

7-27-1977

Avion 1977-07-27

Embry-Riddle Aeronautical University

Follow this and additional works at: <https://commons.erau.edu/avion>

Scholarly Commons Citation

Embry-Riddle Aeronautical University, "Avion 1977-07-27" (1977). *Avion*. 337.
<https://commons.erau.edu/avion/337>

This Book is brought to you for free and open access by the Newspapers at Scholarly Commons. It has been accepted for inclusion in Avion by an authorized administrator of Scholarly Commons. For more information, please contact commons@erau.edu.



The Avion

WEDNESDAY, JULY 27, 1977
Volume 26, Issue 5

Regional Airport
Daytona Beach, Florida 32014

By Mike Gearing

This is the question asked by most students roaming around the campus. As the student representative of the Pool Committee, I will attempt to explain a little bit about it. Dr. Tics W. Davis, senior Vice-President of the Winn Dixie Stores, donated a substantial amount of stock to the University. This donation is strictly for building a swimming pool. The pool is intended for on-campus use by the students and faculty. One stipulation stated in the donation is that the stock cannot be sold for cash before September 1, 1977. Plans for the pool are in the final stages of completion. The pool is being designed to meet National Intercollegiate Competition (N.C.A.A.) requirements, should the University want to have a swimming team in the future.

The pool will be L-shaped, being 25 yards by 25 meters. Four diving boards are planned, two 3-meter boards, and two 1-meter boards. The depth of the pool will vary from 14 feet in the diving area to 4 feet in the shallow end.

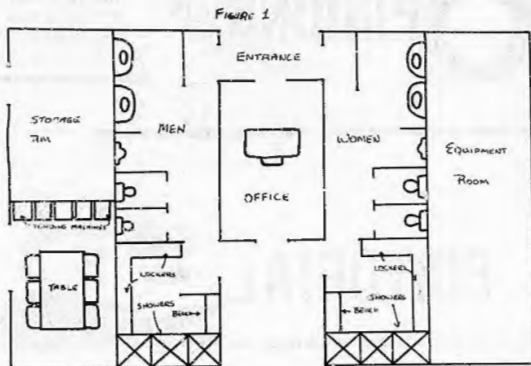
The pool will be heated by two sources; it's primary source of heat will be an aqua-solar heating unit which raises the temperature of the water about 12-16 degrees above that of an unheated pool. Gas heaters will serve as a secondary source of heating for colder weather.

A bath house will also be constructed to accommodate both men and women, and will include dressing rooms with complete bath facilities. A vending area will also be available for food and drink, (See Fig. 1).

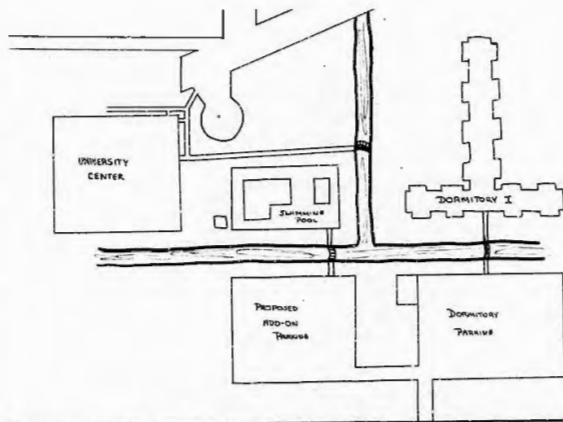
The location of the pool will be between the University Center and the existing dormitory. Additional parking will be added to accommodate the off-campus students using the facility, as well as provide additional parking for the dormitory students, (See Fig. 2).

Students wanting to get an idea of what the pool will look like, should stop by the Indigo Inn, located on U.S. Hwy. 92, to view their swimming pool. The design plans closely follow those of their pool. If all goes well and we encounter no unforeseen problems, construction will begin in September with a two month construction time allowance. At this time the plans have not been finalized and are subject to change. Students who have any additional questions or comments should contact the S.G.A. office.

Where Is The 1/2 ✓ \$?% & Pool???



BATH HOUSE



LYLDE MOCCIS FIGURE 2



NOTICES

Alex Wells, Director of the Graduate Center, will speak to graduates about Embry-Riddle's graduate programs in Aviation Management and Air Science on Thursday, August 4 at 2:00 pm in the Common Purpose Room, University Center.

July 25, 1977 was the deadline to be measured for your cap and gown, so you've already missed it. If you did, and you still want to participate, hustle yourself to the Dean of Students' Office and get measured... you might make it!

The graduate ceremonies will be held at the University Center on Saturday, August 20, 1977 at 10:00 am.

Graduates may pick up their caps and gowns at the Guidance Office in the University Center on Thursday, August 18th from 1:00 pm to 4:00 pm and one Friday, August 19th from 9:00 am to Noon.

On Saturday, August 20th, assemble in cap and gown by the Shipping Dock on the East Side of the University Center no later than 9:00 am. Graduates are requested to wear shirt, tie, trousers, dark shoes and socks.

Procedure Briefing: Dean Rockett (Student Marshall) will give instructions on name cards, marching, seating, photographs, turn in of cap and gown and diplomas.

When the ceremony has been completed return cap and gown at the Guidance Office. Diplomas will not be released until cap and gown are returned.

President's Reception for family and friends will be held immediately following the ceremony. Family and friends who desire to take pictures during the ceremony should be advised that seats are provided in the front row and that they should not stand in the traffic pattern.

In the July 13 issue of the AVION an error was made concerning the response letter written by Career Center Director, Warren A. Messner.

The article involved explanation of the Co-op program's required administrative fee which must be paid by the students before working on the Co-op plan. He explained that this fee is not for tuition. It helps pay for administering the co-op program. He continued by saying that in 1974 the University decided to apply for grant funds from the U.S. Department of Health, Education and Welfare to expand and strengthen the Co-op program. However omitted was the following:

"The intent then, as now, was to have the Co-op program become financially self-sustaining upon cessation of federal funds. To meet this goal requires increasing program staff this year, assuming we are successful in obtaining our third grant, and growing the program to 500 placements, one student co-oping for one trimester during fiscal year 80/81. As you can see, we have a long way to go but have made a sizeable start with some 100 placements during the second grant period."

WERU Saved By Security

By Michael with a "J"

Riddle Radio Station, WERU was broken into last week. Thanks to the Security force, the culprit was scared off before anything was stolen. He did manage to smash down the front door of the station, but that's all.

Security Chief Moccis was on the scene shortly after the incident occurred, even though it was 1:00 am, and a guard

was left at the station all night, until repairs could be made in the morning.

The Security force has been the brunt of many previous attacks concerning petty items such as parking tickets, etc. May I take the space here to thank the security staff for their diligence in patrolling the campus - due to their effort, the radio station was spared of

a great loss of expensive equipment.

I don't know about the rest of you, but as far as the student staff of WERU is concerned, the security people are doing as fine a job as their budget and manpower allows. I haven't received a traffic citation since I started obeying the campus regulations. If you have, then you're stupid.

ERAU Graduates 41 At Off Campus Center

Forty one Embry-Riddle students recently were awarded degrees at back to back ceremonies thousands of miles away from the University's main campus, here.

For the 41 graduates, the ceremonies marked the culmination of several years of dedication and hard work, often under trying circumstances. For the University, the graduations represented the final coming of age of E-RAU's off-campus programs.

In Worms, West Germany, 26 U.S. Army and Air Force members received Bachelor's and Associate's degrees in aviation programs ranging from Aeronautical Science to Aviation Maintenance Management.

Robert Coleman, E-RAU's associate dean for European military programs, pointed out that historic Worms was a particularly fitting site for the first E-RAU European graduation ceremony.

ERAU President Jack R. Hunt, in his Commencement address, praised the students for their untiring efforts in earning the degrees. He pointed out that they had overcome heavy odds in achieving their academic goals. Changing duty schedules, alerts, deployments and the other demands made

by military life had to be met and overcome by each of the graduates.

They attended classes on off-duty time at E-RAU Residence Centers in West Germany, England and Spain. The centers began operation three years ago.

At about the same time, 17 U.S. Army officers accepted degrees from E-RAU during Commencement exercises at Fort Knox, Kentucky.

These latest graduates bring to 49 the number who have earned 62 degrees at E-RAU's Fort Knox, Residence Center.

The 17 officers received their Bachelor's degrees in aviation and aviation management disciplines from Dr. Daniel Sain, Dean of Aeronautical Science, at the University's home campus.

By Pat Voelker

Student Weds Entertainer

When Embry-Riddle student Angelo Vigiotti met Ellen Mann last Fall, he had no idea that their romance would lead to his involvement with the theatre. Angelo, a fourth year student majoring in Aeronautical Sciences, is from New Jersey. Ellen was vacationing in Daytona from Washington, D.C. where she was a nurse. Ellen is now a R.N. in the delivery rooms at Halifax Hospital.

