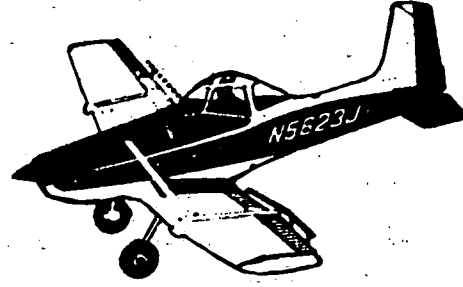


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# RELATIVE WIND

The Official Publication Of  
The North Dakota Aviation  
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Official News Of The North  
Dakota Aeronautics Commission.



Vol. 1 - No. 10

June 1980

Wahpeton, ND 58075

## House committee rejects tax proposal

The U.S. House Ways and Means Committee voted in late May to reject the President's tax bill which would have imposed a new ten percent tax on the sales price of aviation gasoline and jet motor fuel sold to general aviation purchasers, according to Harold G. Vavra, Director of the North Dakota Aeronautics Commission.

The White House proposal would have replaced the present 7 cents per gallon tax on general aviation motor fuels with a 10 percent sales tax at the retail level. Vavra said the State Aeronautics Commission and other states opposed the new tax on the grounds that the

Federal Airport and Airways Trust Fund already had a surplus of \$4.5 billion dollars with the surplus growing at the rate of \$90 million dollars per month.

The Ways and Means Committee also rejected a White House proposal to levy a new six percent excise tax on the sale price of new general aviation aircraft and on avionics installed in new aircraft. This tax would be in addition to any state sales or use tax.

In other action, the House Tax Committee voted to extend the current 8 percent tax on airline passenger tickets through September 30, 1982.

Under existing law, the airline ticket tax would have dropped to 5 percent on July 1st, if the Committee took no action, Vavra said.

The Congressional Committee voted to extend the life of the Airport and Airways Trust Fund for five years. The Federal Airport-Airways trust fund receives revenue from all forms of aviation taxes, which provides user tax funds for the Federal-aid airport program, which benefits both air carrier and General Aviation airports in the United States. It also is a source of funds for the Federal Aviation Administration for the purchase and installation of equipment for FAA control towers, flight service stations, federal navigational aids,

radars and air traffic centers.

The North Dakota Aeronautics Commission in opposing the ten percent Federal sales tax on aviation gasoline documented to the House Ways and Means Committee, a schedule showing the affects of such a tax. At the present retail price of aviation gasoline, a ten percent sales tax would increase the net federal tax on aviation gasoline from its present 7 cents per gallon to 16c per gallon. Assuming that aviation gasoline will be retailing between \$2.00 or \$2.50 per gallon within the next 12 months, a ten percent sales tax would amount to between 19 and 24c per gallon.

Continued on Page 2

## Aerial infrared photography offers farmers good management tool

By Sue Retka

The farmer does it almost unconsciously — hops in the plane and flies over his land to check on his fields and pastures. With a 35 mm camera and special film, he could get an even better picture of what's happening to his land.

Color infrared photography has been used in the Red River Valley for nearly 10 years. Its first application was in early detection of potato blight. Today, it's most frequent use is among growers of specialty crops, and among irrigators. Disease and water stress generally show up much earlier on infrared film, giving the grower a chance to take action sooner.

Dr. Ed Lloyd, founder of AGVISE at Northwood, N.D., routinely uses color infrared as a tool in his consulting service. He plans an early flight over the fields just as the crop is emerging. The crop itself isn't far enough along to photograph well, but the weeds are. Soil problems can also be spotted. The early flight also provides check slides for comparison with later slides.

In mid July, Lloyd flies the irrigated fields looking for management problems. Patterns in a center pivot point out nozzle problems or uneven travel of the boom. In August, he flies the specialty crops, hoping to spot diseases early enough for more effective treatment.

A healthy field appears an even red on color infrared film. Vegetation that's under stress will appear darker or lighter. Drought stress will appear light red or pink. In the first stages of many diseases, the plant will appear darker.

Infrared rays have longer wavelengths than visible red. They work nicely for agricultural interpretation because the chlorophyll in live, green plants absorbs a large percentage of variable light but transmits most of the infrared.

