NORTH DAKOTA
STATE DEPOSITORY
DOCUMENT

AVIATION NEWSLETTER

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STATE OF NORTH DAKOTA

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November-December, 1973

6TH ANNUAL CFI WORKSHOP REFRESHER COURSE TO BE HELD IN GRAND FORKS DEC. 17, 18, 19, 20, 1973

Another year is coming to a close, with this in mind, it is time to arrange your schedule and make plans to attend the NEW 6th Annual CFI Workshop Refresher Course. This course is now a combination of the prior airplane and instrument courses.

The North Dakota Aeronautics Commission and the University of N.D., in cooperation with the Federal Aviation Administration, will sponsor the program presented by the Flight Instructor Refresher Team from the FAA Academy at Oklahoma City.

As you are probably aware, there have been many changes this year in FAR Part 61. The Part 61 changes, certificate renewals and revalidation rides will be the focal points of this years Refresher Course.

Dates: December 17th, 18th, 19th, 20th.

Place: Lecture Bowl, University Center, University of North Dakota

Registration: December 17th from 3:00 - 6:00 at the Holiday Inn. Cocktail Hour will be from 5:00 - 7:00 - Two free drink tickets will be included in your registration packet.

Course Fee: $25.00 - which will include texts and materials, three noon banquet programs, GAT-1 simulator time, eligible for log book entry for 6-month proficiency time. Free Cocktails and Door prizes.

Accommodations: At the Holiday Inn for out of town CFI registrants: Single Rooms $12.50 per night, Double Rooms $17.50 per night.

Special Door Prize: Will be drawn for those participants who register before 6:00 p.m. on December 17, 1973 at the Holiday Inn.

The FAA, NDAC and UND Aviation Department cordially invite you to attend the 6th Annual C.F.I. Workshop Refresher Course. We are looking forward to seeing you.

Effective November 1, 1973, the new FAR 61 (revised) requires that when flight instructors exchange or renew their flight instructor certificate, they show at least 20 hours of experience or instruction in the class and type of aircraft that they wish to have on their new flight instructor certificate. So bring your log books.

The first of December you will be receiving your registration form and program, if there are any questions, feel free to call or write the Aviation Department, Univeristy of North Dakota.

(POINT OF INTEREST) Jay B. Lindquist of Hettinger is the first recertificated flight instructor in the state under new Part 61

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1973 AVIATION MECHANIC SAFETY AWARDS PROGRAM

Aviation mechanics whose innovations have contributed to general aviation air safety in 1973 in North Dakota may submit entries until December 31, 1973 for the FAA's annual Aviation Mechanic Safety Awards Program.

The North Dakota winner will receive an FAA certificate signed by the FAA Administrator and will be offered a free aviation training course of his choice at the FAA Aeronautical Academy at Oklahoma City. In addition, the winner will receive from the North Dakota Aeronautics Commission an award of up to $250.00 to pay for his travel and living expenses while attending such training course. Winners will be announced in January, 1974. Contest guidelines and entry blanks may be obtained by asking for FAA's Advisory Circular No. AC-60-2K, from the FAA General Aviation District Office, Box 5496, State University Station, Fargo, N.D. 58102.

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NEW FAA PART 61 REQUIRES PILOT BIENNIAL FLIGHT REVIEW

The Federal Aviation Administration has issued its long awaited up-grade requirements for training, testing and certification of all pilot categories which became effective November 1, 1973, with a one year transition period. The rules include a biennial "flight review" for all pilots not engaged in airline or commercial operations which already require periodic flight checks. All pilots required to get a "flight review" given by a flight instructor, must take such flight review by Nov. 1, 1974 with the flight instructor's notation in the pilot's log book in order to be legal.

