

RELATIVE



The Official Publication Of The
North Dakota Aviation Association
and carrying the Official News of the
North Dakota Aeronautics Commission

BULK RATE
U.S. POSTAGE
PAID
PERMIT NO. 120
WHAPETON, N.D. 58075

ALICE KELLER
815 Ave. B. WEST
BISMARCK, ND 58501

Volume 2 - Number 11

November 1981

Wahpeton, N.D. 58075

Meet the N.D. Ninety-Nines

By Patricia J. Estes

If you fly into a small town North Dakota airport and see a group of women busily striping and marking the runways, you will have likely landed in the midst of a meeting of the North Dakota chapter of The Ninety-Nines, the international organization of women pilots.

The state chapter was chartered on September 19, 1970 and is kept in the office of the North Dakota Aeronautics Commission.

Back in 1962 three women pilots in North Dakota joined the South Dakota chapter. Today two of them, Audrey Baird, Dickinson and Kay Vogel, Bismarck are still actively flying and now members of the N.D. chapter. Geneva Olson, the third woman, is deceased.

The early association with South Dakota and the eventual chartering of the North Dakota group, now numbering over 20, "kept us flying," according to a group of the members.

Gathered to discuss the role of the Ninety-Nines were members Karen Werner, Wynola Thornton, Jill Bourgois, Kay Vogel, Clara Sherman, Lorraine Boehler and Barb Rohede, all of the Bismarck area.

Lorraine is serving as chapter chairman while Jan Kelleher, Minot, is vice-chairman, Cynthia Weyenberg, Grand Forks, secretary and Clara Sherman, Bismarck, treasurer.

The women agree the chapter has yet to reach its membership potential. While a firm figure of number of licensed women pilots is not available,

all thought at least 60-70 reside in the state.

If you own a plane, you must register with the state. However, a woman with a license but not actively flying might not be known by either the state or

part of his work world may find it easier to get hours in the air, one member said.

Since this group moves the monthly meetings around the state, members usually fly to the meeting.



Some of the Ninety-Nines . . . Kay Vogel, Wynola Thornton, Jill Bourgois, Clara Sherman and Lorraine Boehler.

those in active flying.

Once you are a member of the organization, you can continue your membership if circumstances force you to stop flying actively.

However, to join originally you must be a licensed pilot.

Members describe the Ninety-Nines as an educational organization which stresses safety. The organization's structure helps to keep you flying. A businessman who uses his plane as

During the good weather months this group of aviation enthusiasts help the industry by marking runways and buildings at small airports.

The members also assist with judging the International Flying Association competitions at Grand Forks. A pet project is encouragement of the UND flying team.

This mobile club will show up just about anywhere there is an airport for their monthly meetings. In fact they

don't even require that a member be located near that month's airport. Seeing the state, flying and being of service to the aviation industry by helping with the airport marketing projects are some of the main thrusts of this group.

The stories of how these women took to the air to become pilots are as varied and as unique as they are.

Karen Werner began flying in 1976 and says the decision to fly was a "spur of the moment idea."

A cousin was teaching flying and Karen thought she could help him along by becoming a pupil. Within a week she was taking lessons and in six months had her license.

Last fall she was working on her instrument rating and hoped to get her commercial one in the future.

"I'd like to teach someday. I regret I didn't do all this earlier. It could have been a career then," says this Northwestern-Bell-management-employee.

Karen rents a plane and belongs to the Civil Air Patrol.

Wynola Thornton found her life at a low ebb after she lost her husband in a truck accident.

Determined to find a reason to say life was worth living, she hit on the idea of learning to fly.

With four married children scattered all over the country, a pilot's license offered a way of keeping in touch through visits.

She first started learning to fly in June 1978 but quit after three months. Over a year later in August 1979, she

continued on page 2

Flying public questions FAA changes

By Nancy E. Johnson

Changes in the administration of North Dakota airways prompted an extensive round of questioning when the flying public had the chance to address federal officials in Grand Forks Oct. 14. The regional director of the Federal Aviation Administration (FAA) visited the state with several members of his staff to find what local concerns might be.

One of the changes which prompted most questioning was the reorganization of regional FAA offices. The state was formerly served by the Rocky Mountain Regional office in Denver, along with several other states. Now, North and South Dakota have been shifted to the Great Lakes region, which has offices in Des Plaines, Ill., near O'Hare Airport. The Rocky Mountain regional office is in the process of being phased out. It was formed in 1971. In remarks made during a press conference before the listening session, region Administrator Wayne Barlow told the press this reorganization will save \$10 million nationwide. The total staff cut would be 173 positions. He explained the region would become FAA's

largest, serving more than 300 airports. Grand Forks Airport would be the fourth busiest in the region.

During the listening session, North Dakota Aeronautics Commission Director Harold Vavra asked the FAA personnel to explain their policy in administering federal funds for airports. Peter Serini, acting division chief, airports, assured Vavra the policy for the Great Plains region is to delegate authority to the lowest level possible, including working through the Bismarck field office.

Barlow noted the regional concept of delegating authority for state programs to the district office level is in place. The district offices, such as the one located in St. Paul, will become advocates and spokesmen for the states, he pointed out.

This local control will mean all new federal-aid grants for North Dakota will be handled in Minneapolis office, which currently supervises projects in Minnesota and Wisconsin.

During the Aeronautics Commission meeting held in Grand Forks earlier in the day, Vavra had predicted this shift

in regions would mean greater control on the local level. This could mean more authority at the Bismarck office, as well as Minneapolis.

Another area of concern to pilots and commissioners alike was the new General Aviation Reservation (GAR) system. Put into effect Oct. 19, this system requires general aviation pilots to file an IFR plan at least one hour and not more than 16 hours prior to take off. Frank Cunningham, Rocky Mountain chief of air traffic said the system had been put into place for the benefit of general aviation.

While the commercial airline operations have had flight reductions, it has been a uniform percentage reduction, he explained. In many cases, general aviation was not getting its fair share of IFR flights, he noted. The GAR system will probably be in place for 24 months so the FAA can get a handle on air traffic.

Limitations on air traffic movements like GAR were made necessary by the air traffic controllers strike, Barlow pointed out. Lynn Helms, the FAA administrator, spoke recently with

Barlow, and the regional director found there is no move to rehire the striking controllers. "If you don't hear about rehiring the controllers from Helms, Secretary of Transportation Drew Lewis or President Ronald Reagan, it is not so," Barlow told members of the press before the meeting.

During the press conference, the regional administrator said he has personally flown 42 hours during the strike and added, "I can say categorically, the system is safe." He admitted the approaching winter weather will cause increased delays and said users should be prepared.

Cunningham pointed out the system is in a recovery position and the industry will soon see the results of current efforts. Recently, some furloughed pilots were stationed at the Chicago center and Barlow predicted it won't take long for those pilots, who are familiar with the system and what it should be doing, to be certified.

After the listening session ended, Barlow said it has been a good experience and predicted the business world would be around a long time.

Ninety-Nines swap flying tales

from page 1

began learning again, and only worked at it for six months before she had that longed for license in her hand.

A lover of private flying, Wynola voiced concern that the rising cost of fuel may discourage the young from becoming private pilots. She wouldn't want to see flying become a world that only the older well established people could afford.

Her insistence on learning how to fly provoked many questions from those who thought it all a very strange idea.

Finally one person asked, "why learn to fly at your age?" She responded, "because I can go faster than on my broom." That ended those questions. Wynola owns her own plane, shared with friends.

Jill Bourgois learned to fly in 1978 while at UND. Her father was a pilot. Aviation was part of the family atmosphere and she says, "I was tired of being left behind."