A regular 35 mm camera with a normal lens can be used for color infrared. Kodak Ektachrome Infrared Film can be

ordered at a camera store. A Kodak Wratten Filter No. 12 (yellow) is also needed.

Buy fresh film and store it in the freezer until a half hour or so before using. Plan to shoot the entire roll and send it off for processing the same or next day.

Aerial infrared with conventional cameras will need a focus adjustment. Many lenses mark the infrared position with a red dot, or set the focus at 50 to 80 feet in order to get infrared pictures at infinity. You may want to preset the camera and tape it in position.

Choose your altitude according to how much area you want in a frame. Dr. Lloyd advises the worst problem is flying too high. For photos of an entire center pivot he generally flies at 1500 feet AGL. For disease detection he flies between 700 and 800 feet AGL. The lower the altitude, the slower the airspeed.

Shoot through an open window, or if you can, take a door off for an unobstructed view. Dr. Lloyd had a hole cut into the belly of a plane for straight on shots, although an oblique shot works better in many cases. The advantage of an oblique shot, he explained, is that more of the leaf surface is seen, where in a straight-on shot, more ground and less leaves are seen.

Shoot your color infrared at midday, 11 a.m. to 2 p.m. Not only are shadows less pronounced, but you'll get the greatest percentage of infrared rays at that time. Get the sun behind you. At that time of day, you'll generally fly due north.

Send your film off immediately. When the slides come back, be sure to have the people that know the fields best there to help interpret.

A nice, even red means a healthy field. Various shades of red mean that there are problems. The fertilizer applicator may recognize where the equipment malfunctioned. The farmer should mark the spots where soil types are the reason behind less vigorous plant stands. Many

times the cause will be unknown until you walk the field. Mark the questionable spots on a field map, or take the slides and a hand viewer with you.

Use for infrared include:

—Check on the plant stand. Spot problems with a fertilizer application, planters and drills.

—Monitor irrigation. Spot uneven distribution of water.

—Detect disease infestation and see the area of infestation.

—Assess crop damage for insurance.

—Evaluate the land for drainage problems or soil boundaries. For drainage problems, fly immediately after a heavy summer rain.

—Identify weed patches. Montana residents have used aerial color infrared to find patches of leafy spurge in remote areas that were later spot treated by land.

—Modified black and white infrared (using an orange filter) has been used successfully for counting livestock on the open range.

There are other uses for infrared photography besides agricultural. Foresters use infrared photography for tree surveys, and archeologists use infrared photos to locate oil village sites.

Some landscape photographers like the special effects of black and white infrared. The sky is darkened and clouds or snow are dramatically emphasized. Trees and grass appear lighter than normal. The affect can make a daylight scene appear like a moonlit scene.

For more details on shooting infrared film and aerial photography read the following Kodak publications. The first one is quite technical, and gives a helpful bibliography of research papers written on applied infrared photography. Kodak Publication M-28, Applied InfraRed Photography; Kodak Publication M-76, Photointerpretation for Land Managers; Kodak Publication M-5, Photography from Light Planes and Helicopters.

## From Your President

By Bill Beeks, NDAA President

Things have been rather quiet for the last couple of months; the environmentalists have been quieted for a while. In fact they are fit to be tied with all the dust from Mt. St. Helens, and nobody to blame for it.

The lack of rain, along with high temperatures and winds are hampering the prospects of a very good spray season in North Dakota this year. At this point it appears there may not be any spraying at all in some areas. Let's hope that we have some general rains by the time this reaches print.

Plans are in progress for the annual operator's convention. If anyone has any suggestions or ideas they would like to pass on, please contact someone on the board of directors.

From Page One

## Tax Proposal

In addition, the imposition of a ten percent federal sales tax would greatly complicate the calculation of the retail price of aviation gasoline because the present tax of 7 cents per gallon is collected at two levels. Four cents of the present federal tax on aviation gasoline is collected at the refinery on all gasolines regardless of their ultimate use, including automotive. The 3 cents per gallon on aviation gasoline is collected at the retail level making a total of 7 cents. For technical reasons, it would have been impossible to eliminate the 4c federal tax on aviation gasoline at the refinery level. Therefore, if a ten percent federal sales tax was enacted into law, the airport making the retail sale would have to first deduct the

4c per gallon tax before figuring the 10 percent tax on the sales price.