Angelo didn't know that Ellen is an experienced dancer-singer-actress whose theatrical career began when she was a member of a national ballet company at age 7. She appeared in over 30 dinner theatre productions in the Washington D.C. area and choreographed several musicals. Luckily for local theatre audiences, love brought Ellen to Daytona. In her first local audition, she landed the title role in "Sweet Charity" at the Daytona Playhouse. This was followed by the lead in "The Fantastics" and her current role as a featured dancer and chorus member in "The Unsinkable Molly Brown" at the Playhouse.

Angelo, whose hobbies include surfing and making string art pictures, found that rehearsals and performances are time consuming. For most of "Sweet Charity's" run, he was in the audience. During "Fantastics" he began to get involved in the backstage life but his job as a pinball worker on "Molly Brown" is his first backstage job. This entails raising and lowering the many blocks, painted backdrops and scrims used during each scene. The job requires muscle but also gives him an interesting angle from which to view the show.

Angelo and Ellen have postponed their wedding several times because of conflicts from work or her theatrical commitments, but Saturday afternoon, July 30th, friends from the theatre will be present for a civil ceremony uniting them in matrimony - just in time for the 8:30 curtain that evening.

As Angelo is working full-time at McFarland's Furniture Co. this summer, Ellen works full-time at the hospital and both are working weekends on "Molly Brown" through August 14th, the couple will have to postpone a wedding trip. Friends are welcome to offer congratulations backstage after any performance. The play runs evenings at 8:30 pm on July 29, 30, August 5-7, 12 and 13. July 31 and August 14 are 2:30 pm matinees.

CONTENTS

OPINIONS	2
FACES	3
AIRLINES & AIRLINERS	3
CLUB NEWS	4
CLASSIFIEDS	8

OPINIONS

THE OPINIONS EXPRESSED IN THIS PAPER ARE NOT NECESSARILY THOSE OF THE UNIVERSITY OR ALL MEMBERS OF THE STUDENT BODY. LETTERS APPEARING IN THE AVION DO NOT NECESSARILY REFLECT THE OPINIONS OF THIS NEWSPAPER OR ITS STAFF. ALL LETTERS SUBMITTED WILL BE PRINTED PROVIDED THEY ARE NOT LEWD, OBSCENE, OR LIBELOUS, AT THE DISCRETION OF THE EDITOR, AND ARE ACCOMPANIED BY THE SIGNATURE OF THE WRITER. NAMES WILL BE WITHHELD FROM PRINT IF REQUESTED.



EDITORIAL

By Ray D. Katz
AVION Editor

I usually like to start my editorial with a bit of good news, but this week there isn't any. The deeper I get into the SGA politics, the more problems I uncover. At this time I can only enumerate them; without more facts it would not be good journalism to make unsupported allegations.

Here are a few of the problems I've found:

- Where's the new S.G.A. constitution, and what is its status?
- Why wasn't the movie shown Saturday night?
- When does the S.G.A. Senate meet, why aren't the meetings publicized, and why aren't the minutes made available to the rest of the student body?
- What's the status of the Phoenix, and when can we expect it?

If you are interested in the answers too, please stop by the S.G.A. office, and ask whoever you can find. If I can get enough information myself, I'll run a story and let you know.

I want to apologize to those of you waiting to know exactly what President Hunt's answer on the NIFA snafu was. I did not realize that there was as much interest as there seems to be. You'll have to be patient just a little longer, and I'll be printing an interview with President Hunt in which I'll let him answer.

letters to the editor

PRESIDENT'S CORNER
John O'Neal
SGA President

Dear Editor:
Concerning the recent article in "Airlines and Airlines" (July 13, 1977), I might point out that the DC-10 is built in McDonnell Douglas' Commercial Airplane Division facility at Daugherty Field in Long Beach, California. Their Military Aircraft Division is located at Lambert Field in St. Louis, Missouri.
Also why don't we get off this Douglas "kick", and have some articles on QUALITY aircraft from The Boeing Company. Thank you.

equipment, the problem is not caused by the intent to slight any manufacturer. At present we are running those articles submitted by Bart Broeneveld and news releases from the various manufacturers, as we receive them. I would be more than happy to run an article on Boeing, if you would care to write it.
Sincerely,
Ray D. Katz

Sincerely,
Kenneth G. Madden

To start off with, I am not an apathetic student. And second, I am making an effort to state my complaints about our rapidly declining food service. Here are a few of my gripes:

- (1) There is a poor selection of food.
- (2) The food is expensive & not enough is given for the price paid.
- (3) It's bland-tasting & old
- (4) The employees lack motivation & they are also rude & inconsiderate to the students
- (5) The only practical reason to eat here is out of convenience.

RESPONSE FROM THE EDITOR.
The following is a letter sent by the editor to Mr. Madden.

Dear Ken,
I just received your letter, and am glad to see that somebody out there actually reads the AVION. In response to your comment regarding the lack of articles on Boeing

Daniel G. Eidman

PRICES MAY GO UP

By Mike Gearing

As chairman of the Food Service Committee, I would like to inform you students of a matter that was brought to my attention. The director of Embury Riddle's Food Service approached me and told me that he is going to have to raise the prices in the cafeteria due to the students failure to return their trays to the dish window. The manager of the cafeteria is required by the University to keep the cafeteria tables clear. He is having to pay someone to spend practically all day out there clearing tables where it really isn't necessary.

If you don't want to see the prices go UP then do your share in keeping them down. Bring your tray back to the return window and remind the person next to you to do the same. The Director of the Food

Service said that if he gets the cooperation of the students in this area, he could afford to put on a "SPECIAL" each month for the students.

The Student Government Association is also looking for interested students to serve on the Food Service Committee. The purpose of the committee is to bring to the attention of the cafeteria manager, any problem areas associated with the food service and recommend corrective action. The committee would consist of six students and meet twice a month or when it deems necessary. If you are interested in being part of the committee then drop a note in the S.G.A. office. **IFF WE DON'T HEAR FROM THE STUDENTS, THEN WE ASSUME EVERYTHING IS GRAND!**

Another problem that was brought up is when is the security going to start giving speeding tickets in the parking lot. There are a lot of our fellow female students who seem to think the parking lot is the Daytona Track. Also there is the problem with the food service. If you have any complaints see Mike Gearing or stop by the SGA office. When presenting these problems they tell us that we need to be specific with our complaints.
Well, that is enough scuttlebutt for now. I want to congratulate the VETS Club on a job well done with the pie throwing contest. I heard they made out real well. Don't forget to come out to the movie on Friday night.

John O'Neal

VP THOUGHTS

By Dave Fraser

Area representatives of the different Chamber of Commerce around Daytona were guests of the Board of Visitors here last Saturday night. They had an excellent dinner followed by a slide presentation that depicted life at Embury-Riddle. All in all the various representatives enjoyed themselves very much.

I would like to express my appreciation to the student guides who toured the members around. These people were so impressed that many of them asked for the guide's name. These guides definitely enhanced the atmosphere of the night.

Although I didn't correct this fact still upset me that it was said to these people that the food they were savoring for the night was cafeteria food. Sure it was cooked in our kitchen, but they sure left the impression that this kind of food is served to the students, which was very deceiving.

DRESS for SUCCESS



BANK PRESIDENT



REALTOR



FAA OFFICIAL

THE AVION STAFF

EDITOR: RAY KATZ
 ADVISOR: JEFFREY M. RUBIN
 NEWS EDITOR: VACANT
 ADVERTISING MANAGER: VACANT
 BUSINESS MANAGER: KENNETH KEENE
 LAYOUT: AMANDA BEACH-IMP
 COLUMNISTS: IGNACIO FALCO, FELIX A. GARCIA, BART GROENEVELD, KENNETH MADDEN
 REPORTERS: GLENN BERGMAN, HELMUT H. REDA

PHOTOGRAPHY: BILL DOLLAWAY
 PHOTOGRAPHERS: JOHN VELLINES, CHUCK HENRY
 ADVISOR: AEE HARBEN
 SECRETARY: JEAN SNYDER

Volume 26, Issue 5
 Wednesday, July 27, 1977

Published weekly throughout the academic year and bi-weekly throughout the summer and distributed by THE AVION, Embury-Riddle Aeronautical University, Daytona Beach Regional Airport, Daytona Beach, Fla., 32114. Phone 232-5561, extension 313. Trimester Subscriptions: \$3.00.

FACES



Mrs. Anne Armstrong
Braniff Air Lines Director
(Photo by: Diana H. Walker)

ATLANTA, Ga., June 21 - Mrs. Anne Armstrong and Mrs. W. Averell Harriman today were named to the board of directors of Braniff International Corporation.