She has found flying exciting, especially the time a mouse made his nest in the carburetor, making for a very interesting landing.

However, high cost has kept Jill from doing much flying now that she is out in the working world.

Barbe Rohde, now working in Bismarck, had a job working with the state government in Minnesota. That job often put her as a passenger in small planes and she felt very uncomfortable and nervous whenever that happened.

Determined to quell those nerves,

she decided to become a pilot. She began in 1976 and she finally got her license in 1979. "I worked at it as time allowed."

This nervous flyer made the successful transition to licensed pilot and likes the view from the pilot's seat much better than when she was that spooky passenger.

Kay Vogel got her license in 1961. Her husband was getting his license and Kay had read a story about a woman who was flying as a passenger when her pilot husband had a heart attack. The passenger went through a traumatic frightening experience.

Kay decided not to go that route, she says. In spite of the fact that everytime she had ever flown she had gotten sick, Kay decided she would get her pilots' license.

Just in case, she took along a sick bag on her first flight as a student pilot. It wasn't needed. Kay loved piloting.

In fact she now has her private, instrument and multi-engine ratings. She also has her commercial, instructor ratings, IF and ground instruction ratings.

Kay has owned a plane for nine years in partnership with another pilot in Mandan.

"Now that I do it, I think more women should try flying," says Clara Sherman. Clara, who works in the Bismarck public school district business office, says she decided in 1969 that she would have her pilot's license in one year. She made the goal eight days before the deadline.

Clara reports she had had no interest and had never been in a plane until a cousin returned with an interest in flying, after a stint in the service.

He wanted to learn and wanted to share that interest. "I got hooked," Clara says, but kept her efforts a secret until she got that license. She didn't want her parents discouraging her new venture and admits this was the first surprise she may have pulled on her family.

Lorraine Boehler, who is an office manager in private business, recalls that in 1947 her family was planning on a trip west.

Her dad couldn't go due to farming duties and viewed the time home alone without much enthusiasm.

So, she says, he bribed Lorraine to stay home with him by promising to pay for flight lessons.

Her interest in flying had been piqued when she observed activity at a nearby government built airport. That airport was used during World War II for military training. Only 11 or 12 then, she fell in love with airplanes and the image of pilots. Her dad knew she wanted to join that pilots' circle and join she did!

Today she rents planes to fly for pleasure. Her daughter flies, both of her brothers fly and her dad flew.

In 1951 when she got married she quit flying. When she started again in 1973 she had to learn all over again. "But I never lost interest . . . those years when I didn't fly . . . I started again at the first opportunity."

All of these women share the love of flying and encourage more to join their ranks. If you are already a pilot, then maybe the Ninety-Nines is the international organization of women pilots for you.

Membership in that group will expand contact with other women pilots beyond North Dakota.

Once a year a sectional meeting is held. Eight states belong to this section. They include North and South Dakota, Wyoming, Montana, Idaho, Oregon, Washington and Alaska.

Asked if women can learn to fly as easily as men, Kay who teaches thinks women may be slower in learning than men. They maybe over cautious but in the end they make just as qualified pilots.

Finding an instructor may be a problem. Most instructors must combine that activity with other aviation operations to make a living. That means you may work with five or seven instructors and several airplanes before you win that pilot's license.

But, these pilots reported, they found the instructors in North Dakota, almost all male, were encouraging, patient and supportive of their efforts to gain that license. There were lots of words of praise for those instructors.

It's the hope of the Ninety-Nines that more women will become pilots in North Dakota and that those women pilots will join this organization.

Federal and state grants announced

Nine North Dakota airports have received \$4,346,000 in federal-aid airport grants from the Federal Aviation Administration (FAA) for airport improvement projects, according to Harold G. Vavra, Director of the State Aeronautics Commission.

Airports receiving federal airport grants are:

BISMARCK — \$726,300—Expansion of air carrier apron and for completion of existing project.

FARGO — \$1,155,000—Build terminal apron and connecting taxiway to new terminal and for completion of existing projects.

MINOT — \$273,400—Acquire land for approach and transitional area protection.

WILLISTON — \$200,000 Construct parallel taxiway.

BRECKENRIDGE-WAHPETON INTERSTATE — \$457,000—Acquire land for lengthening runway.

DICKINSON — \$49,000—Financial completion of existing project.

DEVILS LAKE — \$11,000—Financial completion of existing project.

JAMESTOWN — \$2,400—Financial completion of existing project.

Vavra said federal funds are for paying 90 percent of the cost of airport improvements. The source of federal monies are user taxes drawn from the Federal Airport and Airway Trust Fund.

Eight state grants total \$750,000

Eight North Dakota Air Carrier airports have received a total of \$750,000 in state-aid airport block grants from the

North Dakota Aeronautics Commission for airport improvements, according to Harold G. Vavra, Director.

State airport grants are allocated to airports with scheduled air service on a formula enacted by the North Dakota Legislature. Airports which enplane less than 20,000 passengers in the past year each received \$37,500, which includes Devils Lake, Dickinson, Jamestown and Williston.

Larger airports at Bismarck, Fargo, Grand Forks and Minot which enplaned more than 20,000 airline passengers in the past year, received block grants in proportion to their generation of passenger enplanements. These are:

BISMARCK — \$206,832—with 34.5 percent of enplaned passengers of the four large airports.

FARGO — \$212,220—with 35.4 percent of total enplaned passengers.

GRAND FORKS \$112,182—with 18.7 percent of total enplaned

passengers.

MINOT— \$68,766 — with 11.4 percent of total enplaned passengers.

100.0 Percent Total

Airports receiving state airport block grants may use the funds to match with federal funds for airport improvements or for airport construction or improvement projects including airport administration or terminal buildings, and for purchase of land for airport use, Vavra said.

A & P IN 1 YEAR!
Unique Practical Training
BECAUSE
Our FAA Approved A&P School is combined with our FAA Approved Repair Station.
— Approved For Veterans —
Classes Starting In
January - March - June - September
Write Or Call:
Dakota Aero Tech, Inc.
P.O. Box 5534, SU5
Fargo, ND 58105 - 701-237-5305

RELATIVE WIND
Official magazine of the ND Aviation Association. Published monthly for its members and others in the ND Aviation industry; carrying the official news of the ND Aeronautics Commission.
CO-PUBLISHERS
North Dakota Aviation Association and Prairie West Publications.
EDITOR
Patricia J. Estes
EDITORIAL ADVISORS
Robert Odgaard, Larry Linrud, William Becks, Ron Ehlers, Fred Andersen and Jack Daniels.
ADVERTISING MANAGER
Richard K. Estes
ADDRESS ALL
CORRESPONDENCE TO:
Prairie West Publications
Box 1018
Wahpeton, ND 58075

UPGRADE YOUR AUTOPILOT
Add Pitch Axis To Your Existing EDO Century 2 Or CESSNA 300A
Call Larry At: 701-663-9133
Way-Point Avionics, Inc.
Rt. 2 • Box 15 • Mandan Airport • Mandan, North Dakota 58554
Phone: 701-663-9133
FAA# D04-14
LARRY BULLER
PRESIDENT-GENERAL MANAGER

FREE TRANSPONDER CHECK — PER FAR 91.177
IF YOU BRING THIS AD, OR MENTION YOU READ IT IN "RELATIVE WIND" — BEFORE NOV. 30, 1981 — LIMIT ONE PER CUSTOMER

Letter to editor
Patricia Estes, Editor
Relative Wind
Patricia
May we have permission to reprint the attached article from your October 1981 issue in an early 1982 issue of AERIAL APPLICATOR? Of course, a credit line would be given to RELATIVE WIND.
I think you are doing a great job with RELATIVE WIND, and it is a credit to the industry.
Thanks for your consideration.
Cordially,
Neil Rosenblatt
Publisher
Publishing firm responsible ONLY for accuracy of customer approved proofread ads.
Any error in customer approved ad will NOT result in adjustment to the bill.
Errors in non-proofread ads will be adjusted by 10% off the NEXT ad run.

