

# RELATIVE



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North Dakota Aeronautics Commission

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## An improvement at Bismarck airport

By Nancy E. Johnson

Members of the flying public have seen an improvement in the service provided by air traffic control at the Bismarck Airport during the past year. While the addition of the automated radar terminal system (ARTS) wasn't made for improved safety, it was made to increase the service level and reduce delays for pilots.

Darrel Pittman, public relations officer for the ATC in Bismarck emphasizes the system was safe before the addition of the ARTS II, so it has meant better service and less delays for the flying public. So far, the response has been good from both the controllers who are stationed in the tower and the flying public who uses the airport, he says.

The automated system means ARTS displays for the terminal controller an aircraft identification, flight plan data, other flight associated information

such as altitude and aircraft position symbols in conjunction with his radar presentation. This means a better picture of the air traffic situation for the controller and makes for better transfer and coordination of flight information, both within the tower and within the traffic control system.

The ARTS II specifically is aimed at airports with low to medium activity. It also means flight plan information may be exchanged between the terminal and the tower.

Pittman called installation of the system a "tremendous improvement. It has eliminated delays, eliminated holding during peak times." He notes the fuel savings are significant when light planes and jet liners don't have to wait as long to land. With three scheduled airlines and one commuter line operating out of the airport, this has meant some delays in the past during peak times. "Before this radar, there

was local congestion between 1 p.m. and 5 p.m." That congestion has been eased, he reports now.

Total operations for the airport in 1981 were 85,000 and Pittman projected there would be a substantial increase in that number for 1982. The airport is becoming more popular, he notes, and with the addition of radar, will be used more and more.

Radar has also made it easier for pilots to find the Bismarck Airport, he says, so the lost pilot situation is easier to deal with than in the past.

The ARTS II system was commissioned last August even though it was not totally constructed. But, the system was operational at the time, and more parts were being included to end up with the entire system.

Pittman notes the general aviation traffic may not be familiar with air traffic

control procedures. When the radar was being installed, an informational session was held in Bismarck, and pilots were briefed on the terminology and what they need to tell controllers. When they learn what the system can do, flying can be safer, Pittman said.

The ARTS II designation means some sequencing to the runway, general traffic advisory in and out of the airport, and closer separation of the traffic handled by the tower, he explained. Under this system, VFR separation is the responsibility of the pilot.

With the Stage III system, service would include VFR separation and sequencing to the runway, he explains. Installation of more advanced procedures, like the stage III would mean more training for personnel and no timetable has been established for this change.

## Airports will change tax collection methods

The 5 cent per gallon increase in Federal gasoline tax which becomes effective April 1, 1983, will change the method that airports retailing aviation gasoline charge the purchaser.

Effective April 1st, the refiner of aviation gasoline will collect 9 cents per gallon and add 9 cents federal tax to the wholesale price of aviation gasoline at the refinery level, in place of the present 4 cents per gallon federal tax. The wholesale price of aviation gasoline will include 9 cents per gallon federal tax on aviation gasoline.

The total federal tax on aviation gasoline is unchanged at 12 cents per gallon. The airport that retails aviation gasoline will add at retail 3 cents per gallon federal tax making a total of 12

cents per gallon federal tax. At present airports which retail aviation gasoline add 8 cents per gallon at retail. On April 1, 1983, this retail charge for federal gasoline tax will be reduced from 8 to 3 cents per gallon.

In case of aerial applicators who purchase aviation gasoline from a bulk dealer, with all federal aviation gasoline taxes paid, there will be no change in price to the aerial applicator as a result of the change in method of collection of the 12 cents per gallon federal tax on aviation gasoline.

There is no change at the airport in the retailing of jet motor fuel. The airport now collects at retail 14 cents per gallon federal tax on jet motor fuel. This will continue unchanged on April 1, 1983.

## New ILS systems are lower-powered

New ILS systems being installed by the FAA in North Dakota and across the nation are much lower powered than the old ILS.

These ILS systems have much less wattage and have directional antennas. You will only receive a strong and accurate signal when within 35° of the centerline of the runway being used, and only on the front course.