Braniff Board Chairman Harding L. Lawrence announced the election of the two prominent women following a special meeting of the directors here at the airline company prepared to inaugurate service to Atlanta on July 28.

Lawrence said the board of the Dallas-based company was being expanded from 12 to 14 members and will now include three women. Mrs. Albert D. Lasker of New York, president of the Albert and Mary Lasker Foundation, has served as a Braniff director since 1971.

"We are extremely pleased and fortunate that Mrs. Armstrong and Mrs. Harriman are able to join the Braniff board," Lawrence said. "Their guidance and counsel will be invaluable."

Pamela Harriman, married to the former governor of New York and distinguished diplomat, resides in Washington, D.C., and is a member of the board of directors of the Mary W. Harriman Foundation and the World Rehabilitation Fund, Inc., and also was recently named to Rockefeller University Council in New York. She is a native of England and former reporter for the London Daily Express. She was previously married to Randolph S. Churchill and her son, Winston Churchill, is a member of the British Parliament.

Anne (Mrs. Tobin) Armstrong recently returned to the Armstrong Ranch in South Texas after serving as United States Ambassador to Great Britain. She served as co-chairman of the Republican National Committee from 1971 until 1973 when she became the first woman counselor to the President with cabinet rank, and was reappointed to that position by President Ford in 1974. She is a member of the advisory board of the Center for Strategic and International Studies, Georgetown University, and this fall will be the Edmund A. Walsh professional lecturer in diplomacy there. Mrs. Armstrong is a trustee of

Southern Methodist University, a director of the Alliance to Save Energy and chairman designate of the English Speaking Union of the U.S. She serves on a number of foreign policy organizations including the Atlantic Council, the Atlantic Institute and the Trilateral Commission.

In other activity at the Braniff board meeting today Lawrence reviewed plans for the airline's start of service in Atlanta on July 28. The airline, 14th largest in the world with a 30,000 mile route system throughout the United States mainland and to Hawaii, Mexico City and South America, will inaugurate new non-stop routes between Atlanta and both Denver and Oklahoma City as recently authorized by the Civil Aeronautics Board.



Mrs. W. Averell Harriman
New Braniff Air Lines Director
(Photo by: Diana H. Walker)

Experimental Plane Uses NASA-Developed Technology

KENNEDY SPACE CENTER, Fla. - It cruises high above traffic-jammed roads at up to 200 miles per hour, has a range of about 800 miles and gets an enviable 38 miles per gallon of gas.

"It" is the home-built Vari-Eze ("very easy") airplane constructed for an investment of some \$6,000 and six months of time by John Murphy of the Kennedy Space Center's Technology Utilization Office.

In many respects, John's new plane is an oddball. Except for the engine and engine mount, the plane is built entirely of fiberglass and styrofoam. Long but narrow nose-mounted canards and a "pusher" engine provide the illusion that the plane and the occupants of its teardrop-shaped cabin are flying backwards.

Despite - or perhaps because of - its strange appearance, the plane incorporates several technological advances, including a NASA-developed winglet which increases efficiency by unwinding wingtip vortex and reducing drag.

The winglets - vertical fins on each wing tip - increase the aircraft's efficiency by approximately eight percent. The winglets were recently developed by Dr. Richard Whitcomb of NASA's Langley Research Center, Hampton, Va., and are already being used on a limited number of new aircraft.

Murphy built the plane at his home in Cape Canaveral and cut the first piece of foam

on December 8, 1976. Work was completed on June 12 and he took it up from TiCo Airport for its first flight on June 30.

Some Brevard residents may have already spotted Murphy's pride and joy. He's now building up the 60 hours flying time required by the Federal Aviation Agency so that he can fly it to the annual meeting of the Experimental Aircraft Association in Oshkosh, Wisconsin, in late July and early August.

Making the flight with him will be his youngest son, Steve, 13.

"Thousands of experimental and factory-built aircraft will be there," said Murphy. "We're looking forward to it."

It was at last year's show that John was exposed to the unique plane, designed by Bert Rutan of Mojave, California. The plane does not come as a kit; Rutan provides only plans and guidance.

For Murphy, the work went faster than for most who've undertaken the project. He's been flying for 30 years and owns another aircraft which he rebuilt.

Wing construction is much like that of a surfboard. The Shape and airfoil are cut out of styrofoam and then covered with fiberglass. Internal strength is enhanced by fiberglass spars and shear webs.

"It's a great plane to fly," said Murphy.

The aircraft weighs only 630 pounds and is powered by a 100 horsepower Continental aircraft engine. Designed pri-

marily as a high speed, cross-country aircraft, it requires 1,000 feet for take-off and will land in about 2,000 feet. Cruise speed with two passengers is 200 miles per hour.

Murphy described its high altitude performance as "good" and noted that it has a climb rate of 1,500 feet per minute.

The plane's cabin is somewhat less spacious than a 747, DC-10 or other wide-body jet. How's the ride?

"Although small inside," said John, "it's very comfortable."

Much of the plane's odd appearance is due to the forward-mounted canards. These - rather than the usual elevators in the tail assembly - provide pitch control. The nose wheel is retractable; the main gear are not.

John's flying and technical background helps with the plane's construction. He's a 1967 graduate of Georgia Tech. With NASA since 1964, John's function at KSC is to serve as the focal point for new technology developed here and making it available to American industry.

Completing the 60-hour test program required by the FAA has had its fringe benefits during the hot Florida summer. "I usually climb up to about 6,500 feet where it's cool," said Murphy. "It's only about 65 degrees up there."

As of July 11, Murphy has logged 24 of the 50 hours required by the FAA before his aircraft is cleared for normal use.

Allegheny

WASHINGTON, D.C. - Allegheny Airlines today reported a profit of \$1,306,000 on revenues of \$41,202,000 for May, compared with a profit of \$2,633,000 on revenues of \$37,982,000 for May 1976.

Wage, fuel and other cost increases since last May have exceeded passenger fare increases allowed by the Civil Aeronautics Board and resulted in a lower profit this May. Since last May passenger fares have increased only four percent while costs have risen at a much more rapid rate. As an example, Allegheny said, fuel cost per gallon has increased 20 percent since last May.

For the first five months of 1977 Allegheny reported a net loss of \$8,235,000 compared with a net loss of \$3,880,000 for the same period of 1976.

Revenues for the first five months of this year were \$183,432,000 compared with \$168,917,000 for the same period of 1976.

Upward Bound Wins In Olympics

By Dr. Ron Wiley

On July 14, the Embry-Riddle Upward Bound students traveled to Gainesville to compete in the statewide Upward Bound Olympics. Approximately 600 students competed in a variety of events ranging from college bowl to weight lifting.

The Embry-Riddle Upward Bound students received ribbons in 20 individual events and won first place trophies in girls basketball, mens tennis, and the college bowl. The women placed second overall in a full day of track events while the men placed fourth. It was felt that Embry-Riddle could have made a better showing in track if they could have had the services of Walter McCoy.

Walter is ranked third in the nation among high school and college students in the 440 yard dash. Walter could not attend the Upward Bound Olympics, as he is currently participating in international track competition in Europe.

While on campus, Embry-Riddle's Upward Bound students attend four hours of classes each day and two hours of projects. They are also distinguishing themselves in these areas. Attendance and punctuality for all classes and projects is about 98.8%.

The students will present a talent show on August 2, and will have an awards banquet on August 5, 1977.



AIRLINES & AIRLINERS

LONG BEACH, Calif. - last week the government of Ghana purchased a DC-9 Series 50 twin-jetliner from the McDonnell Douglas Corporation for operation by Ghana Airways over its regional routes along the west coast of Africa.

The Ghana Ministry of Transport and Communications in making the announcement in Accra, said the new transport will replace a DC-9 Series 50 which Ghana has leased from Hawaiian Airlines and flown over the same routes for the past year. Delivery of the new aircraft is scheduled for next spring.

Largest of the DC-9 models in production, the Series 50 will carry up to 139 passengers in a single-class cabin. Ghana Airways, however, will operate its DC-9 in a mixed-class arrangement of 12 first class seats and 110 economy seats.

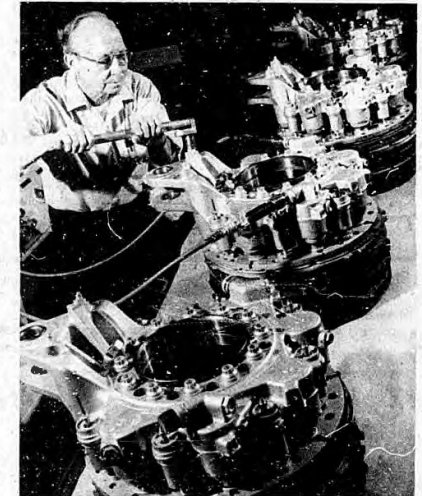
Ghana Purchases DC-9

The "new look design of the interior will feature the spaciousness of five-abrest seating, enclosed overhead racks for carry-on baggage, sculptured wall panels molded around the windows, indirect lighting and a broad, contoured ceiling.