Enrollments in UND program up 70%

By Sue Retka

Rapid growth leaves turbulence in its path

Aviation at the University of North Dakota has grown rapidly in the last decade, but not without leaving a bit of turbulence in its path.

Last year, enrollments jumped 70 percent, instead of the projected 40 percent, thanks to a newspaper article in a Minneapolis newspaper.

This year, the Department of Aviation may expand its two-year program in air traffic control on request of the Federal Aviation Administration. That would mean more students, more staff, and possibly a new building for the department.

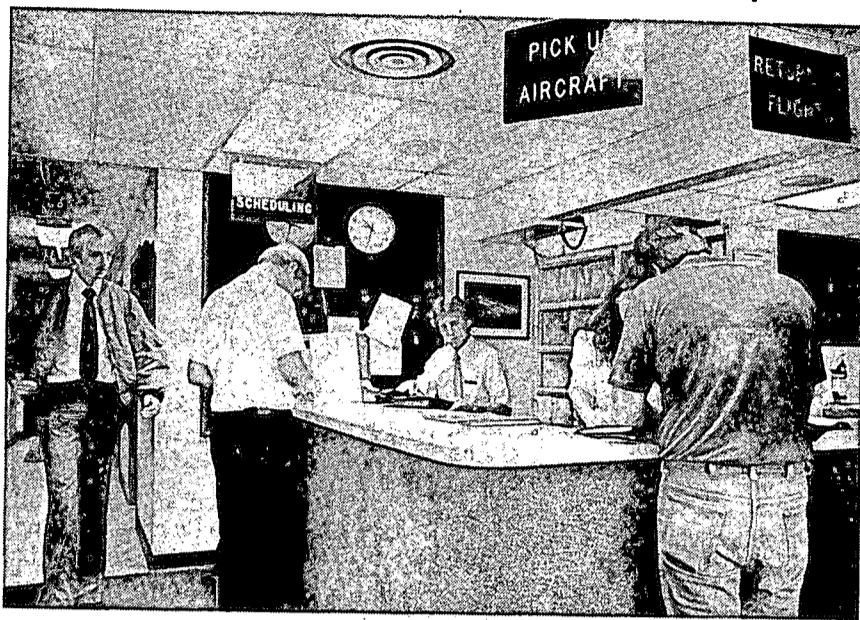
The department has already become one of the largest on campus with 700 students majoring in aviation and a total of 1236 students taking aviation classes this year. It's come a long way from its start in 1969 with 12 majors.

John Odegard, present chairman and founder of the aviation department, had been teaching data processing in the accounting department at UND when he got permission to teach an overload aviation ground school.

Odegard, an aviation enthusiast, could see possibilities in combining a business background with aviation. He successfully convinced the dean of the College of Business and Public Administration to create the new department. UND is the only school in the nation where a student can combine flying with courses that examine the business side of aviation.

While Odegard says flatly that the flight training program has reached its limit at 60 airplanes. That doesn't mean the department has stopped developing new programs.

This year's addition of a program in



Pilots and instructors continually come and go at UND's airport lounge. During the busiest times of the year, around 40 people come and go during an hour. The summer months when this photo was snapped are much quieter. (Photo by Sue Retka)

meteorological studies is a good example of how the department has taken advantage of the opportunities that came its way.

In 1974, the department first offered classes in weather modification to train advanced aviation students in the theory behind hail suppression and cloud-seeding. The program included summer internships where those students could learn the techniques of flying around the towering cumulus that most other pilots avoid religiously.

The next step combined Odegard's knowledge of data processing with the weather modification program. The department got the contract to process the data collected in a nationally coordinated weather modification research project.

That evolved into the Department of Aviation taking on a full-fledged research effort, with UND now having the largest atmospheric research group in the United States and a \$1.6 million research budget. The staff of meteorologists design research projects using the department's two equipment-packed airplanes — a turboprop Cheyenne and a Citation II jet.

With a research staff loaded with PhDs, it's only natural that the Department of Aviation would make use of that talent to start an undergraduate program in meteorological studies.

But the new program is also a good example of how the department's rapid and innovative growth, creates turbulence in its path. UND's geography department, which offers a course in

meteorological studies, was upset when it heard that the aviation department was going to start a course with the same name.

Don Smith, director of academic programs in the aviation department, explained that the two courses have different emphasis. "Generally, the type of meteorology taught in geography departments is the weatherman type — more climatology," he said. The aviation program will emphasize applied meteorology and weather research.

Being accepted within the university, and the state as a whole, has been one of the department's biggest problems. "At UND we were new, different and Johnny-come-lately," said Odegard. "We're received as a threat to everybody. Image is something I'm very sensitive about."

The image problems at the university were inevitable in Odegard's view. "Any academic community moves very slowly," he said, adding that it took 25 years for accounting to be con-

"Image is something I'm very sensitive about."

sidered an acceptable academic field. "The very fact we're a fast tract operation means they have a difficult time grasping who we are, where we're going, and if we belong."

Taxpayer complaints have been another source of image problems. "I've heard it many times," said Smith. "All these kids are flying around wasting the taxpayer's money."

Smith and Odegard are quick to defend
continued on page 4

Aeronautics Commission tours UND

By Nancy E. Johnson

Facilities and programs of the University of North Dakota Aviation department were viewed by aeronautics commissioners during a meeting held in Grand Forks Oct. 14. Several commission members have been recently appointed and had not had the opportunity to examine these facilities.

History of the aviation department was traced from its beginning in 1968 with

FAA honors two pilots

By Nancy E. Johnson

There is no more appropriate time to honor top flight instructors and mechanics than during a safety seminar. So, the regional office of the Federal Aviation Administration took the opportunity of such a seminar to honor two North Dakota pilots.

George Hammond, director of flight operations in the aviation department at the University of North Dakota at Grand Forks was named the flight instructor of the year and given a plaque inscribed with the honor during a safety seminar held Oct. 14 in Grand Forks. Vince Buraas of Northwood was named the mechanic of the year at the same seminar. Buraas is the airport owner-operator and FBO of Northwood.

Each year, the FAA regions choose a flight instructor of the year and a maintenance technician of the year. For the second year in a row, these men were from North Dakota.

After these men were honored, Michael Beiriger, the accident prevention pro-

eight students to the current enrollment of over 700 students. The department is chaired by John Odegard who also chairs the Aeronautics Commission.

After a tour of the department's facilities at the Grand Forks Airport, the commissioners viewed a slide show which outlined the programs and goals of UND aviation. Students in the department receive training ranging from airport management to cloud modification. Research in these areas

gram manager from the flight standards district office in Fargo presented a seminar on safe landings. He reminded the students and pilots at the seminar that the safety record in the state during 1981 has not been good. In reviewing those accidents and their causes, he noted the importance of learning from the mistakes of others.

Landing accidents account for 50 percent of the total, he said. While most are not fatal, they will damage metal and pride. In order to prevent accidents, pilots need to maintain knowledge, skill and proficiency.

Some landing problems which can be corrected include excessive speed, landing long, failure to take cross winds into account and landing with the wheels up. Information available from current charts, AIM's, NOTAM's and those familiar with a particular area is helpful.