CAUTION is advised and all instrument readings outside the 35° centerline may be false readings and should be ignored. Remember there is no back

course if the runway has a front course on both runways. The older ILS's with back courses are higher powered and will give reverse sensing where the new ones may give false readings unless within 35° runway centerline.

For example, the new ILS at Bismarck to runway 13 is only reliable 35° on either side of centerline. Where runway 31 ILS may give you strong needle deflection on all sides, the new ILS systems are directional to the runway in use only and cannot be used as a back course.

## Aerospace Weekend is April 8 and 9

The Center for Aerospace Sciences at the University of North Dakota cordially invites you to attend the annual "Aero-space Weekend" on April 8th and 9th in Grand Forks, North Dakota. The activities begin on Friday with the Aerospace Seminar, featuring five presentations by representatives from prominent organizations within the Aerospace Industry, speaking from 9:00 a.m. until 4:30 p.m. at the Ramada Inn, Grand Forks. In addition to the presentations, a display area will feature material from aviation and computer science related fields, including several static displays. This area is available for viewing from 9:00 a.m. to 5:00 p.m. To conclude the day's events, a social hour will be held at the Ramada Inn beginning at 6:30 p.m. The Aerospace Seminar is being sponsored for the second year by the Student Aviation Management Association (SAMA).

On Saturday, April 9th, beginning at 8:00 a.m., the UND Chapter of Alpha Eta Rho, an International Aviation Fraternity, is sponsoring its annual Parents Day. Activities will include the annual "Poker Run" and many other events throughout the day at the Grand Forks International Airport. The weekend will be concluded by the Aerospace-Parent Weekend Banquet, which will be held Saturday night at the Ramada Inn. The evening's events will begin with a Social hour at 6:00 p.m. and continue with the dinner program at 7:00 p.m. The highlight of the banquet will be a presentation by Mr. John J. "Jack" Funsch, Vice President of Marketing for Beech Aircraft Company.

For further information please contact Doug Webster, Aviation Department University of North Dakota at (701) 777-2791.

# PGRs: opportunity and challenge

By Don Page, Union Carbide

"The most significant occurrence in the history of plant growth regulators," Dr. Anson Cooke said recently, "is their current expansion from the traditional, small acreage horticultural crop usages into large acreage agronomic crops, such as cotton, small grains and sugarcane."

Dr. Cooke, Executive Officer of The Plant Growth Regulator Society of America, and a well known plant physiologist, went on to point out that plant growth regulators, or PGRs as they are popularly called, are not the fastest growing segment of the agricultural chemical industry. And that rate of growth is expected to quicken as the sharply increased industry investment in PGR research begins to pay dividends.

What does this expanding technology mean to the aerial applicator? It means both the increased opportunity of growing markets and the increased challenge of making the precise applications required by some of the newer PGRs.

## Where It All Started

Perhaps the most important early research with plant growth regulators occurred in the late 1930s, with such materials as naphthaleneacetic acid and the phenoxyacetic acids. Although this research led directly to the development of 2,4-D, the world's first selective agricultural herbicide, only minor horticultural uses were discovered for PGRs per se. Gibberellic acid then kept plant scientists intrigued with the potential for plant growth regulators during the 50s and 60s, but again only minor crop uses ever materialized. But work with auxins, gibberellins, cytokinins and ethylene continued, and much was learned about the way these materials can affect plant development and growth.

## Ethephon - A Significant Milestone

Plant scientists have known for some time that ethylene is one of nature's most potent plant hormones. Over twenty different physiological responses to ethylene have been observed in carefully conducted laboratory experiments. For example, ethylene can stimulate or inhibit germination, root development, vegetative

growth and flowering.

But while the effects of ethylene on plant tissue could be observed with ethylene gas in laboratory growth chambers, the practical introduction of ethylene to the crop in the field remained quite another matter.

The discovery of the ethylene releasing activity of 2-chloroethyl phosphonic acid, or ethephon, solved the problem. This material, which is applied in liquid form, is rapidly absorbed by the plant. It quickly breaks down within the plant tissue, in a simple pH dependent chemical reaction, to ethylene, chloride ion and inorganic phosphate, all naturally occurring plant constituents. But the really significant product of this decomposition is, of course, the ethylene.