Jet motor fuels used by general aviation aircraft which are turbine powered or jet aircraft, would also be hit with a 10 percent sales tax, under the proposal, which would be collected at the retail level.

Further complicating this proposal is the fact that Federal tax laws provide that on-demand air taxi operators utilizing aircraft with a maximum certificated take off weight of 6,000 pounds or less, would pay the 10 percent tax on aviation gasoline or jet motor fuel, because the law classifies these operations as non-commercial aircraft.

On-demand air taxi operators under the proposal, who

operate aircraft of more than 6,000 pounds maximum certified gross take off weight are classified as commercial aircraft and would be exempt of the 10 percent sales tax on aviation fuels, but are required to collect the 8 percent passenger ticket tax and remit same to the Internal Revenue Service.

A 10 percent sales tax on general aviation fuels, if passed, would adversely affect the

owners of 1,700 aircraft in North Dakota. Nationally, it would have adversely affected the owners of 50,000 aircraft used primarily for business purposes along with a total fleet of about 175,000 general aviation aircraft owners and operators. In addition, 3,000 air taxi operators utilizing aircraft of 6,000 pounds gross weight or less, would be burdened with a huge tax increase.

## From Your Secretary

By Jack Daniels, NDAA Secretary

We had our meeting in Bismarck on May 6 and found very poor response.

One operator from Bismarck, one from Minot, one from Dickinson and myself were in attendance, along with Dave Voxland from Fargo.

It is apparent that either I am overly concerned about the recurrent training requirements or the rest of you don't really understand what is required or, perhaps, I am the dumbest operator in the state.

Not being willing to accept the last possibility of those listed. I am going to try one more time to get a consensus of opinion on whether or not the association wants to sponsor some sort of single entity program for recurrent training in connection with FAR 135 requirements.

Those few of us that did attend the meeting in Bismarck felt that something needed to be done to provide some relief for the operators that are soon to be faced with recurrent training.

I would like to suggest that you take a good hard look at what is really required in your training manuals and determine how you intend to meet those requirements.

We still need to gather together all the FAR 135 ATCO certificate holders and determine what areas of commonality exist and how we can deal with the training requirements for recurrent training.

A separate mailing to each certificate holder will be sent out shortly with some specific possibilities to explore. Those of you who now hold ATCO certificates must give serious consideration to the matters presented in that letter.

I get very little pleasure from saying, "I told you so!" I would much rather prepare for what is coming and be able to deal with the issues in a professional manner. The days of haphazard 135 operations are over. The FAA is going to ride close herd on all of us in the future and we must be ready for same.

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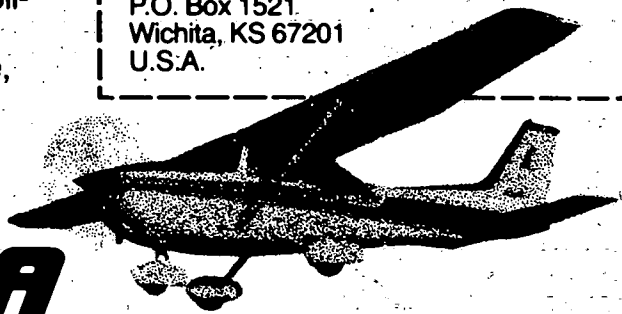
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## North Dakota General Aviation airport improvements needed in next six years

The North Dakota Aeronautics Commission completed a study of 70 General Aviation airports to determine what construction and improvements will be needed in the next six years between 1980 and 1985. The study also forecasts the revenue sources for financing improvements for the system of General Aviation Airports.

The North Dakota study based on 1980 dollars, not adjusted for inflation, show that a total of \$12,000,000 will be needed to maintain and improve the present system of general aviation airports in North Dakota between 1980 and 1985.