Winter flying problems, including heating an airplane and dressing properly were also addressed during the seminar.

is also being done at the department, which has on-board computer system to document weather changes in one research plane.

While the state provides funding for two and one-half positions in the department, a goal of self-sufficiency is being met each year. There are 181 persons on salary in the department with a budget of \$5.6 million for the current year.

Air traffic control training is one of the programs currently in place at the department and Odegard explained it identical to the first 16 weeks of training offered by the Federal Aviation Administration at the Oklahoma center. UND is one of four universities around the country offering this training and is under consideration by the FAA to supplement training for the large number of controllers currently needed.

During the commission's business meeting, the group authorized Director Harold Vavra to urge the FAA's implementation of rules which would help the UND aviation program and other teaching students to fly during the winter months. This petition would make it possible to use eight all-weather airports in the state for the 10-hour cross country solo requirement, even though the airports may be closer than 100 nautical miles.

The petition to grant an exemption to the 100-mile rule has been filed by Vavra but the FAA said it would take 120 days to approve this change. Vavra pointed out this would get pilots well into the winter season and would be of little help during the coming months. The commissioners expressed support of

the director's actions to move the change more quickly through the FAA.

Vavra was also instructed to begin work to involve general aviation pilots who are fixed base operators in other states to support changes in customs inspections charges. Aeronautics commission secretary Lyle Hilden of Bismarck has been involved in the problems of varying changes and rates for overtime charges which he called discriminatory to air taxi operators in border states.

The commission supported a resolution requesting the FAA to limit charges for small planes and clarify some of the rules imposed by the Customs Service.

Joint use of airports run by the military was also discussed by the commission. Chairman Odegard explained the UND aviation program had tried to negotiate a joint use agreement with the Grand Forks Air Force Base, but the question of security had stopped the process. Commissioner Darrol Schroeder of Davenport, who is a major general in the North Dakota Air National Guard out of Fargo, expressed support of the concept. He pointed out Hector Field is a joint use facility and any security problems had been worked out. Schroeder also noted some military facilities are used to train their own pilots and wouldn't work for additional civilian use.

Odegard had initiated talks on a joint use agreement because of the huge traffic load at the Grand Forks Airport. Originally designed for 210,000 operations each year, the load has climbed to 300,000 and this has created some safety

continued on page 4

UND Department \$5.8 million budget divided

from page 3

the department by pointing to the budget breakdown. State funds contribute two percent, or \$119,000 of the department's total \$5.8 million budget. Not only do students pay for all their flight time, and flight instructor's time, but the airport income subsidizes part of the academic program. The on-campus budget is \$381,000.

The department's \$5.8 million budget is divided among its five divisions. Flight training is nearly half of that at \$2.8 million, with an additional \$500,000 for maintenance out at the airport. Research gets \$1.6 million, university transportation \$400,000 and the academic program \$380,000.

Part of the department's image problem has been caused by the element of competition with the area's aviation community. "For a long time, the horror story was we were going to run everyone else out of the business," explained Odegard.

Rather than flooding the local market, said Odegard in defense of the program, nearly two-thirds of their students are from out-of-state, and most leave North Dakota when they graduate.

There are two other reasons that UND would not compete with the state's existing instructors. The university is probably the most expensive place in the state to learn to fly, and the toughest.

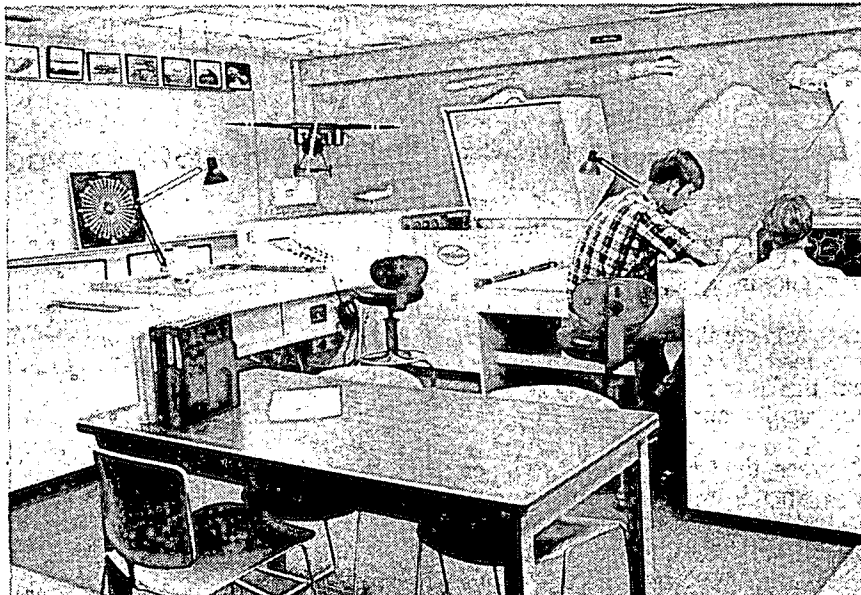
The average private ticket costs \$2,300; commercial and instrument tickets average \$9,700 together; the Certified Flight Instructor rating costs an average of \$1,600.

The tickets are costly, but as a Part 141 school, UND can offer aviation students an advantage. They can get their private ticket in 35 hours instead of 40, and the requirement for a commercial license is reduced by 60 hours. The university also has examining authority for the private, commercial and instrument courses.

Flight training follows the widely used Cessna curriculum, but the ground school is much more involved than the weekend school or self-study followed by most student pilots. Not only must aviation majors pass the FAA written exams as part of their three or four credit courses, but they must pass the course. Said Smith, "The FAA exams are cheesecakes in comparison to the finals."

Smith described the difference between their program and the usual flight instruction as the difference between two people who answer a question correctly on the FAA exam. The one prospective pilot will know the answer is right, but the UND student can explain why.

The thorough backgrounding, said Smith, is geared at students who want



An instructor works with a student on one of the three simulators UND uses. (Photo by Sue Retka)

to make a career out of aviation. "If you're just going to fly around the pea patch on Sunday, you don't need all that other information," he said.

In its twelfth year now, UND's Department of Aviation is overcoming many

"If you're just going to fly around the pea patch on Sunday, you don't need all that other information."

of its image problems in the state. Odegard said one sign is the growing number of FBOs who call the department wanting to interview graduates.

The department has been gaining a national reputation. Many of their students are children of the airline industry — both pilots and executives. Some students who wrote to the FAA inquiring about a career in aviation are referred to UND. Now, the FAA's interest in expanding the controller pro-

gram may boost UNDS image even more.

"Many of the future leaders of aviation will be UND graduates," said Odegard. UND grads have jobs with the FAA, for various airlines, insurance companies, manufacturers, in advertising, not to mention as pilots.

The name tentatively selected for the department's new building gives an indication of the new image that Odegard and his staff want to build on: Center of Aerospace and Atmospheric Studies. Odegard said they already have \$1 million of the necessary \$4.5 million lined up from private sources. The FAA may solve the problem of raising the rest.

Discuss joint airport use

from page 3

problems, he said. A large portion of the operations at Grand Forks are student pilots, he added. An increased use of the Air Force Base facilities would increase training for the military air controllers, Odegard speculated.

Aid to general aviation airports was approved during the commission meeting, also. Grants for state-aid matching funds were approved for Mandan Airport Authority, Langdon Airport Authority, the Garrison Airport Authority, LaMoure Airport Authority and the Tioga Airport Authority. These grants totaled \$51,841.67.

Director Vavra also reviewed the funds disbursed from the excise tax on jet fuel. Obligations to 39 airports total \$420,133.64 for the rest of this year. Additional projects committed for 1982 include eight airports with requests for \$33,161.09.

