose motorcycle (street legal). Year '89 Top condition. Asking \$2900. Tel. 322-1521 (Ask for Felix or leave message).

1988 Ducati 750 Paso Ltd., White and Black, NCR Pipe, fresh MP7 on rear, new chain and rear sprocket. \$4000 obo. Call Dan at 407-264-1342 in Titusville.

Yugo GT, performance intake and exhaust manifolds, digital fuel injection, H, compression heads, crane cam, 16" BDS wheels with 225 ZR 50-16" Goodyear Gator-backs. Very fast. Call Joe @ 322-0718. Best offer.

Roommates

\$125/month. Roommate needed male/female urgently to share a 4 bedroom secluded house on Beville. House is about 3 miles from Riddle and has huge front and back yards. Room is partially furnished (w/bed). Rent \$125/month plus 1/4 utilities. Call 761-5564.

Large studio apartment. Fully furnished w/ T.V. all utilities, incl phone, paid. \$400/mo. 253-6174

Roommate needed to share 2 bdrm, 2 bath apt. \$255 a month + 1/2 utilities. Available immediately. Contact Splinter, 760-8077

Beachside-Daytona Beach, wraparound balcony, 2 blocks from beach, plenty parking, washer/dryer, cable, A/C and heat, ceiling fans. \$240/month + 1/3 utilities. Call 238-2535.

Roommate please! Female, non-smoker, no pets. Needed for spring semester. Have own room in 2 bedroom apt. Pay 1/2 rent, electric + phone. 3 miles from FRAU. 2 pools, tennis. Call 238-0427.

Swimming pool, fireplace, great environment, fenced yard, washer/dryer, cable, central air/heat, screened porch, female to share bathroom with female. \$230 a month + 1/4 utilities. Call 238-2535.

For sale

For sale: Ray-Ban sunglasses. Like new. Only \$50 obo. (ret. price \$120) Call Carlos at 226-7548.

DOWNTOWN USED FURNITURE 9000 sq. ft. showroom. Tues.-Sat. 10-5:30 406 N. Beach St. Daytona 239-9884. Buy and Sell.

For Sale: 2 one-way tickets: Miami - Minneapolis - Orange County, CA or Miami - Detroit - Orange County, CA. Only \$125 ea. obo for Nov. 23 \$175 obo for any other date. Call Carlos at 226-7548.

Nordic-Trak Plus for sale. Almost brand new. Used a few times. \$250 obo. Call Roger at 252-0034.

2 fish aquariums: 10 gal \$5 ea., Goodyear Eagle racing tire (from SCCA Corvette) made into glass top table: \$15, 2 mirrors 3' by 4' (approx.) \$5, 2' by 2' \$3, 2 cases of clay pigeons (skeet shooting) \$5 each, working lawn mower, good cond. \$25, 258-2890 or box D-216, Michael.

Paintball gun for sale, Sheridan VM-68 semi-auto with constant air, used less than 12 times. \$220. Call Steve during day, 252-3367.

For sale: 2 Acoustic 125 watt home stereo speakers for \$300. Ferret house-broken \$50. Airbrush-Budger \$100. Call Chris at 767-9976.

Huge jacuzzi with everything. Pumps, tubing, and heater. 10 person tub all in good condition. \$550 firm. Great for frat's or clubs. Call now! 238-6088, and enjoy a cozy night later.

Miscellaneous

REWARD: Gold nugget bracelet lost 9/29 in vicinity of student center. Return to Sally, Career Center, 226-6054. REWARD.

For sale. Huffy 10 speed bike. \$35 call Greg 258 7521

For sale. Single bed in great condition. \$70 call Greg 258 7521

Multi-Engine Instruction: MEI or initial rating, \$70 block time. All other certificates and ratings also available. Gold seal flight instructor. Don 673-1546.

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Tired of typing? Let me do it for you! Same day service, available nights and weekends. \$1 per page. Also do resumes. Call Kim @ 756-8560.

Personals

QUEEN OF HEARTS. The real magic is not in my hands, but deep in my eyes. MAISTRO

KATRIN. Welcome to Daytona, you're finally here. We will make the best of it! I love you, and have missed you very much. LOVE ALWAYS, PETE

The wise old would like to remind you that nothing is free, but friendship shouldn't cost a thing.

HEY HAIL!!! So is your "friend" as "shy" as the last one?! I'll have to practice my karate!! Thanks sweetie for listening to all my whining! Ice cream this week!!! RED HEAD

M.P.O. "Why are simple things so hard, nothing ever goes too far. Roll it over in my mind for the hundred thousand time."

War is the taking of another person's things by force or by threats of force. This is also the definition of armed robbery. Funny though, war is still legal. THE BATHROOM PHILOSOPHER

If you are a member of Sigma Alpha Epsilon fraternity and transferred to Riddle, please call Mike at 788-2000, phi alpha.

Hey Carry Ann, Welcome to Sunny Daytona Beach! THE KING

R.J. Wot are ya doin' leesa? I can't bewieve it's weally you! Caw me sometime. I wuv you! POP WUNOPEN

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Clipper

(continued from page B2)

that is being fully designed by a private company," said Dr. Webb.

More to the point, the same private company will be the ones operating the vehicle. With this in mind, Dr. Webb added, "Anything that adds to the cost [of the Delta Clipper] is a danger." In short, during the building of the shuttle, the manufacturers benefited from any change in the design. In this case, the manufacturer doesn't benefit, as they are the ones paying for it. For this reason, McDonnell Douglas

built the most cost-efficient space vehicle possible.

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turnaround time of a month.

The last question regarding the economics of the DC-X is whether or not there will be a market for it. Dr. Webb stated, "Ariane has \$4.5 billion in back orders (for space launches) through 1998. Ninety percent of that could go on the Delta Clipper." The market exists now for a revolutionary vehicle that would offer reliable and inexpensive access to space, according to Dr. Webb.

Dr. Webb summed his vision of the Delta Clipper by saying, "I would suggest in a 50 year period that we will see thousands of these vehicles, and we'll see the DC-3 again."



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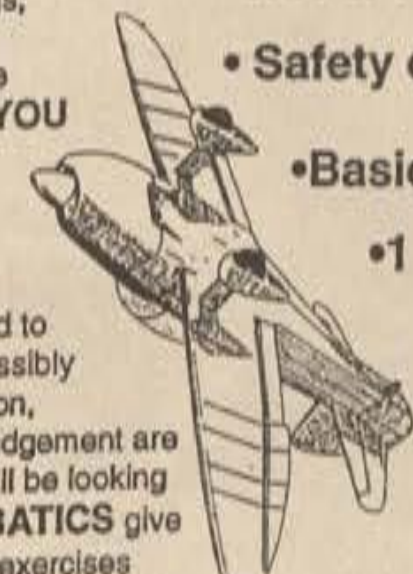
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