Two Pratt & Whitney Aircraft JT8D-17 turbofan engines engines will power the Ghana DC-9. Each of the engines is rated at 16,000 pounds (71,168N) of thrust at takeoff.

The DC-9 Series 50 is 133.6 feet (40.72 m) long, has a wingspan of 93.4 feet (28.47 m) and height of the distinctive T-tail is 28 feet (8.53 m). Maximum takeoff weight is 121,000 lbs. (54,420 kg). A total of 1034 cubic feet (28.95 cu.m) of space is available for cargo in the below-deck holds.

Ghana Airways is the 11th airline to order the DC-9 Series 50. Produced at the McDonnell Douglas facility here, the DC-9 Series 50 entered commercial service in August 1975. Firm orders for all five models of the DC-9 total 884, plus 27 conditional orders and options, for a grand total of 911, of which 855 have been delivered.



TEST PRESSURE - New multiple-disk brakes for the DC-10 jet airliner undergo hydraulic pressure checks at Goodyear Aerospace in Akron, Ohio. At maximum hydraulic pressure, one DC-10 brake can stop the equivalent of 60 cars traveling at 55 mph. Depending on the model, each DC-10 is equipped with eight to 10 of the 456-pound Goodyear brakes. (Photo courtesy of Goodyear Aerospace Corporation)

Carvel
ice cream
IN-K-MART PLAZA

ROOT BEER
OR
COLA FLOAT

59¢

WITH THIS COUPON
OFFER GOOD UNTIL
AUGUST 9

daytona beach aviation

WE CARRY A COMPLETE STOCK OF PILOT SUPPLIES
SPECIAL ORDER AVAILABLE IF NEEDED!
Starting July 24, New Charter Service Prices
Competitive with Commercial Airlines.

we rent:

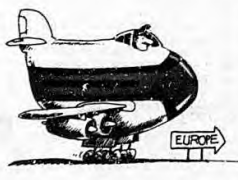
CESSNA 150 AT \$16.00 PR HR WET
CARDINAL RG AZTEC

CESSNA 172

If you are checked out by an Embry-Riddle instructor and are current, no check-out is required by Daytona Beach Aviation in C-172's

Mooney AND Cessna SALES AND SERVICE offered!

at the base of the tower - call 255-0471



SORRENTO DELICATESSEN, INC.

Within Walking Distance of School
In the K-Mart Shopping Center

SUBS, HEROES, RUBINS, & PIZZAS
DAILY SPECIALS ON DINNERS

COMPLETE NEW YORK STYLE DELICATESSEN

OPEN 8 AM TO 10 PM Phone 255-1817

SIGMA CHI

By Mike Ruganis

Hello, well it has been another fun two weeks at the Sig House. Just last week it became summer clean up time, and we attacked it in real style. Last Sunday all the brothers manned their brooms, mops, rakes, and shovels, and thoroughly cleaned the house, inside and out. We had a great time and did alot of work, too. I'd like to really thank all the brothers who helped.

After the cleanup we celebrated with a pool party. With a keg of beer, plenty of hot dogs, and munchies we whipped up a hell of a party. In true Sigma Chi form it proved to be a wet and wild way to spend a Sunday afternoon. We're all looking forward to another one this weekend.

In two weeks four of our brothers will be going to Bowling Green State University in Ohio to represent our chapter in the Sigma Chi National

Workshop. For those of you who aren't familiar with a workshop, this is where delegates from every Sigma Chi chapter have the opportunity to get together and discuss problems and programs, and exchange ideas. It is a great learning experience and proves to be alot of fun also. This year's delegates are Dave Campbell, John Wrightington, Mike "Doe" Plapp, and Mike Ruganis. We wish them the best of luck.

Remember, if any of you are interested in fraternities or are interested in some of our activities and would like to find out some more about Sigma Chi feel free to drop in anytime over at the House on South Ridgewood. The door is always open, and talk with some of the brothers, or just grab a brother at school, they are always willing to talk. Well, 'til next week. Bye, Bye!

AFROTC

By Bradford King

Air Force ROTC is up and coming, and in more ways than one. I would like you to take an active part in it. What is AF-ROTC. Simply stated, it is a college course which is designed to provide the necessary education to qualify you for a commission in the United States Air Force. But that's the textbook answer. Here at E-RAU AFROTC is much, much more.

This cadet corps is a growing group who enjoy their common interests. The AFROTC encompasses everything from beer calls, softball, football, field day, dining-ins, all the way through inter-flight competition and drill team. Surprised? Well, that's great, since ROTC is really more sociable than many realize. For those of you who are beginning to think of the upcoming Fall trimester, and are

curious what ROTC has to offer, I would like to extend a personal invitation as Cadet Commander for the Fall term, to sit and talk to you for a while and answer any questions you may have.

Although AFROTC is inactive during the Summer, there are still many of us who are on campus actively planning for the Fall. I welcome any and all questions (or suggestions for next term. Whether you catch me in the UC, or drag me down to Big Daddy's, or publish your questions through the AVION, I want to answer your questions. It's not too late for any Freshman or Sophomore, or any ex-warrant officer types, etc. Contact me through Box 4022, or call me in the evenings at 761-1825. Hope to hear from you.

VETS

THE BEE DEE JIVE

If you are not an active member of the Vets Club, an associate member, a member of the Women's Auxiliary, or have never been a guest at one of our many functions, then you are not getting the most out of your leisure time. During B term the club has perpetuated the precedent it has set for outstanding social events, sports performance and student action. Already the club has set an active pace for these events beginning with the first business meeting of the term, through two social functions, a special business meeting, and by now another softball season championship.

The business meeting started us out on the right foot for the term by welcoming back Kenny Houser and Kenny Holcard as associate members, a smart move especially where our softball team is concerned. The meeting also covered the planning of future B term events. The addition of pilot supplies to the Used Bookstore inventory (a full line of supplies at the best prices around), and Mike Drake was named committee chairman for the 1978 Riddle Regatta. Of particular interest at the meeting was the introduction of a slight increase in the club dues anticipated for the Fall Trimester, raising the dues from \$7.00 to \$10.00 in order to defray some of the climbing costs for activities as well as the problem of a declining active membership due to the drop in Vet enrollment at E-RAU. There may also be a slight increase in the cost of Vets Club shirts to approximate a break-even point, but the shirts are still a bargain at twice the new price. And the last of the bad news was the resignation of Steve Marinan as vice president of the Club,

not to mention the loss at second base.

The following day kicked off the social calendar with the second annual party at Ponce Inlet, though the gatherings there seem to be a bit more frequent. It was of course another fantastic day in the sun with the usual plentiful provisions of delicious food and drink. The surf enticed our own beach boy, Steve "Crash" Curtain to dazzle the folks with his board work. While Steve was hanging ten, our Beach Blob was hanging one after a frisky wave took off with his shorts. On the beach the volleyball tournament was played under the usual jungle rules with it's own thrilling moments. All the survivors, including John "the thumb" Schaffer seemed to have had a good time.

The camp out at Beaver Inlet has been postponed and was replaced last weekend by the road rally and roller skating party combination. The camp out may be paired with the 4th Annual Dinner at the similar to the combination held last Sunday. The foresight in planning the Road Rally was incredible; considering the lousy weather on Saturday, Sunday was a beautiful day for the road rally and the beer bust on the beach. I haven't heard the outcome of the race yet, or the outcome of the special business meeting, but I understand the lecture on how to spend your afternoons by Pamela Mann was cancelled because she had to leave town on pressing business.

Also held last week was the Vets Club Pie Throw sponsored to raise money for a small Ecuadorian charity. Among the notables who sacrificed themselves for the cause were Dean

Rocket, who raised the most money at \$41.25, Sam Stack, a close second at \$41.00 and our own Bob Allen, who got away cheap at \$10.47. Most entertaining victim was Debbie Sugarman who was more often covered with whipped cream than not. John Schaffer aptly handled the job of announcer. John was able to complete the day almost entirely unscathed after foiling an assassination attempt by Kenny Houser ans a host of unnamed co-conspirators. Doug Baldauf was almost equally successful at thwarting an assassination attempt while he was at the mike, but a small trace found its mark. The thirteen victims raised over \$164.00, not including the contracts filled by Assassins, Inc.

Hopefully the softball team has also overcome the attempt to shoot it down by this time. The team beat itself in a game against the Black Sheep in the season opener. The Black Sheep were able to capitalize on the brand new Vet lineup to squeeze by on a very thin margin. Having used the first game as a tight practice workout. The Big Blue Wrecking Crew bounced back to its winning style of play with a close victory over the new and greatly improved Quad A team. Monday the Vets faced the Black sheep for the championship and hopefully have once again been awarded the distinction of best team in the league, regular season anyway.