Two projects were reviewed by the Aeronautics Commission staff. The airstrip at Riverdale will be lengthened and the Medora Airport ownership is being negotiated, they reported.

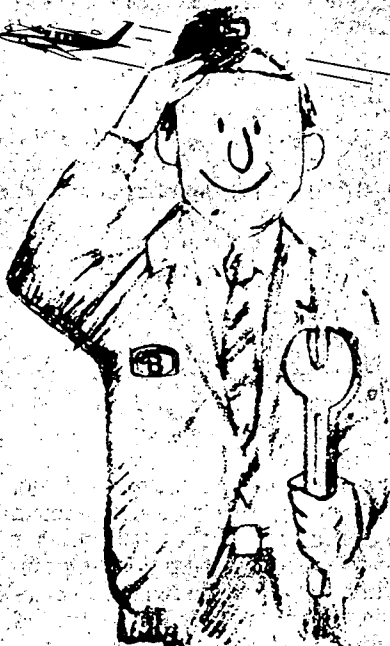
Changes in commercial airservice to the state were also reported by Vavra. Big Sky Airlines changes service available out of Grand Forks and has applications pending for additional service out of Bismarck, he reported.

Chart prices increase

The U.S. Office of Management and Budget wants the National Ocean Survey to make users pay all costs associated with aeronautical and marine charts. Currently users are charged only for reproduction, packaging and distribution costs. Data gathering, maintenance and chart compilation are needed by the FAA and military requirements.

OMB's plan envisions that the government should recoup full production costs from the chart users, by charging prices such as \$10 to \$12 for a Sectional Aeronautical Chart.

We understand the business aircraft service needs.



Elliott Beechcraft is one of the largest fixed based operations in the region. We built our company to meet the needs of the corporate pilot and business executive pilot. We understand that your investment in a plane is a very serious business investment and it cannot make you money when it's down.

When you bring your airplane to Elliott, you can assume that it will be fixed once and fixed right. That the work will be done on time and on estimate. That's just the way Elliott Beechcraft does business.

With over \$250,000 worth of parts inventory, the latest equipment for your plane and technicians with the finest training, it all combines to provide you with the most reliable service at a reasonable rate.

We understand why you bought your airplane.

Because time is money!



Beechcraft Sales Service
Flying Cloud Airport
13801 Pioneer Trail
Eden Prairie, MN 55344
(612) 944-1200
MN Wats (800) 862-6090

PARAQUAT; AVITROL; LEAFEX - 3

Complete Agricultural Chemical Distributor

Also

Marking Flags For Aerial Applicators

OSTLUND CHEMICAL CO.

P.O. Box 446 — 1330 - 40th St. N.W.
FARGO, NORTH DAKOTA 58107
Phone (701) — 282-7300

NOW'S YOUR CHANCE!!

Narco
Avionics that make sense.

Dakota Aero Tech, Inc. Avionics Department has been approved for NARCO Sales And Service.

Special Price on the new NARCO DME 890 thru November.

Special Low Prices on All Other New NARCO Avionics.

Contact Us Today!

DAKOTA AERO TECH, INC.

701-237-5305

Hector Field
Box 5534
Fargo, ND 58105

FAA Certified
Repair Station
D04-10

From Your Secretary

By Jack Daniels,
NDAA Exec. Sec.

The issue of sales and-or use tax on aircraft brought into our state has reared its multi-headed monster again.

Several of our members have recently experienced some major setbacks in the area of sales-use tax on aircraft being sold in North Dakota.

The secret to avoid using the North Dakota Sales Tax is to sell and deliver all aircraft sold to out of state residents, OUT OF STATE.

Selling of aircraft in North Dakota, that is making the deal in North Dakota and delivering the same out of state is still subject to the sales tax, but will be exempted if a certificate of delivery is signed by the purchaser, stating that the aircraft was delivered to the purchaser, out of state.

The best insurance against any errors on the part of the aircraft dealers getting off on the wrong foot with a tax and it is to have good documentation, at the time of sale for any sale you might make to a tax exempt purchaser.

As for the competitive position of North Dakota dealers and the North Dakota sales tax, we have a reciprocity agreement with every state in the nation except California, which allows credit for any tax paid in North Dakota against the tax due in the state in which the purchaser will house the aircraft.

As an example an aircraft sold in North Dakota, delivered to the buyer in North Dakota and housed in North Dakota. The same holds true for all other states that have sales tax.

We will have more on this at our upcoming annual meeting along with a proposal to go for a excise tax on the registration of aircraft in North Dakota in lieu of the sales or use tax now in place.

Plan to attend the annual meeting and let us know your views on the subject.



An instructor checks out his day's schedule on the computer terminal. (Photo by Sue Retka)

UND logs 45,000 hours in 63 airplanes

By Sue Retka

UND's 481 active flight students logged an impressive 45,000 hours of flight time last year in 63 airplanes.

Every hour during the day, 21 students are scheduled to fly, about half with instructors. With returning students and instructors, there can be 40 people coming and going, making the airport ramp and pilot lounge a beehive of activity.

To keep track of it all, the Department of Aviation is using computerized scheduling. Each student's permanent schedule is recorded on computer, as well as each instructor's. If a student wants to fly more than his regular three times a week, he can get a listing of available airplanes. In turn, the instructors can ask the computer how often the student is flying.

The computer has also helped Ken Munson, director of flight training, and his supervisory staff keep track of the 75 instructors. The amount of time it takes each student to progress through each section of the flight course is recorded on computer. A supervisor can ask to see the performance records on each instructor's group of students. Supervisors also keep track of the students' progress by flying with them periodically.

From the student's point of view, learning to fly is about the same anywhere. Each new student meets his instructor and is given a personal explanation of where to pick up his log book, how to

sign out the airplane, and pre-flight the plane. About five to six percent of the students are women.

The list of ratings a student can get at UND is nearly complete: private, commercial, instrument, complex, CFI, CFII, multi-engine, airline transport pilot, glider, seaplane, aerobatics, and, new this year, helicopter.

The minimum rating required depends upon the program that the student elects to take. Business students interested in airport management, for example, are required to get a private ticket while business students more interested in aviation administration must get their commercial and instrument tickets.

Besides the two-four-year curriculums in the business school, students more interested in the various liberal arts fields of earth science, physics, geography, political science, etc., can combine a major in aeronautical studies with a second major in another field.

The Department of Aviation also offers three two-year programs through University College: professional pilot, flight attendant and air traffic controller.

Students receive credit for the various ground schools, as well as for the flight labs. Additional aviation courses cover the history of aviation, airport planning and administration, aerospace regula-

tion and legislation, airline operation, aviation safety, air transport utilization, navigation and communication systems and weather modification.

The university owns very few of the planes it flies. Most of the fleet of trainers are leased, with the total number dependent upon the number of active flight students.

Keeping the department flying within its budget is George Hammond, airport director. "We run it like a business," he said, "it has to pay its way. We constantly remind the staff that we have to stay in the budget."

'We run it like a business . . . it has to pay it's way'

Key people are full time employees, but most of the instructors, dispatchers and linemen that keep the airport running

are UND students working part-time while they finish up their degrees.

The airport is open seven days a week during the school year from daylight to dark, and four nights until about midnight. Hammond hopes to increase the hours on each plane by a third this year by keeping maintenance open 24-hours. They'll work on aircraft during the night, and fly in the daytime.

Airport operations have come a long way from the first wooden hangar that had a trailer parked inside for an office. One person handled minor maintenance, the billing, dispatching and line work.