## Worldwide Crop Registration

Union Carbide, the developer of ethephon, has to date registered this plant growth regulator, usually under the trademarks ETHREL®, CERONE™ and FLOREL®, in over twenty crops in the U.S. and about thirty crops worldwide. The first registrations were typically for traditional PGR uses in horticultural crops, crops which rarely offered opportunity to the aerial applicator. The one exception was the use of ETHREL on tomatoes grown for processing and mechanically harvested, where over 75% of the applications are made by air.

But it is the recent development of important new uses for PGRs in the large acreage agronomic crops that will impact the aerial application industry.

## New Opportunities In Small Grains

Lodging has long been a problem in small grains. Although the development of the so called "short straw" wheat varieties a decade or so ago significantly reduced the problem in wheat, over 10 million acres of wheat and barley grown in the U.S. and Canada still have a serious lodging problem in an average year. The problem is not limited to any particular geographic area and can occur wherever soil mixture is sufficient to insure good

grain growth. However, lodging occurs most frequently in high yielding small grains grown in the eastern half of the U.S. and Canada, the higher rainfall area of the northwestern states and wherever small grains are grown under irrigation. About six million acres of wheat and barley are now irrigated in the U.S. alone. Ethephon, when properly applied to wheat, barley or rye can prevent lodging by significantly shortening and stiffening the stalk. An ethephon formulation to be sold under the CERONE™ trademark is expected to be registered in both the U.S. and Canada sometime this year. And virtually all the CERONE sold in North America will be applied by air.

## Application - The Need for Precision

Since the application of a PGR often affects the crop in a visible way, a precise, uniform application of the chemical is necessary. The boll opening response of cotton to ethephon, for example, turns the treated field to a snowy white — and any missed areas become very apparent streaks of green. An application of ethephon on wheat, barley or rye could reduce the eventual height of the crop by as much as ten inches, and any "wide-swathing" or missed areas will become painfully obvious in about two weeks. And such areas will remain obvious until harvest. We recently reviewed an aerial photo of a barley field which had been treated with CERONE two weeks earlier, and almost every pass the applicator made over the field was indelibly marked on that crop, and would remain so until harvest.

Unlike many fungicides and insecticides, where some degree of "wide-swathing" or uneven application can be of little practical importance — or at least go unnoticed — the application of most PGRs requires considerably more care. So while PGRs offer the aerial applicator opportunities for expanded markets, they also present the challenge of precision application.

## Aukes awarded

David Aukes, Bismarck, was named recipient of the fifth North Dakota Aviation Maintenance Safety Award.

The award, sponsored by the North Dakota Professional Aviation Mechanics Association and the North Dakota State Aeronautics Commission was presented at the ninth Upper Midwest Aviation Maintenance Seminar.

The award is based upon a significant contribution to safety and professionalism in aviation maintenance. Aukes is director of maintenance for Executive Air Taxi Inc., Bismarck.

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## Compass rose at Grafton

By Tina Evans

The Grafton Municipal Airport has a compass rose available for use by any pilot who wants to check compass accuracy in his or her aircraft.

According to George Loranger, a member of the Experimental Aircraft Association chapter that constructed the compass rose, it is unique in the state.

"To my knowledge this is the only one in the state. There may be another, but I think this is the only one," he said.

The EAA chapter 380, out of Grand Forks, decided to paint the compass rose as a public service, he said.

"The only other way to check your compass is to take your aircraft up in the air and fly along a section line and check by that," he said, laughing. "We figured we've got the room at the airport, we might as well do it."

Three members of the EAA chapter did the work themselves. The EAA is an international organization of people interested in aviation, "predominantly toward building and maintaining their

own aircraft," Loranger said.

The compass rose is a 50-foot-diameter circle on the ground, with the cardinal points of the compass marked on it. The pilot places the aircraft on the circle with its nose pointing north. This way, he or she can tell how many degrees off the compass of the aircraft is and adjust accordingly. The pilot swings the aircraft around the compass rose to each marked point and notes corrections that are necessary.

## May Day fly-in

The fifth annual Fly-In breakfast will be held on May-Day, Sunday, May 1, 1983 at the Crookston Municipal Airport, Crookston, Minn. This event is sponsored by the UMC Flying Trojans.