Sources of revenue to fund capital improvements in the next six years on General Aviation Airports breaks down to:

1980-1985 Total Forecasted Improvement Costs	Local Airport Authority Resources	State Aid Resources Estimated	Federal-aid for General Aviation Airports	Deficit to Carry out 6- Year Airport Program
\$12,000,000	\$2,910,000	\$2,460,000	\$4,800,000	-\$1,830,000

## North Dakota airline airport capital improvements needed in next six years

The North Dakota Aeronautics Commission completed a study of eight airline airports at Bismarck, Devils Lake, Dickinson, Fargo, Grand Forks, Jamestown, Minot and Williston to determine capital improvements needed in the next six years between 1980 and 1985. The type and cost of these capital improvements is based on information obtained from airport managers at the eight major airports involved in providing air carrier service to the State of North Dakota. The dollar amounts are based on 1980-dollars, not adjusted for inflation, shows a need for \$47,751,000 between 1980 and 1985 to improve the present system of air carrier airports in North Dakota.

Sources of revenue to fund capital improvements in the next six years at airline airports at Bismarck, Devils Lake, Dickinson, Fargo, Grand Forks, Jamestown, Minot and Williston break down to:

1980-1985 Total Forecasted Capital Improvements	Local Airport Funding Resources	State-aid Resources Estimated	Federal-aid For Air Carrier Airports	Deficit to Carry out 6- Year Program
\$47,751,000	\$6,495,000	\$3,000,000	\$26,400,000	-\$11,856,000

In the next issue of Relative Wind, the Aeronautics Commission will discuss alternatives to overcome the projected deficit in the six-year airport capital improvement program in North Dakota.

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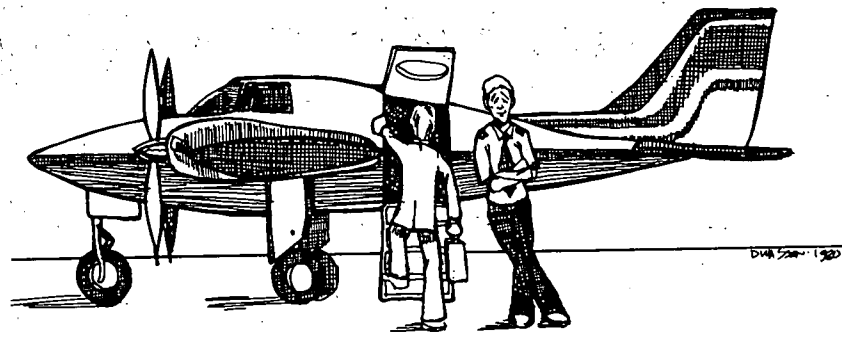
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## Big Sky Airlines wins federal subsidy to fly in Montana and North Dakota

The Civil Aeronautics Board (CAB) awarded Big Sky Airlines of Billings, Montana \$1,031,000 annual subsidy to provide flights to eight cities in Montana and North Dakota replacing Frontier Airlines in these markets.

The CAB in an unanimous decision issued in Washington, D.C. on May 13th (formal order served on May 20th), determined that the Billings, Montana based airline is more dependable and prepared than a competitor to pick up service on the vast and isolated energy area located in western North Dakota and eastern Montana.

RealWest Airlines of Fargo, N.D. also had bid for the routes in the two states.

Big Sky plans to start flying the new routes on July 1st, ending a year-long search for an airline to replace Frontier Airlines when it pulls out.

Frontier Airlines applied last April to abandon the routes under the airline deregulation act of 1978, which allows airlines to quit serving markets at will.

Big Sky Airlines will take over from Frontier in Billings, Glasgow, Glendive, Havre, Lewistown, Miles City, Sidney and Wolf Point, Montana and Williston and Bismarck, North Dakota. Big Sky also received authority from the North Dakota Aeronautics Commission to serve Dickinson, N.D.

The CAB's decision held that it was of great importance to put a replacement carrier on line as soon as possible. It said Big Sky Airlines is clearly superior in its ability to begin service promptly and that RealWest's delays would be to the detriment of the communities.

The CAB faulted RealWest Airlines for failing to provide balance sheets and profit and loss statements. RealWest has

been negotiating with private investors and with the Bank of North Dakota to acquire from \$4 to \$6 million in new capital.