The original wooden hangar moved out from the old airport at Grand Forks is still used to house most of the 22 Cessna 152s. Once their third hangar, now under construction, is completed. A second hangar and office area will be remodeled this winter to create a larger waiting room and more offices and classrooms.

Save fuel and money

The pilot who properly leans his aircraft engine can significantly reduce the cost of his flying. In addition to reducing operating costs, the mixture should be leaned because it:

- improves engine efficiency.
- gets greater fuel economy (which increases range).
- has smoother engine operation (which saves engine accessories & mounts).
- gets longer spark life (fouling is reduced).
- reduces maintenance costs.

-more desirable engine temperatures at cruise altitude.

Generally, the engine should be leaned:

- anytime the power setting is 75 percent or less at any altitude. (Full throttle through 5,000 feet density altitude usually means mixture full rich.)
- at high altitude airports, lean for taxi, takeoff, traffic pattern entry, and landing.
- for landings at airports below 5,000 feet density altitude, adjust the mixture for descent, but only as required.

Annual meeting set for NDAA Jan. 27-29

By Jack Daniels

The preliminary plans for the association next annual meeting are taking shape. The NDAA Board of Directors met in Bismarck recently to discuss the coming meeting. The board set the theme for the meeting as "Forecasting The Economic Future for North Dakota."

The Constantly changing environment, both economically and chemical wise are very important to the success or failure of our agricultural community and as it goes so goes the aerial applicator.

Plans call for a panel discussion on the issues of our state economy with participants from the Federal Reserve Board, First Bank Corporation and Northwest Bank Corporation from Minneapolis as well as Dick Crocket from the Greater North Dakota Association.

Our banquet speaker will be Larry Burian, president of The National Air Transportation Association. Larry will bring us a message on the issues as they appear on the Washington scene as well as prospects for our future in the nationwide view.

Meeting dates are Jan. 27-29th in Dickinson.

September accidents reported

The Accident Box

	1981	July-August
Accidents	16	5
Fatal Accidents	6	0
Fatalities	15	0

September FAA report: During the past two months, we have again seen an unusually high number of aircraft accidents occur in North Dakota. Fortunately, however, none of them have resulted in fatalities. A brief resume of each follows.

—An overheated electrical system resulted in a forced landing and fire which destroyed a Piper PA-18. Preliminary investigation revealed the starter remained energized during flight resulting in a heavy current load on the electrical system.

—A Bellanca lost power while on final approach to land and crashed short of the runway. During the preliminary investigation, no fuel was found in the fuel lines from the firewall to the injector pump or to the flow divider. Examination of the fuel tanks revealed one tank was empty and three tanks contained varying amounts of fuel.

—An ag pilot failed to clear power lines

while attempting to fly under them during his swath run. Serious injuries to the pilot resulted from that accident.

—Another ag pilot stalled and crashed during the turn-around maneuver after his second swath run.

—One accident resulting in substantial damage occurred during a flight instruction period. In flight, the instructor closed the throttle to give the student a simulated forced landing. During the subsequent power recovery, the instructor stated the engine failed to respond with full power. The aircraft subsequently landed in an unsuitable field and overturned. During our investigation, no malfunction of the aircraft or engine was discovered.

Incidents occurring which did not result in substantial damage to the aircraft or serious injuries include:

—An off-airport forced landing in a Piper PA-24 due to a broken oil line. During landing roll-out, the nose gear collapsed.

—A student pilot porpoised during lan-

ding resulting in a collapsed nose gear.

—A Cessna 188 landing gear leg separated from the aircraft during landing. Investigation revealed a gear leg attachment bolt broken.

—A training aircraft sustained damage when the student — with the instructor on board — landed hard.

—Another aircraft was slightly damaged when it ran out of gas. The pilot landed on a road but, during the landing rollout, he lost directional control and ended up in the ditch.

NDAAs backs GADO

The September 21st meeting of the Board of Directors of NDAA adopted a resolution of support for the Fargo GADO in the control of illegal FAR 135 operations.

There is a growing concern in the Air Taxi segment of civil aviation in North Dakota over the increasing amount of "135" operations being conducted by "91" operators.

The future interests of a traveler using the non-air carrier fleet of aircraft as a transportation tool must be assured of well trained pilots using well maintained aircraft if our industry is to grow and prosper.

The inspection and maintenance programs required for air taxi aircraft are considerably more stringent than those requirements for private business and pleasure aircraft and provide a greater assurance of safety.

Another area of concern is the in-

surance provision of non "135" operators and the coverages that are not provided by the outlaw air taxi provider.

Civil Aeronautics Board requires passenger liability insurance for all passengers carried in "135" operation under the exemption authority provided.

Most operators of private business aircraft are unable to obtain insurance coverage for commercial operations or transportation for which payment is made, even at reduced rates.

NDAA will serve as a clearing house for receipt of information on the when, where, by whom, in what aircraft illegal FAR 135 operations are suspected.

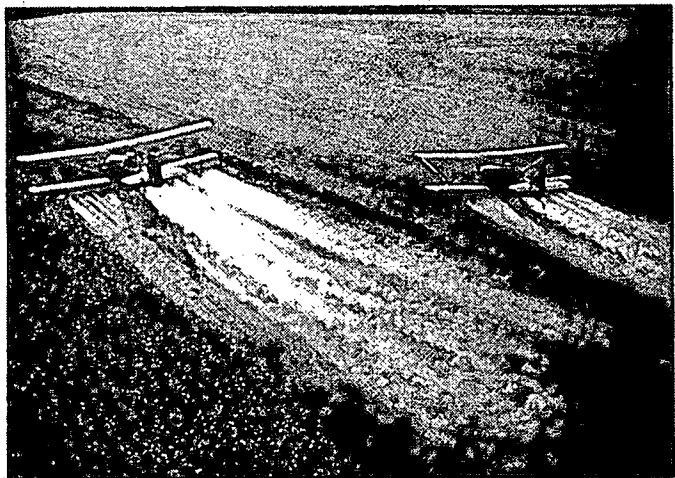
Any airport manager, FBO or line service people who suspect such activity to be taking place is asked to present that information on a simple letter and send same to Jack Daniels, Executive Secretary, North Dakota Aviation Association, Post Office Box 637, Williston, North Dakota 58801.

This information will be forwarded on to the GADO without reference to where it came from so that the provider of the information can remain anonymous.

This effort by NDAA is one more service of the association and is designed to do some in-house policing of the air taxi industry. Given any success in this effort the association will move on to a policing activity in the area of illegal aerial application of agri-chemicals.

We must do our share to keep our industry clean and operating in the proper environment.

Get Broad Coverage . . .



AVIATION UNDERWRITING SPECIALISTS

YOUR BROAD COVERAGE AVIATION INSURANCE SPECIALISTS — WITH COLLECTIVELY OVER 65 YEARS OF EXPERIENCE IN AVIATION INSURANCE.

THAT'S WHY 4 YEARS AGO OUR NAME BECAME WHAT WE REALLY ARE —

AVIATION UNDERWRITING SPECIALISTS

For FBO's — FULL LINE COVERAGE
 • AIRCRAFT LIABILITY • HULL COVERAGE
 • PREMISES LIABILITY • PRODUCTS LIABILITY
 • HANGAR KEEPERS LIABILITY • CARGO LIABILITY
 — AND MORE —

For AG Operators:
 • AIRCRAFT LIABILITY • HULL COVERAGE
 • CHEMICAL DRIFT LIABILITY
 • FARMER/OWNER/GROWER COVERAGE
 • SPRAYING CITIES AND TOWNS COVERAGE

For Private Owners:
 • AIRCRAFT LIABILITY • NON-OWNER DAMAGE
 • HULL DAMAGE

ASK AUS
 800-325-8079

Area representative — L. JOHN WEBER



AVIATION UNDERWRITING SPECIALISTS

8301 Maryland Ave. • St. Louis, Mo. 63105

DO IT NOW!