Pancakes and sausage will be served from 8 a.m. to 1 p.m. with ultra lights on display on the field.

Everyone is welcome. For further information call 218-281-2625 and ask for Larry.

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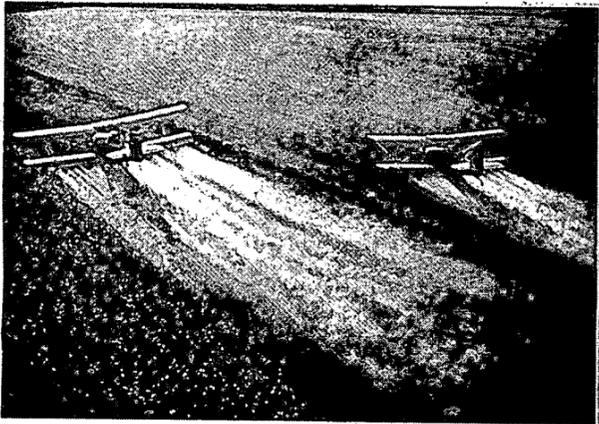
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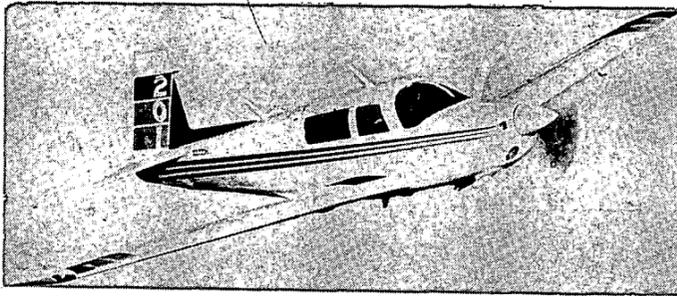
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# N.D. Aviation Council holds first meeting

The first regular meeting of the North Dakota Aviation Council was held at the Kirkwood Motor Inn on March 9, 1983, and called to order by interim chairman Dennis Rohlf.

The North Dakota Aviation Association was represented by Ben Meiers and Bill Pace.

The North Dakota Agricultural Aircraft Association was represented by Bob Odegard and Lyn Thompson.

The North Dakota Professional Aviation Mechanics Association was represented by Gary Johnson and Larry Buller.

#### Election of Officers:

Nominations for chairman were brought to the council by the representatives from their organizations. Nominations were Dennis Rohlf, Dan Thompson, and Gorden Person with Gorden Person elected on voice vote.

Nominations for Vice Chairman were taken from the floor. Lyn Thompson and Bill Pace were nominated with Bill Pace elected on voice vote.

Nominations for secretary were taken from the floor with Larry Buller nominated and elected.

It was noted that the contract with Relative Wind expires on July 1, 1983, and that Prairie West Publications does not intend to renew. Discussions were held on alternatives with action being

tabled until a later date.

The 1984 convention date was set at March 13, 14, and 15. The 12th was also reserved for those organizations desiring an extra day. Any group wishing to participate in this convention is invited to coordinate with the NDAC Chairman. The 1984 Convention will be open to any organization participating in the NDAC.

The next regular meeting will be held on April 1, 1983, 10:30 a.m. at the Aeronautics Commission meeting room, Bismarck, N.D. The preliminary agenda will be constitution and by laws, news publication, name of convention, and fees.

Larry Buller  
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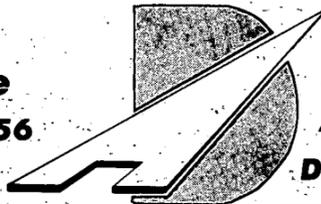
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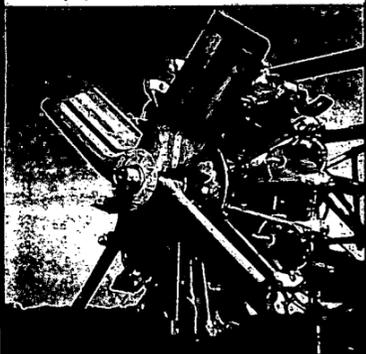
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