Best of luck to all A-Term graduates, especially Ward, Frank, Tom, and their families in their new assignments. And for those still here for B Term, look forward to a good time at Ichetucknee Springs coming up on the August calendar.

HEADING FOR THE NOODS?



by Mike Gearing

The Riddle Packers have had a slow summer but are ready to get a BOOMING head start for the Fall. If you are interested in hiking, camping, or canoeing then come on out to our next meeting which is Tuesday August 2 at 5 pm in the Common Purpose room.

SEE YA THERE!!



COUNCIL OF CAMPUS ORGANIZATIONS

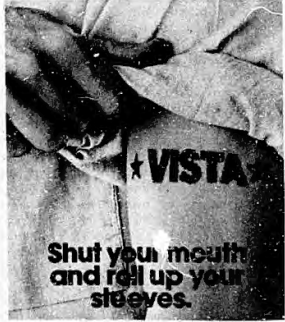
By Jim Young, Vice Chairman

The COO has been working with the Director of Student Activities for athletic and recreational gear for student use. We came up with an assortment of gear. We know what we want, but what do you as Embury-Riddle students want? If you have an idea for a particular piece of equipment, please contact the COO through the Student Activities Office or the Vice Chairman at Box No. 1247.

All the clubs in the COO will have display tables for registration. The tables will be set up at 10:00 am Friday, September 2nd. If any clubs have questions concerning this matter, contact the Student Activities Office.

Hey, wanna be cool, man?
We wuz cool back
in de '50s. Dig?

WERU, in conjunction with
Student Activities
presents the
'Oldies Show—
UC - Friday - 27th



You know what's wrong with America. The injustices, even in a land that's just. Too many poor people. And there's still too much ignorance and hunger. Generations of people running as fast as they can, just to stand still. Everybody's talked about it for years. Talk is cheap. And the road to Hell, you know what that's paved with. It's up to you, do something about it! Something called VISTA. Volunteers in Service to America. It's coming alive again. And it sounds like it just may be the ticket for you. You'll work in your community or someone else's. Whether you're 18 or 80, whether your income is high or low, we don't care. The people you help to organize a St. Louis poverty project or an Appalachian community co-op won't care as long as you help. And you will. Not all of it, but some of it. And we won't be to you, you'll be working long and hard and the pay, it's nothing to brag about. But you'll be getting. Getting back more than you've given. And the progress you've made, that was no drop in the bucket either.

Call VISTA toll free: 800-424-8580. Or write VISTA, Box A, Washington, D. C. 20525.



A lot more
than their hopes
have dried up.

So have their fields. But they don't need your tears. They need you in the Peace Corps. Be a Peace Corps volunteer, so they can once again hope for a future.

The Peace Corps is alive and well. Call toll free: 800-424-8580. Or write the Peace Corps, Box A, Washington, D. C. 20525.



KSC Extends Research Contract

KENNEDY SPACE CENTER, Fla. — NASA's John F. Kennedy Space Center has awarded a \$25,720,364 contract extension for engineering support services to Planning Research Corporation, McLean, Va.

The 12-month cost plus award fee contract extension provides for Planning Research Corporation to continue design engineering support services for the Space Shuttle program and other activities for which KSC's Design Engineering Directorate has design responsibilities from May 20, 1977 through May 19, 1978.

The contract extension brings the total amount of the contract, originally awarded on May 20, 1974, to \$72,616,061. The company employs more than 1,100.

OUTSTANDING FIRST FLIGHT — The new transcontinental range Sabreliner 65 made its first flight Wednesday, June 29, 1977. The flight crew reported that the Sabreliner 65 "has those beautiful handling qualities that the Sabreliner is so famous for." General handling and control was excellent because "we have improved the desirable flight characteristics of the present Sabreliners."

The Sabreliner 65 is the first American business jet to use a combination of fanjet power and a supercritical wing. (Photo courtesy of Rick Alexander, Rockwell International, Sabreliner Division, St. Louis, Missouri)

BELL HELICOPTER

FORT WORTH, Texas—Long-awaited details about America's first commercial mid-size twin turbine helicopter—Bell's 222—have been revealed by Bell Helicopter Textron President James F. Atkins. Atkins said:

* Base price of the 222 in standard configuration is estimated at \$750,000 in 1976 dollars. This base price may be increased or decreased, depending on changing economic conditions and production costs.

* All five 222 prototypes

are now in the flight test program. * Two of the prototypes will soon begin extensive tours of the United States and many foreign countries. During the tours and concurrent accelerated flight testing, they will accumulate approximately 2,000 hours each in a variety of environmental and demonstration missions. * The other three prototypes will undergo aggressive flight tests in every conceivable climate from sub zero Arctic Circle to the corrosive atmosphere of the tropical seas. They also will be used for other testing to support FAA type

certification. The 222 will be the most fully matured aircraft ever produced for commercial customers.

The 222 will seat up to 10 persons. Bell's exclusive Nodamatic TM suspension system virtually eliminates noticeable vibration at all speeds, resulting in unprecedented passenger comfort. Low tip speed of the main and tail rotors results in a very quiet helicopter.

Forty-three cubic feet of space is available for baggage, including six cubic feet in the aft cabin and 37 cubic feet in

the 500-pound capacity baggage compartment which is accessible in flight. A 23 x 55 inch opening between the aft cabin and the baggage compartment provides a straight-through space for carrying items up to 12.5 feet long.

Commenting on the progress of the flight program to date, 222 Project Test Pilot Don Bloom said:

"We made our first flight on August 13, 1976, and we've had excellent performance characteristics ever since. This is the most stable machine of any that I've ever flown."

Cessna Pilot Centers Conduct Tourneys

WICHITA, KANSAS — Pilots will be able to exercise their navigation and flying skills in competition under a Precision Flying Tournament program of Cessna Aircraft Company and its network of Cessna Pilot Centers throughout the U.S. and Canada.

Participating CPC's will conduct precision flying tournaments designed to increase pilot proficiency, sharpen flying skills and promote safe and efficient flight.

Competition will be open to licensed pilots with a minimum of 100 hours flight time.

Scoring will be in three areas: flight planning, navigation and precision landings.

Local winners will be eligible to compete in regional flight tournaments, with regional winners receiving an expense-paid trip to the Cessna/CPC North American Championships in August, 1978, at Strother Field, Kansas.

Local tournaments are scheduled between September,

1977 and June, 1978, with regional tournaments between June 1 and July 31, 1978.

Trophies will be presented to top scorers at local, regional and North American tournaments. Cash awards will also be made at regional North American tournaments.

"Cessna has been dedicated to promoting interest in aviation and showing how flying skills can be used in business and pleasure," said Cessna Senior Vice President Bob Lair.

"The CPC precision flying tournament is an excellent way to accomplish that goal. Many of the pilots expected to compete will have earned their license by the CPC method of integrated flight training," Lair said.

"Many student pilots will be getting their license and the required 100 hours in order to be able to compete. It will be a good environment for safe flying and increasing pilot skill levels," he said.



Mooney Management Updates Progress

MARKET SHARE UP

(Reading, Pa.) — Mooney Aircraft management gave an update of progress and future plans at a breakfast meeting held today during the Reading Air Show. George H. "Skip" Magowan, President, Donald K. Cox, Vice President/Marketing, and Leroy Lopresti, Vice President/Research and Development reviewed Mooney's progress and plans for the future.

Magowan reported that the 201 program is going extremely well, in terms of product quality, production efficiency and consumer acceptance. More than 200 201s have been delivered since the model was announced in late 1976, and production is running at over 30 units per month. He said that Mooney would produce 360 units during calendar 1977, including 20 Executives and Rangers. "Improved quality control items, such as using urethane enamel and flush riveting, are being appreciated by our customers," said Magowan, "and our production control records indicate that under the improved procedures we've phased in with the 201, we're building aircraft more efficiently than Mooney had previously been able to attain." Magowan indicated that there are approximately 1,100 manhours involved in each 201, well down from the 3,000 hours required to build the first Mooneys after Republic Steel's acquisition in 1975.

Donald K. Cox presented marketing information which showed that Mooney now accounted for 21.2% of the 40 place single-engine retractable market, for the five months through May, 1977, up from 13.5% for calendar 1974. "The market itself is projected to grow from 1347 units in 1976 to 1575 units in 1977," Cox forecast that Mooney's share would continue to build as fuel efficiency became a higher priority in selecting new aircraft.