The New FAA Safety Belt Requirement Deadline

Is Dec. 1, 1981.

Get Your Metal To Metal Seat Belts From Us — We Have Them In Stock.

DAKOTA AERO TECH, INC.

701-237-5305

Box 5534 — Fargo, N.D. 58105

When Pigeongrass and Broadleaves threaten spring wheat...

START THE

Stampede™

postemergence herbicide

ROHM AND HAAS COMPANY

Rohm and Haas Company
 Agricultural Chemicals
 P.O. Box 85 • Minot, ND 58701





Around the State

WILLISTON notice to airmen that Williston traffic pattern is right hand to traffic for runway 03 and runway 11. This pattern is shown on their segmented circle and published on airmen's information guide.

PARSHALL plans to paint runway markings and numbers for the asphalt runway. Past bid costs for this type of work is \$1,500 to \$2,000.

WISHEK grading work on new runway is completed. The new strip will not open until next year. The airport still has 2000' of useable turf runway but it is not lighted.

ELLENDALE has completed a chip seal coat on all asphalt airport surfaces. A new hangar has been constructed. Future plans will be an auto parking area development and painting the runway centerline and numbers.

LIDGERWOOD The city has formed an airport authority. The first activities for the new authority will be a site selection for an airport and set up a budgetary program to support it.

OAKES is considering installing a SAVASI system to aid the pilot in selecting the approach path. A gas hose wench to roll up excess hose is also being considered.

TIOGA is drawing plans for an 800' extension of the asphalt runway. Drainage has been a problem on the airport. The airport authority is working to solve the springtime flooding of the hangars located in the northwest corner of the airport.

ENDERLIN has only 100 octane gas for public sale. The airport is being used by industry in constructing a sunflower plant south of town. This is an example of how an airport has helped industrial development for a community.

HETTINGER is looking into a radio-controller for operations of their airport lighting system. They also have a SAVASI to guide pilots on the approach over the community and reduce the noise impact of a low approach to runway 30 end.

COLUMBUS is planning to install electrical service for a new runway marking system. The airport was one of four selected across the U.S. for the FAA developed turf landing markers.

RELATIVE
want
ads . . .



WANTED

Selective Student Projects For Recovering And Refurbishing - Also Engine Overhauls - Contact: Dakota Aero Tech., Box 5534, Fargo, ND 58105 - (701) 237-5305.

FOR SALE:

1981 Piper, Super Cub; Only 2 Left From Piper's Last Production Run. Call John Spaulding, Mick Lumby-TASCO Aviation (612) 224-5788.

Want To **SELL** Or **BUY** Something?
Use A "RELATIVE WIND" Classified Ad. Pre-Paid only \$15.00 minimum or .75 per word (\$10.00 min. or .50 for NDAA members)
Fill in the blanks and mail your check To:
Prairie West Publications, Box 1018, Wahpeton, ND 58075
Deadline for December '81 Issue is November 23, 1981

					15.00/10.00
15.75/10.50	16.50/11.00	17.25/11.50	18.00/12.00	18.75/12.50	
19.50/13.00	20.25/13.50	21.00/14.00	21.75/14.50	22.50/15.00	
23.25/15.50	24.00/16.00	24.75/16.50	25.50/17.00	26.25/17.50	

Check One:

- FOR SALE** **WANTED TO BUY**
 JOB OPPORTUNITY **POSITION WANTED**
 FOR RENT/LEASE

North Dakota Aviation Association Officers

President: Ron Ehlers, Dickinson Air Service, Dickinson, ND.

Immediate Past President: Bill Beeks, Central Flying Service, Washburn, ND.

Vice-President: Larry Linrud, Tri-State Aviation, Inc., Wahpeton, ND.

Executive Secretary: Jack Daniels, Serv-Air Accessories, Inc., Williston, ND.

Treasurer: Fred Andersen, Aviation Services, Inc., Minot, ND.

Delegate to National Agricultural Assn.: Bob Odegaard, Odegaard Aviation, Inc., Kindred, ND.

Secretary: Arnie Widmer, Widmer Flying Services, Crete, ND 58020.

West Central Airways Fergus Falls Airport



- ☆ **New & Used Aircraft**
- ☆ **Flight Training** ☆ **Charter Flights**
- ☆ **Annual Inspections**
- ☆ **Large Stock of Parts**
- ☆ **Major Engine & Airframe Repair**

PIPER

West Central Airways

P.O. Box 432
Fergus Falls, MN
Phone (218) 736-3764

1976 CESSNA 182
IFR, 450SMOH, Full King
\$26,000.00

1979 PIPER TOMAHAWK
450 TT
\$9,950.00

1981 PIPER WARRIOR
King Radios
\$28,500.00

1970 PIPER NAVAJO
Full-ice, IFR, Clean, ND
\$115,000.00

1968 PAWNEE 260
Flagger
\$15,000.00

1976 AG CAT 450B
1800TT, 650SMOH, Sharp, Clean
\$49,500.00

1965 PAWNEE 235
Flagger
\$14,000.00

1977 PIPER WARRIOR
175TT, ND
\$24,500.00

1965 PAWNEE
Flagger
\$13,000.00

1965 CESSNA U-206
Full IFR, 600SMOH
\$23,000.00

1976 CESSNA 172
Full IFR
\$16,500.00

(2) 1972 CESSNA 150
L.T. Engine, New Paint, New Interior
each \$7,950.00

(4) 1975 CESSNA SKYLANE 182
All IFR, L. Time, ND. each \$24,500.00

NOW OPEN — HELICOPTER FLIGHT SCHOOL — Call Us For Information

Jamestown Aviation, Inc.

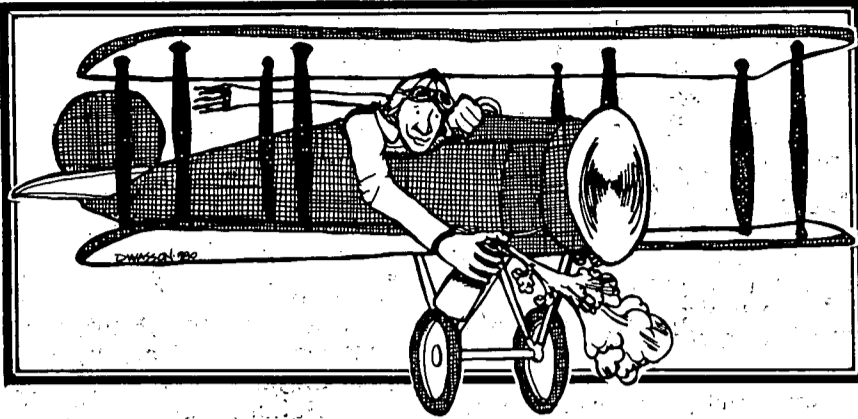


PIPER PAWNEE BRAVE

Post Office Box 427
Jamestown, North Dakota 58401
Phone 701-252-2150

Flying # 1 for Dan Thompson family

Dan Thompson, rural Wyndmere, North Dakota, is an aerial sprayer and wouldn't consider being anything else! Dan, wife Diane, and their three children, Robin, age 10, Danielle, age 7, and Matthew, age 3½, live in a beautifully remodeled farm house where Diane and her family lived while she was attending high school. The Thompsons have a 1500 acre farm 6 miles west and 2 miles south of Wyndmere on which they raise corn, edible beans, durum wheat, and sunflower.