The CAB said in its order that its staff has been assured by RealWest in the past four months that such financing was imminent, but nothing has materialized.

Under the Board's order, Big Sky Airlines will receive \$1,031,000 in Federal Subsidy the first year and \$985,000 the second year. Big Sky asked the CAB for a subsidy of \$1,484,000 for the first year plus an allowance for return on investment and taxes amounting to \$742,000. The CAB's reduction in subsidy allowance to Big Sky was based on the Board's disallowance for any subsidy for the Williston-Bismarck part of the service, which the CAB held would be profitable to the airline.

Big Sky plans to use two 19 seat pressurized turbo-prop Swearington Metroliners and three eight passenger Cessna 402C's on the routes.

Big Sky Airlines currently serves Billings, Butte, Great Falls, Helena and Missoula, Montana; Casper, Sheyenne and Sheridan, Wyoming and Boise, Idaho.

RealWest Airlines currently serves Bismarck, Bowman, Dickinson, Fargo, Minot and Williston, N.D., Rapid City, S.D., and Casper and Gillette, Wyoming.

The cities and other parties involved in the CAB decision have until May 30th to appeal the CAB's decision if they are dissatisfied with the Board's decision or the Board's definition of "Essential Air Service" for the cities. The appeal must be filed in Washington, D.C. by that date.

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# Aeronautics Commission approves Big Sky Airlines for air routes in North Dakota

The North Dakota Aeronautics Commission in a hearing at Bismarck on May 2nd approved the application of Big Sky Airlines, Billings, Montana to fly four North Dakota air routes including routes:

1. Between Bismarck and Williston, N.D. and beyond to cities in Montana, and
2. Between Bismarck and Dickinson and beyond to Montana cities, and
3. Between Bismarck and Dickinson on a turnaround basis, and
4. Between Bismarck, Dickinson and Williston, N.D.

The Aeronautics Commission attached three conditions before a North Dakota State Common Air Carrier Certificate may be issued to Big Sky Airlines, which are:

1. The payment of \$150.00 for a Common Air Carrier certificate which is required by state law.
2. That Big Sky Airlines receive a certificate of authority to transact business in North Dakota from the Secretary of

State, and  
3. That Big Sky Airlines furnish a bond in an amount equal to the estimated annual utility taxes which are assessed on all air transportation companies which are engaged in scheduled air transportation in North Dakota.

The route approval is contingent upon Big Sky Airlines being named by the Civil Aeronautics Board (CAB) as the air carrier replacing Frontier Airlines in western North Dakota and eastern Montana.

Frontier Airlines over a year ago asked the CAB to drop its present air service between Bismarck, N.D. and Billings, Montana with stops at Williston, N.D., Sidney, Glendive and Miles City, Mont., and between Bismarck and Billings, Mont. with stops at Williston, Wolf Point and Glasgow, Montana. In addition between Havre and Lewiston, Montana and Billings, Montana.

Big Sky Airlines testified at

the hearing that if it determines that the present air service at Dickinson provided by RealWest Airlines is inadequate, that airline could begin service to Dickinson within 90 days.

Big Sky Airlines plans two daily round-trips between Bismarck and Williston and beyond to Montana cities with 19 passenger turbo-prop pressurized Swearington Metroliners and one daily round-trip with an eight passenger Cessna 402C aircraft.