Cox further reported that first-time aircraft owners now were more important to Mooney than ever. Close to half of 201 buyers are first-time owners, up from 31% according to Mooney's customer studies in 1976 and 4% in 1974. "Pilots are developing increased confidence in Mooney's abilities to create a product for today's fuel-conscious times," said Cox. "The 201's wider cabin, quiet cruise, and performance in terms of speed, payload, range, and miles per gallon are swaying buyer decisions from higher horsepower new and used aircraft to the 201. The serious pilots who are buying 201s, whether they have 200 or 2,000 hours logged, have a definite need for fast, reliable and efficient transportation. They are having their aircraft equipped for maximum

utilization. Most are specced with a full IFR package and DME, and a third with three-axis autopilots. Many are choosing a flight director." Cox noted that the average retail value of avionics being specced in Mooney's has risen from \$6,100 in 1976 to \$13,500 for the same comparable period in 1977.

R&D PROJECTS ACTIVE

Roy Lopresti updated Mooney's research and development efforts. These include continuing feasibility analysis on development of a fuel-efficient light trim, evaluations of several turbocharging systems and engines for a model like the 201, and seeking additional ways to improve speed, performance and comfort from current Mooney models. "We were able to deliver an additional 20 mph with no additional horsepower with the 201, and believe that continued new thinking can add to this figure. Since better performance also buys improved fuel efficiency and better range, our efforts in this direction have a definite need in today's world." No production plans for new models have been made by Mooney, which will continue to offer the 201, 200 hp Executive and 180 hp Ranger in their current basic form.

REPUBLIC STEEL PLEASUED WITH PROGRESS

William Myers, Vice President of Republic Steel Corporation, Mooney's parent company, commented that Republic was extremely pleased with the progress Mooney has been making. "The subsidiary's return on sales is approaching the excellent levels reported by the general aviation industry in 1976. We're also seeing a very encouraging return on our investment. The 201 introduction has been the high point of our program so far. We look forward to expanding Mooney's market base as the 201 and future new products gain wider acceptance throughout the world."



FLYING HIGH — "The 201st Mooney 201 to be produced, N201ST, began a national tour at the National Pilot's Association fly-in at Basin Harbor, Vermont on June 17. (Photo by Henderson, Roll, Friedlich, Inc.)

Powder Puff Derby Final

By Wanda Cummings

Shortly after 8:00 AM July 1, 140 planes of all ages and horsepower lined up at Palm Springs California's Municipal Airport to begin the 30th Anniversary celebration of the Powder Puff Derby. The women pilots were both veteran and new, from 36 States including Alaska, as well as from the Bahamas, Australia and Germany. Three contestants were flying their 24th Powder Puff Derby. Before the final contest departed, the temperature had soared to 130 degrees. Former WASP Melba Beard, baking in the open cockpit of her 1928 Brunner Winkle Birk, took off, developed an oil leak, and went home to Phoenix.

Alvina Williams, legless since childhood, started in her 85 hp Ercoupe and, due to a gas leak, parked her plane and continued with former WASP Suzanne Parish in a WWII AT6.

Last to be flagged off was record-holder Jerrie Cobb, the only woman qualified for Space Flight, in the Aero Commander with which she flies mercy missions along the Amazon river. The prestigious All-Woman Transcontinental Air Race had announced its final run in 1976, due to lack of financing and in respect to the fuel shortage. This year's Flight was not a race, but a sentimental journey along the route of the first race in 1947: Palm Springs, California; Tucson, Arizona;

El Paso, Midland and Dallas, Texas; Shreveport, Louisiana; Jackson, Mississippi; Monroeville, Alabama; Thomasville, Georgia; ending at Peter O'Knight Airport in Tampa, Florida. There were contests of proficiency between each of the designated Stops, and points for each contest.

All planes were scheduled to remain over night in El Paso July 1, and in Dallas July 2. Deadline to finish was 6:00 PM July 4.

A golf tournament in Thomasville, Georgia left limited housing, and when over 60 planes landed for the night, the Mayor declared disaster status in order that mattresses could be assigned to the ballroom floor of the Holiday Inn. Additional accommodations were offered by the local Mortician.

One hundred and twenty-seven planes finished the flight, and awards were given to pilot, co-pilot and passengers of each. First place, for collecting the most over-all points, were pilot Patricia Udall, a Ranger for the Navajo National Monument in Tonalca, Arizona; and her co-pilot Naretze Gaylord of Denver, Colorado. In second place was Fran Bern, 7-time winner of the Powder Puff, from Long Beach, California, and co-pilot Joan Paynter and Shirley Tanner were 3rd. Fourth place went to Thon Griffith, Vice-President of the

Ninety-Nines, Inc., an international organization of women pilots, her co-pilot was former WASP Kay Brick, who was Chairman of the race for 13 years. In 5th place, flying their first Powder Puff, were Eileen Wyckoff, Vandenberg, California, and co-pilot Linda Schreck of Longport, California. A Jackson, Mississippi team, Cindy Base and Pat Brooks, were first to take off, and came in 6th.

Each flying their 2nd Powder Puff Derby were Ann Lowell, Fort Sam Houston, Texas; and Mary Wadlington, Pipe Creek, Texas, who came in 7th. Carolyn Zapata, Belmont, California and Bea Howell, San Carlos, California were 8th. Michigan team Mary Cresano and Eloise Smith finished 9th and 10th, place went to Mother-Daughter team Bebe and Susan Ragaz of Marion, North Carolina.

The Smithsonian Institution had encouraged this Commemorative Flight to round the race's history to 30 years. Cachet covers were issued, and carried by the contestants.

The last Powder Puff Derby is the National Air and Space Museum's "Milestone of Flight" for July, 1977.

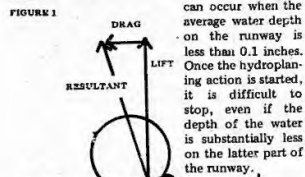
Further information available from AWT&F, Inc., Box 23203, San Diego, California 92123.

HYDROPLANING

By Kenneth G. Madden

Hydroplaning occurs when an aircraft operating on a wet runway has sufficient speed for the tires to be incapable of displacing the water and results in the tire being lifted from and losing contact with the runway.

When the tire reaches total hydroplaning speed, it is no longer able to contribute to directional control or braking effectiveness. While lifting forces on the wheel can be very great, the drag component as a rule is very small; however, the drag force will increase with speed when the runway is excessively flooded (fluid displacement drag).



Dynamic. Dynamic hydroplaning occurs when water (or slush) depths on the runway are between 0.1 inches and 0.4 inches and usually occur at higher speeds. Figure 1 shows partial hydroplaning caused by a wedge of water lifting the tire off the runway (partially), reducing the tire's effective footprint area, thus reducing traction. In Figure 2, total hydroplaning is shown and occurs when no part of the tire remains in contact with the runway.

Total hydroplaning speed may be roughly calculated by using the following formula:

$$V_p = 9 \sqrt{P}$$

where V_p = total hydroplane speed (in knots) P = tire inflation pressure.

It should be noted that the above is only a rough approximation as other variables enter in, such as:

- 1) Tire tread depth
- 2) Water (or slush) depth
- 3) Runway surface (grooved or smooth)
- 4) Weight of the aircraft as distributed per tire
- 5) Landing gear arrangement

Drag increases at the high-speed end of the take-off run is the predominant factor in deter-

mining the maximum water depth (usually $\frac{1}{4}$ inch) at which take-off may be attempted. This drag may be an advantage when landing, but it has been proven that the most drag occurs at V_p ; drag decreases at speeds both above and below V_p . However, the wheel will spin-up at a lower speed than that required for spin-down when accelerating. Therefore, hydroplaning is usually more critical when landing and aborted take-offs than for take-offs because of increased exposure (greater speed range).

Note: Adverse effects on controllability occur at speeds well below V_p . These effects will increase as the square of the groundspeed.

Viscous Hydroplaning. Viscous hydroplaning can be caused by extremely small amounts of fluid on the runway (may be even less than 0.01 inches). Viscous hydroplaning can occur at speeds well (at least 35%) below those needed for Dynamic hydroplaning. It may even be caused by morning dew on the runway mixing with rubber deposits and/or kerosene. The effects from this type of hydroplaning are virtually the same as the others and will be indistinguishable from the cockpit.

Steam Hydroplaning. When operating on a wet runway with the wheels stationary (locked), heat is built up in the tire's footprint area and must be dissipated. This heat is dissipated by converting the water to steam under the tire and the steam pressure in turn, lifts the tire from the runway.

Tires can be damaged by this type of hydroplaning due to the excessive heat generated (up to 500 degrees F); this temperature melts the tire and effectively reverses the curing (Vulcanizing) process on that portion of the tire in contact with the runway. That is why this type of hydroplaning is sometimes referred to as "Reverted Rubber" Hydroplaning.

Steam Hydroplaning is more likely to occur in a water depth that is substantially less than that required to induce Dynamic Hydroplaning. Steam Hydroplaning can continue to a very low ground-speed (sometimes below 20 knots).