Dan was born and raised on a farm west of Wyndmere but Diane grew up in Ohio. Her family moved here in 1962 then back to Ohio a few years later. Diane had learned to love the area by that time so decided to stay. She attended N.D.S.S.S. where she took L.P.N. training. She and Dan were married after her training.

Dan helped his father on the family farm until he became a student at N.D.S.U. where he earned a B.S. degree in Agriculture. He entered the U.S. Air Force in 1969 and took pilots training. He became a licensed pilot. He gained invaluable experience when he served a tour in Vietnam. Although the Thompson family is very busy, they are members of the Wyndmere Flying Club, where they fly as a family. Also when time permits they enjoy golf, tennis, reading, winter skiing, and camping. They attend the Wyndmere Lutheran Church where all are active participants. Dan is president of the school board and is quite active with their projects.

Though many activities garner the Thompsons' affection and attention, flying is #1 in their lives.

After his military experience, Dan and family moved to their present home which they purchased from Diane's father. According to Dan, "The farm was a lot smaller then so we needed another income to keep us going. That's when I started my business, Thompson Aerial Svc., Inc.

Of course, I had lots of experience with flying before that! In addition to the Air Force flying time, I worked with Ness

Air Spray out of Lisbon. I also flew the corporate plane for Clark Equipment, in Gwinner for three years.

I've been on my own since 1977. I own an Ag-Cat plane. The way I work is to wait for the farmer in need to give me a call. We discuss the problem and I explain what I think is the best approach. The farmer relies on me for recommendations so I do the very best I can for him. A poorly done job is the worst advertising in the world so I do my best for each and every customer! I am also a chemical dealer and stay current with new chemicals and techniques by meeting with my chemical supplier who visits here every couple of weeks or so. In addition I'm a member of N.D. State Aviation Assoc., and National Ag Aviation Assoc. I attend annual meetings and seminars with both of these groups. Of course, there are annual licensing requirements to keep current, too. Then there are grower meetings throughout the year. There's a lot of information available and I try to get as much of it as I can!"

How does Dan feel about aerial spraying now that he's been totally responsible for the applications he, and an occasional helper, have applied for the last 3 years? After musing thoughtfully for a few minutes he shared his thoughts and feelings directly and with candor.

"Agriculture Aviation is a very important part of farming. I've found chemicals are to be much respected but also are a very necessary part of farming today. Spraying in North Dakota

winds is a challenge too. It's quite limited, with 10 mile an hour winds being the best for an application, and you know how often we get one like that!

"Spring time is rush time around here. I start the season by spraying small grain, then edible beans, followed by sunflowers. I end by defoliating sunflowers and edible beans. The business keeps me so busy I've found a need to hire a full-time helper for farming my land and an occasional pilot for spraying. Diane's a big help, too, he continued, giving credit where it is due. "She does all the book work and handles the phone part of the business."

After pausing to think a moment, Dan gave his views of the sunflower challenge he faces now. "Sunflowers are relatively new in this area," he commented, speaking slowly, with a distant look on his face and in his eyes. They are good for all kinds of insect infestations and insects do much damage!

"Every year the problem increases, especially with the seed weevil. I said I'm kept busy, well, I get 300 to 350 flying hours in per season and many hours of ground work, which is demanding.

"For many years an aerial sprayer was only called when it was too wet for ground spraying. Thank goodness for us all that's changing. People are realizing that it's a fast, thorough, and practical way of dealing with crop problems.

"Considering all the problems I face in my profession," he confided, "the number one is public relations. Getting correct information to the public about what I'm doing professionally and clarifying misconceptions concerning aerial application of the chemicals used is very important."

After discussing the pros and cons, the ins and outs of his job, Dan laughingly summed up his philosophy of aerial spraying in one sentence. "It's hours of boredom interrupted by sheer terror, day in and day out!!"

Mechanics group seminar in March

The Upper Midwest Aviation Maintenance Symposium, sponsored by The North Dakota Professional Aviation Mechanics Association, March 9, 10 and 11, 1982, at The Kirkwood Motor Inn, Bismarck, North Dakota.

For more information on program scheduling, speakers, and display booths, Contact:

Ralph P. Braaten
913 7th St. W.
West Fargo, N.D. 58078
Tel: 701-282-6709

Or

Gordon Person
P.O. Box 5534 Univ. Station
Fargo, N. Da. 58105
Tel: 701-237-5305

Ground lighting illusions

Lights along a straight path, such as a road, and even lights on moving trains can be mistaken for runway and approach lights. Bright runway and approach lighting systems, especially where few lights illuminate the surrounding terrain, may create the illusion of less distance to the runway. The pilot who does not recognize this illusion will fly a higher approach.

SKY TRACTOR SUPPLY

(A Div. Of Deck Flying Service)

SCHWEIZER

AG-CAT

DISTRIBUTOR

SALES - SERVICE - PARTS



FOR SALE:

1979 G-164B 450

100TTA&E, 80 Gal. Fuel, Direct Drive Starter, 24V. Nav. Lights, Solid Systems Control, Bottom Loading System, Airfoil Superboom, Tail Wheel Lock, Cool Seat & Ext. Plug, Auto Flagger, Compro Smoker. N5272K \$85,000.00

FOR MARCH '82 DELIVERY —

(2) 1982 G-164B AG CATS — 400 Gal. (684B, 685B)

600 HP, FTO, 80 Gal. Fuel, 24V, APR, Nav. Lights, Spray Only, Dust Controls, Bottom Load, Cool Seat.

— Call For Price —

Distributors For:

- Cal-Mil Helmets
- Nomex Flight Suits
- Transland Spray Equipment
- Spraying Systems
- Automatic Flagman
- Flags
- Pacific Propellers

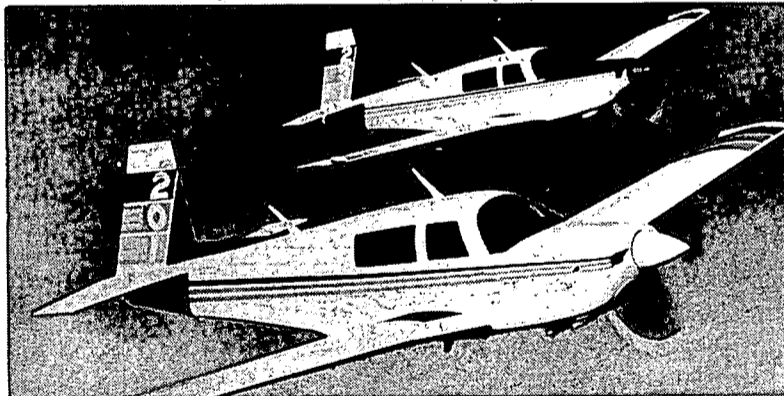
"YOUR COMPLETE LINE DEALER"

SKY TRACTOR SUPPLY

Hillsboro, ND 58045
701-436-4505

MOONEY AIRCRAFT

Our 35th year of Sales & Service



NEW in '82 - THE QUIET MOONEY

1982 offers a completely re-designed interior, giving additional comfort, space and substantially lower noise level — check it out! You will be visibly impressed.

1976 MOONEY

EXECUTIVE

1600 TT, O SMOH:
King Equipped, Fresh
November '81 Annual

12%

Financing Available
on all 1981 models

Willmar Air Service Inc.

Municipal Airport — Willmar, MN 56201
Bruce Jaeger, Pres.

612-235-4844 or After Hours 612-235-7985

GOOD SELECTION ON NEW AND USED MOONEYS
CALL FOR DEMO TODAY!