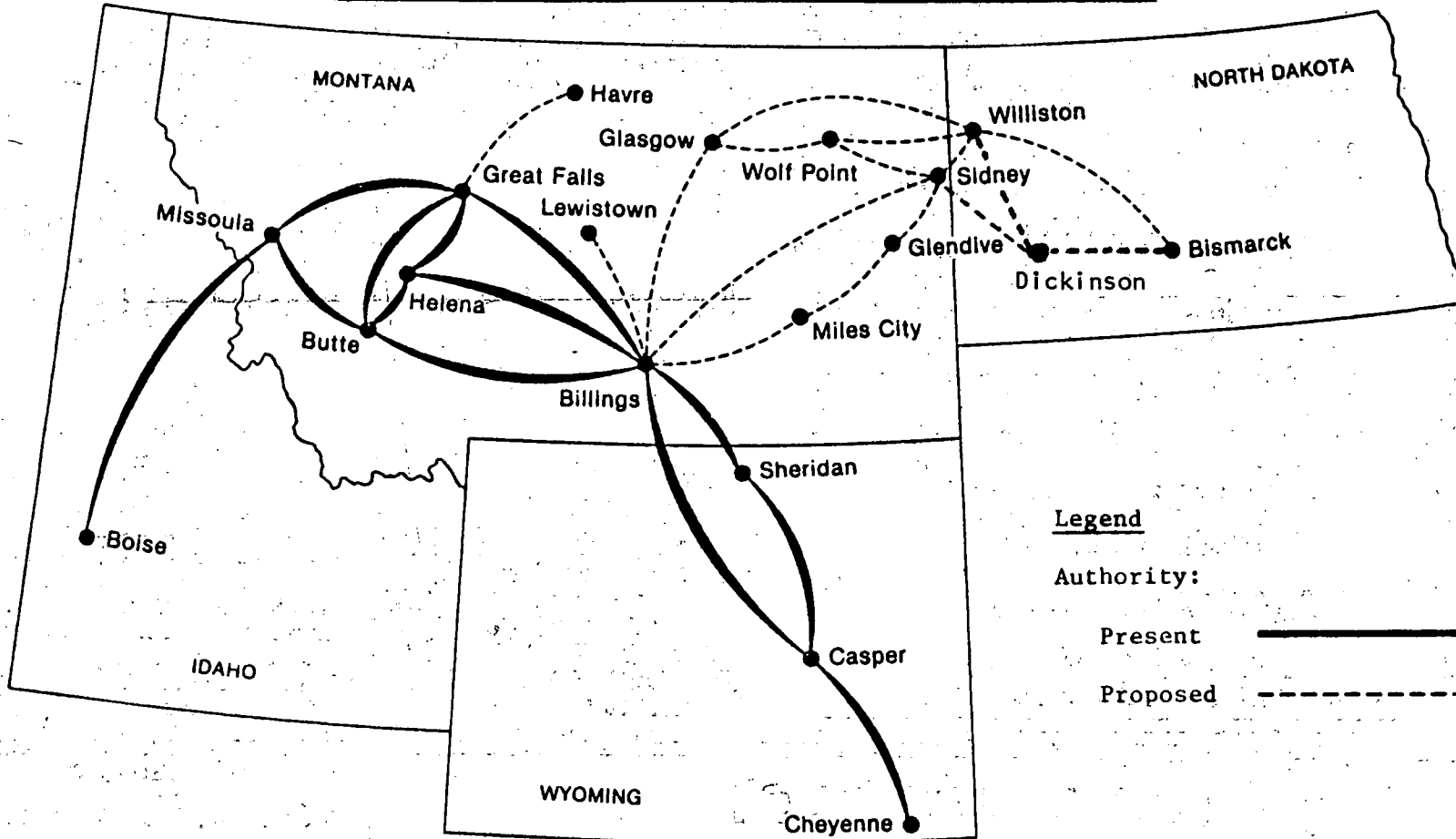
Big Sky Airlines' officials testifying in support of its application included Dale Norby, President, Terry Marshall, Vice-President for Planning, Gary Wolterman, Director of Operations, Jase Norsworthy, Secretary and Director, George Selover, Treasurer and Tom L. Footitt, Controller, all from Billings, Montana.

North Dakota witnesses testify in support of Big Sky Airlines' application included

Del Gab, member of the Dickinson Municipal Airport Authority, Polly Prchal, representing the Dickinson Board of City Commissioners, Don Charbonneau, President of the Dickinson Area Chamber of Commerce, B.F. Kolden, Dickinson Area Chamber of Commerce, and Richard Prchal, Manager of the Dickinson Municipal Airport, Michael Strotheide, Vice Pres., Williston Chamber of Commerce, Gary Sukut, Transportation Committee, Williston Chamber of Commerce and J.A. Haugen, Pres. Williston City Commission. Also in support of Big Sky Airlines was Michael Ferguson, Administrator of the Montana Aeronautics Board, Helena, Montana.