Avoid excessive braking with an anti-skid system inoperative or it not so equipped, and Steam Hydroplaning will not occur.

Note: All three types of hydroplaning can occur during one landing if the right conditions are encountered.

D.P. Davies, in his book *Handling the Big Jets* states, "more recent Flight Manuals contain data on the landing distances required under very slippery runway conditions with an assumed coefficient of friction of 0.05... those airplanes

with a significant amount of reverse thrust need about 25% extra distance while those without need up to 50% extra distance."

Applying the formula given previously, the hydroplane speed of a C-172 can be determined. A main tire pressure of 29 psi results in a hydroplane speed of 49.47 knots. Assuming a stall speed at a gross weight of 2,300 lbs. (most forward CG and 40 degrees of flaps) of 41 knots and a V_{ref} (1.4 times V_{SO}) of 57.4 knots, it can be seen that total hydroplaning should be no problem in the C-172.

The Boeing 727-200's stall speed at maximum landing weight (30 degrees flaps) is 100 knots. V_{ref} speed (1.3 V_{SO} in the case of large aircraft) is 135 knots. Touchdown is assumed to occur at 1.26 V_{SO} which is 126 knots. Assuming standard main tire pressure of 175 psi (critical pressure of 125 psi) which yields a total hydroplaning speed of 119 knots, it will be seen that at least partial hydroplaning can become a problem (once hydroplaning starts it can continue to well below the hydroplane speed). Consideration must also be given to the tire pressures that will be reduced from extended flight at high altitude (low temperatures).

Pilot technique. The ability to plan ahead is indispensable when dealing with hydroplaning conditions. Reports on braking action should be solicited from the control tower whenever a contaminated runway is known to exist. If runway length is marginal, a diversion should be considered.

When a runway is not grooved and coated with substantial rubber deposits, the slightest amount of moisture can make it very slippery (viscous hydroplaning). Turns should not be attempted at high speeds on areas of the runway (usually each end) with the greatest concentrations of rubber.

When approaching a wet runway, use the minimum touchdown speed consistent with safety. Put the aircraft on the ground firmly as near the approach end of the runway as possible; you cannot use the runway behind you to stop. "Greasing it on" tends to induce hydroplaning.

Get the weight of the aircraft on the wheels by immediately using full spoilers when the mains touch.

Right after deploying the spoilers, select "reverse idle" on all symmetric engines. As the nose gear contacts the runway, smoothly increase the reverse thrust to "maximum allowable" noting any yawing tendencies or directional control problems. If problems arise, return the thrust levers to "idle forward" and realign the aircraft with the runway centerline by using slight amounts of rudder or nose-wheel steering if below 60 knots

(B-727). Resume normal reverse thrust usage to runway turnoff.

Braking should be implemented as soon as possible in a smooth, gradual, steadily-increasing manner. Additional consideration should be given when any anti-skid system is inoperative. Consult the particular aircraft's performance manual for further information on this subject.

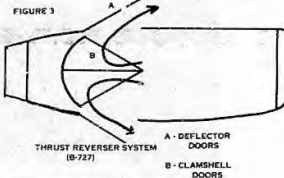
Crosswind components must also be considered. The aircraft's tendency to watercock will be increased when using reverse thrust.

Special Considerations for Approach to a Contaminated Runway. A recent accident in Ketchikan, Alaska occurred when a Boeing 727 ran off the end of the runway due to hydroplaning. The aircraft touched down and immediately the Captain selected reverse thrust and then tried the brakes to find their action nil. He then attempted to go-around but the reverse thrust system's deflector doors would not stow due to the high airloads on them at that speed. Therefore, they were committed to complete the landing and as a result, ran off the runway's end.

Special Techniques. To avoid an accident similar to the one above, when operating into an airport with contaminated runways where no pilot reports of braking action are available and/or has runways of marginal length:

- 1) Do not immediately select reverse thrust (once the deflector doors have opened, they cannot be closed until the airspeed has been reduced substantially).
- 2) When the aircraft touches-down, deploy the spoilers and wait a couple of seconds for the wheels to spin-up before applying the brakes.
- 3) Apply the brakes using the technique discussed previously; if the braking seems adequate, apply reverse thrust and complete the landing. If not, stow the spoilers, apply go-around thrust, have the flaps coming up to the go-around setting, and **GO SOMEWHERE ELSE.**

Note: Many airlines are replacing the deflector with stationary cascade vanes; this will eliminate the deflector door problem. See Figure 3.



Sperry---100th Unmanned Mission

TYNDALL AFB, Fla. -- A Sperry Flight Systems PQM-102 drone logged the 100th unmanned flight as a supersonic Air Force target in firings of ATR-2A serial training rockets from four Air Force F-106 fighters.

Since its first remotely piloted flight Aug. 13, 1974, at Holloman AFB, N.M., the converted F-102 Delta Dagger has provided more than 180 programmed target presentations for both Air Force and Army major command users.

More than 125 air-to-air and surface-to-air missiles have been fired at the drones. During the 100 unmanned "nullo" missions, 31 hits were recorded, but many of the damaged drones were recovered and repaired for further nullo flights.

The PQM-102 has provided a highly maneuverable, realistic target for tests of AIM-7 Sparrow III and AIM-9 Sidewinder air-to-air missiles, the F-15 fighter fire control system, and Stinger and Patriot surface-to-air missiles.

Prime contractor Sperry Flight Systems, Phoenix, Ariz., has converted 56 F-102s to the RPV role and is currently modifying 13 more.

In the milestone test, the ATR-2A missiles were fired from high speed, low altitude stem attacks over the Gulf of Mexico. In earlier firings of the Army/Raytheon Patriot against PQM-102s over White Sands Missile Range, the drones were flown in formation to simulate a multiple threat.

Target missions have been flown in dual base operations from Holloman AFB and Tyndall AFB since October 1976. The PQM-102 is a fully operational target system with speeds over Mach 1, at altitudes over 55,000 ft., and maneuvers up to 8Gs.

Sperry provides and installs flight and ground control electronics for the PQM-102 and controls the remotely flown drone while in flight. Sperry controllers fly the aircraft on takeoff and landing from mobile stations along the runway, while other Sperry mission controllers operate the aircraft from fixed radar control sites.



Reed Named Sales Coordinator

ST. LOUIS, Mo., May 19, 1977 -- Jimmy C. Reed has been named sales coordinator for Rockwell International's Sabreliner Division at their worldwide marketing and support headquarters here, according to Robert L. Chatley, manager, marketing services.

Reed will assist in the preparation of marketing proposals, product analyses and competitive product reviews. He reports to Jeff Martin, manager, sales engineering.

Previously a maintenance analyst for Sabreliner, Reed has been with Rockwell for two years. He is a graduate of the Ft. Institute of Technology and has a "commercial pilot's" license.

Sabreliners are flying about 24,000 hours per month which gives a total of more than ten million miles flown per month. This is equivalent to 401.5 times around the Earth at the equator.

The Sabreliner Division is part of Rockwell's North American Aircraft Operations and is responsible for manufacturing, marketing and services Sabreliner business jet aircraft. The division also maintains Rockwell-owned technical support, spare parts facilities at key locations worldwide.

The Rolls Royce Motorcar

By Ed Schmidt

The goal of the Rolls Royce Motorcar Company is to assemble the finest car possible in every respect. Basically, this is accomplished by giving attention to details. Each valve in a Rolls engine is composed of three different metals depending on the operating temperature at specific locations on that particular valve. The crankshaft is constructed in an absolutely dust-free environment. According to Rolls Royce, dust is noise and noise will not be tolerated. The radiator is hand-made and only ten people in the world know how to make a Rolls radiator. The big fancy grill they are famous for is hand-made and furthermore, the vertical spars are aligned by "eye-ball" judgement. The "Spirit of Ecstasy" that tops the grill is also hand-made and is available in two versions: one is kneeling and the other is standing. The exterior finish is superb. It is sanded by hand then painted between fourteen and twenty times. When painting is complete it is as smooth as a marble. For comfort and consideration of the passengers, the hood, trunk, and doors are made of

aluminum for easier handling. The interior of the car is of the finest quality. And with Rolls Royce, quality is comfort. There is nothing that is imitation in a Rolls. The Circeasia walnut you perceive is real. As a matter of fact, each year Rolls Royce sends a group of people, usually to Italy, to find the finest tree possible for the interior finish. The tree must be at least one hundred years old. The tree that is selected is the tree that Rolls Royce will use in all their cars that year. The walnut is used for the front panel, framing and trim, and the two rear passenger cockpits are made of the finest leather. They are made of Connolly Leather. In addition to having head rests for the front passengers (as do most luxury cars) head rests are also provided for the rear passengers. Foot rests are provided in the rear section and there are also two vanity mirrors with cigarette lighters. They are located on the rear walls next to each passenger's head.