David A. Turner, Fargo, Vice President of RealWest Airlines testified in opposition to Big Sky Airlines serving Dickinson maintaining that the market place potential would be diluted if Big Sky is allowed to compete with RealWest at Dickinson.

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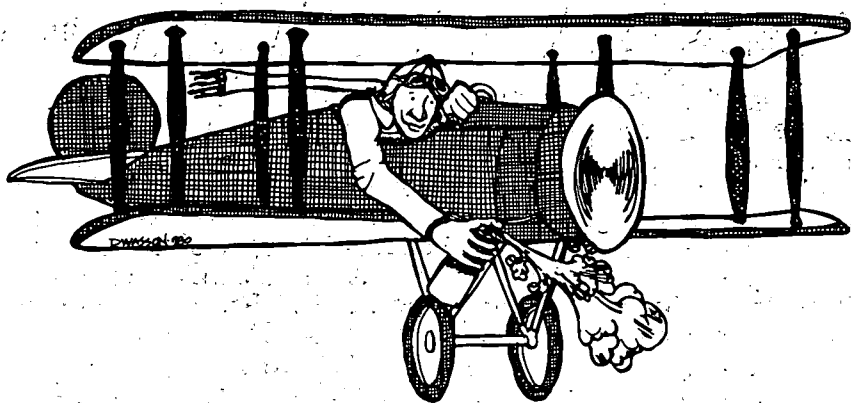
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## Minnesota allows special need uses

Special local need registrations have been authorized by the Minnesota Department of Agriculture, subject to the usual public comment and hearings, for the use of two specific pesticides in controlling economic problems in fields of wheat, oats and Kentucky bluegrass.

Banvel herbicide manufactured by Velsicol Chemical Corp., Chicago, Illinois, 60611, is authorized for aerial application at reduced rates when mixed with 2, 4-D and MCPA, to be tank mixed with bromoxynil to control broadleaf weeds in wheat and oats.

Paraquat CL manufactured by Chevron Chemical Company, Richmond, California, 94804, is authorized for use as a post harvest desiccation aid for Kentucky bluegrass fields to facilitate burning and increase the following seed crop yield.

May 1 was the deadline for public comment and petitions objecting to the conditionally issued special local need registrations.

Properly filed objections may result in the ordering of a public hearing for the purpose of revoking, amending or upholding these registrations.

Based on information in the applications for the special local need registrations the Commissioner of Agriculture has determined that issuance of the registrations is in the public interest and that the pesticides specified for the uses beyond those stated on the product labels do not have potential for unreasonable adverse environmental effects.

A federal or state agency, a local unit of government, or any person or group of persons filing objections to these registrations may do so by a petition containing the signatures and addresses of 500 or more individuals of legal voting age. The petition should be filed with the Commissioner of Agriculture, 90 West Plato Boulevard, St. Paul, Minnesota 55107.

## Aerial applicator meetings

Chevron Chemical Company recently held meetings for aerial applicators and their wives in Minot and Moorhead. The purpose of these meetings was to introduce the 1980 Paraquat Sunflower Harvest Aid Program to applicators in Minnesota and the Dakotas.

Some 70 applicators and wives attended the meetings and learned about the Moisture Tester Program and the rebate for applying Paraquat.

Dr. C. W. Whitehead presented data showing that Paraquat can be applied safely to sunflowers at 35 percent, or less, moisture. ORTHO is sponsoring a "FARMI Grain Moisture Tester Program" to

aid applicators in determining the proper time to apply Paraquat to sunflowers. Participating applicators earn bonus dollars for each gallon of Paraquat sprayed on sunflowers. These bonus dollars apply toward the purchase of the tester.

Your distributors or ORTHO Sales Representative can provide the details.

## New insecticide cleared for grasshoppers

Chevron Chemical Company announced that North Dakota has issued a state label for the use of the insecticide ORTHENE 75S for grasshopper control. ORTHENE now has

state labels for this use in North Dakota, South Dakota, Montana, Wyoming, Nebraska and Colorado.

Chevron states ORTHENE is safer to handle than many of the products currently in use, and is more effective on the larger grasshoppers. ORTHENE 75S is applied in only two quarts of water per acre.

Your distributors or ORTHO Sales Representatives have more details.

## Special thanks

The story on Reciprocity in aerial spraying run in last month's Relative Wind was run courtesy of Dick Beeler, editor of Agrichemical Age. Credit should have read: "Reprinted by permission of AGRICHEMICAL AGE; Copyright © 1980 by CALIFORNIA FARMER PUBLISHING CO. Many thanks, Dick."

## FAA cautions

Some agricultural aircraft operators are purchasing modified spray booms and attaching hardware for use on their ag aircraft. The installation of this modified equipment constitutes a major alteration and, like any other such alteration, must receive FAA approval prior to use.

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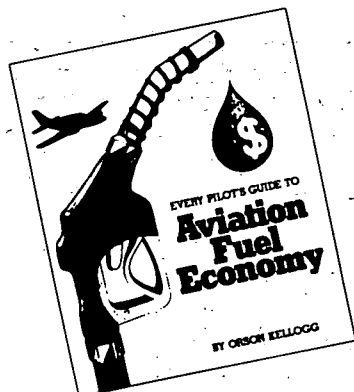
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## The Great Plains thunderstorm

No other weather phenomenon demands more respect from the pilot than the thunderstorm. This rampant "weather factory" is capable of producing all weather elements that are a deterrent to safe flying: such as severe turbulence, tornadoes, hail, icing, strong gusty and shifting surface winds, low ceilings, poor visibilities, and rapid pressure changes. Several of these may also be encountered "in the vicinity" of a thunderstorm. On the downwind side ahead of a thunderstorm large hail has been encountered a distance of five miles or more from the storms edge in completely clear air.

While thunderstorms may occur any month, their frequency and intensity increase considerably in the spring, reaching a peak over the southern plains in May, the central plains in late May or early June and the northern plains in June.

The safest way to fly a thunderstorm is by circumnavigation. However even then caution is advised, especially if the route is ahead of the storm, where frequently hail, spewed out of the top of the thunderstorm and carried on ahead by the upper winds, has battered airplanes.

There are two basic types of thunderstorms; air mass and frontal. Both types occur almost exclusively in warm, moist air from the Gulf of Mexico. Air mass thunderstorms are commonly scattered about in a random fashion and generally can be circumnavigated. They occur mainly in the afternoon and evening, brought on largely by afternoon heating, and frequently dissipate or decrease in intensity by midnight. The frontal type occurs under a similar pattern when there is sufficient heating to develop thunderstorms over the high plains during the late afternoon along a frontal zone and the western edge of a tongue of gulf moisture. As the westerly winds aloft move these thunderstorms eastward across the plains during the evening, the thunderstorms generally increase in number and intensity and frequently develop into squall lines 50 to

100 miles long or longer. These thunderstorms have low bases and are potentially severe. Thunderstorms associated with these lines often maintain well developed cells as they continue to move eastward during the night, finally dissipating near the eastern edge of the plains the following forenoon.

Thunderstorms have been found to develop vertically at rates as large as 5,000 ft. per minute and occasionally dissipate at about the same rate. The tremendous updrafts have supported columns of liquid water to heights of greater than 40,000 ft. Anvil tops have been measured to over 60,000 ft.

In their mature stages thunderstorms have more energy than an atom bomb and swirling winds stronger than a hurricane. Any pilot flying closer than 15 miles to a well developed storm is posing a definite threat to his safety.

From: Nebraska Department of Aeronautics Newsletter.

### Biennial flight review

The Biennial Flight Review (BFR) is an important requirement which affects all pilots who intend to act as pilot in command. The purpose of this flight review is to assure that every pilot who intends to act as PIC, has the opportunity to ride with a flight instructor of his choice each 24 months for an appraisal of his pilot proficiency and seek assistance or guidance if any deficiency is identified.

### FAA suggests

If you are gifted with a vivid imagination, try this — the next time you see a developing thunderstorm along your flight path, imagine it is the devil himself. Then take appropriate action!

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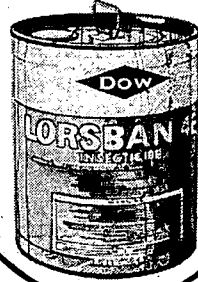


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get out your pocketknife and dig. And...

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