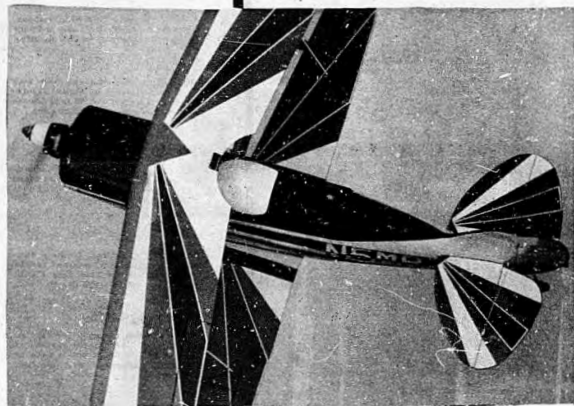
The driver can check the oil level without ever leaving the car. Just flipping a switch will actuate the oil-level indicator. The driver also has the option of what type of ride he would like; hard or soft. The entertainment is supplied (from the last I've heard by a Bendix quadrophonic system).

Presently, Roll Royce makes three models of cars: The Silver Shadow, which is priced at about \$40,000, The Corniche, which sells for about \$65,000, and the ultimate Rolls, The Camargue. It sells for (fasten your seat belt) \$90,000.

A Rolls Royce is certainly not an ordinary production car. It is not a production car at all. It takes six to eight months to build a Rolls and each engine is tested for 150 miles before it is used in the car. It is tested for another 150 road miles when the car is finally assembled. When the owner gets the car it will be in excellent running condition and should remain that way. It is not uncommon for a Rolls Royce to outlast its owner. As Sir Henry Royce once said, "the quality will remain long after the price is forgotten."



MARK RIDEN



CONSISTENT GROWTH IN QUALITY AND PERFORMANCE

We started a few years ago with the finest trainer for precision flying available on the world market today. To go along with it, we have developed a training course so complete that it must be offered on an instructor level. We have done professional Aerobatic flying for the cameras of General Motors, and are featured on films being shown at the nation's Six Flags Resort areas. Our performances have taken us to places like Sea Side Heights, N.J., where we performed for the whole town. Our most recent performances at Sea World have taken us over the two million spectator mark. To continue to stay abreast of our competition, we try to stimulate the industry with fresh ideas such as the Audio Visual program we are currently producing, or the all-attitude Flight Simulator we are in the design stages of. Our efforts to maintain rigid standards have resulted in producing some mighty fine students from all over the world. We're so proud of the competency level of our instructors that we have a policy you will not often find. If ANY pilot does not learn or benefit his skills during our dual instruction, then no charge whatsoever will be made for that period of instruction. You will be hearing more and more about our school as time goes on, so why not find out how to improve your skills with professional help? For a limited time, Aerobatic Dual and Special Introductory Flights will be conducted at a very attractive rate.

Between the hours of 9 am and 4 pm
Saturday, July 30 and Sunday, July 31
At Volusia Avn. Svc.
On the Daytona Regional Airport

THE MARK RIDEN SCHOOL OF AERONAUTICS

CLASSIFIED

FOR SALE-AUTO

FOR SALE: 1976 Dodge Maxi-Van, Full Power and Air, AM-FM Stereo cassette, Captain's seats, slant carpet, fully upholstered walls and ceiling, dual battery system with A-DC refrigerator, slak and custom built storage cabinets, double bed, new tires. Very Deluxe, many extras. Call 255-6981.

1973 Torino. Power Brakes, power steering, Aluminum alloy wheels, 325 HP, 351 Cleveland Auto Transmission. Asking \$900. Call 258-4505 after 5:30. Bob Mah at Box 3557.

FOR SALE: 1968 Triumph Spitfire. Needs minor work. \$275. Contact Brian at Box 4121.

FOR SALE: '78 Chev Vega, manual, low mileage. Very clean. \$1100. Contact Box 4366, or phone 255-9381.

FOR SALE: 1968 VW Bus, mint condition. NEW EVERYTHING. New Engine Work. "Hurry" a Deal of a Life-time. \$500 Phone 252-9296. Ask for MARSHA.

FOR SALE: 1973 Firebird \$2900. Power, automatic & A/C. Body & interior excellent condition - Contact 255-8384 if interested.

FOR SALE BIKES & SCOOTERS

FOR SALE: 1977 Yamaha 750-150 Shaft Drive. Mag Wheels. Trailwood Lounge Seat & Backrest. 3 Helixes included. 2,300 miles. \$1,599.00. Contact Mr. Vohsary at AMF 3rd Lab or Call 767-7305.

FOR SALE: Motorcycle Trailer, Flatbed. Heavy duty tow rails & Fresh Paint \$176.00/or best. 253-3071 or Box 5362.

FOR SALE: 74 Kawasaki 175 cc Low mileage, excellent condition. Must sell! Call 255-5831, ask for Mark, evenings.

FOR SALE: 1976 Suzuki R M-125 A Motorcros. Excellent condition. \$650. Contact Brian Box 4121.

FOR SALE-MISC

FOR SALE: Living Room Furniture: Couch, Chair, Coffee Table, End Table. All for \$150. Water bed, \$100. 14 Foot Hottie Cat (with instruction) \$1,200. Contact Lawson at Box No. 1054, 253-8777.

SELLING: Be4-Cot for \$15. In good condition. Price negotiable. Contact Amelia at 252-8417 in evenings.

FOR SALE: Twin Bed, good condition. \$17.00. Phone 259-4130.

FOR SALE - Automatic Selko Chronograph, Day, Date, 20 minute and 12 Hour Timers. Harder Crystal. Water-resistant. Like new. Best Offer. Contact Steve W. at 262-2277 or Box 4332.

FOR SALE: Must sacrifice. 6'10" Sunline surfboard. Excellent design for East Coast. Good condition. Best offer contact Steve W. at 262-2277 or Box 4332.

FOR SALE: Juliette Casotto tape recorder. Excellent for classes. Dirt cheap. Contact Steve W. at 253-2277 or Box 4332.

YEARBOOKS FOR SALE: 4 1971 books for \$2 each. 2 1972 for \$2 each. 196 1973 books for \$1 each. 11 1974 for \$1 each. 26 1975 books for \$1.50 each. IF INTERESTED IN PURCHASING A PREVIOUS YEARBOOKS CALL Ext. 314 or visit the Phoenix/Avion office.

FOR SALE: 4 letter jet binders. New E-8B type computer, erasors and some old aviation items too. For further information: Call 253-3269.

FOR RENT MOBILE HOMES & HOUSES

MOBILE HOME FOR SALE: "72" Bad-dr. 12' x 44'. 2 bedrooms; completely set-up with kitchen. Patio covered & A.C. \$5,600. negotiable. Call 677-0646.

WANTED-MISC

WANTED: A 1976 PHOENIX Yearbook. If you have one you don't want and want to sell or give, contact the Phoenix office at Ext. 314.

WANTED: Roommate to help share expenses for month of August. If interested get in contact with Misty or Annette at River Run Apt. 253-4329 anytime.

ROOMMATE NEEDED: Need a responsible roommate to share apartment during Fall Trimester. Contact Mark at 306-834-0186 before 2 p.m.

WANTED: 1 roommate for June-Aug. \$82.50 - utilities for furnished mobile home (60) contact Brad King ERAU Box 4023 or Tel 761-1825 (So. Daytona) after 9 p.m.

Need responsible roommate for Fall Tr. If interested call Mark Lyons at 306-834-0186 before 2 pm or write to 368 1001 Eglington Way, Casselberry, Fla. 32707.

EMPLOYMENT HELP WANTED

R.N.'s NEEDED: For 11 pm - 7 am shift - Leadership Positions. Competitive salaries and excellent fringe benefits. Apply Memorial Hospital, 875 Stierhaus Avenue, Ormond Beach. Phone 677-6900.

Variety of books!
Excellent service!
Terrific prices!
Student text trade-ins!

The Vets Used Bookstore is for every student on campus, NOT just Vets!

now at our new location-

PRICES

UNIVERSITY CENTER
 BRIDGE
 SIDE WALK
 LABORATORY
 ANNEX

HOURS OF OPERATION
 12:00 TO 6:00
 MONDAY THRU FRIDAY

→ Vets Used Bookstore

LOOKING FOR LATE MODEL EQUIPMENT?

FLY THE SENECA II

- ★ TURBOCHARGED
- ★ FULL IFR
- ★ RNAV

JUST ARRIVED
 1977 Piper Lance

NOVA FLITE CENTER ★ Fully Retractable
 ★ Six Place

REGIONAL AIRPORT
 255-6459

15% DISCOUNT WITH RIDDLE ID ON ALL AERONAUTICAL CHARTS

Call for Rates