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NEW FAA PERSONNEL AT FARGO GADO

The Fargo GADO unit has three new people on board. Replacing Robert Broadbent, who transferred to Salt Lake City is Thomas S. Westall, as new chief of the Operations Unit. Mr. Westall is a former native Montanan, who as a flight instructor, worked at various points throughout the State before he established his own fixed base operation in Dillon, Montana in 1963. Tom's facility offered all phases of general aviation service including agricultural application. He was also a designated pilot examiner for the preceeding 3 years when he went with FAA in 1968, joining the Anchorage GADO unit. Besides all of the flying ratings, Tom holds a Airframe Mechanic rating. He and his wife Joan, who was formerly from Wisdom, Montana have a 16-year old son and a five-year old daughter.

The new operations inspector at the Fargo General Aviation District Office is Michael Beiriger. Mike comes from Center, Colorado where he grew up on a small farm. Being interested in flying, he took lessons from the local fixed base operator and secured his pilot license. Time and experience were acquired working with various ag operators.

The early 1960's were spent flying the Amazon River and jungle areas of Brazil. During that time, he also ferried several new Cessna's from Wichita to South America. In 1968 he began flying helicopters for the U.S. Army and spent 12 months "driving" a Boeing Vertol CH-47 "Chinook" about South Vietnam. His remaining military time was spent flying fixed wing aircraft and helicopters at Ft. Sill, Oklahoma.

After discharge from the Army, he was employed by fixed base operators in Lawton, Oklahoma and Kansas City, Kansas in Part 135 and 141 operations, utilizing both airplanes and helicopters. He was also involved in ag operations in central Oklahoma and west Texas.

He and his wife and two children have established residency in Weat Fargo.

The new General Aviation Maintenance Inspector with the FAA at the Fargo General Aviation District Office is Otto Goergen. Otto started in aviation by attending the Lincoln Aeronautical Institute, Lincoln, Nebraska in 1942. He served in the U.S. Navy during World War II and for a time served in the South Pacific in aviation maintenance related work.

Otto has been employed at various airports throughout the midwest since military service using both his commercial pilot certificate and A & P certificate with inspection authorization. His most recent employment has been with the Air Force Academy in Civil Service for the past four years. Otto's duties at the Air Force Academy were to maintain and test fly the Academy's fleet of sailplanes. During his stay at the Academy, he received an "Outstanding Civilian of the Year" award and bonus from the Commandant.

Otto currently holds a Commercial pilot certificate with airplane single engine land and gliders. He has logged almost 3000 hours of pilot time and holds an A & P mechanic certificate.

Otto lives in West Fargo with his wife and son. His daughter remained in Colorado where she is employed.

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FEDERAL AGENCY EYES N.D. FOR FIVE-YEAR CLOUD SEEDING RESEARCH PROGRAM

At a meeting at Bismarck in November, the U.S. Bureau of Reclamation announced that it is considering North Dakota as a potential site for a five-year cloud seeding research program for studying the effectiveness of present techniques. The Bureau has $1.3 million dollars in hand to fund two research sites during 1974, one of which may be located in North Dakota.

The Bureau's research program involves the contracting for aircraft for experimental cloud seeding, selection of a site and installation of a mobile radar with two-way ground to aircraft radio link. Mobile radar will have capability of radar scope picture recording on magnetic tape with play-back video for studying cloud formations.

During the 1973 season, a total of 14 aircraft equipped for operational cloud seeding were contracted for by 13 county weather modification authorities and private weather associations in North Dakota. In October, 1973, Barnes and Wells counties created new county-wide weather modification authorities by petition, which authorizes a ten-year operational weather modification program in each county.

The counties of Adams, Bowman, Hettinger, Slope, McKenzie, Mountrail and Warhave had operational weather modification authorities since 1969.

Other counties circulating petitions seeking a ten-year cloud seeding program include Eddy, Kidder, Emmons, Stutsman, Dickey, LaMoure, Sargent and Ramsey. Weather Modification informational meetings are scheduled in December for Benson and Walsh counties.

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REGIONAL AIRPORT AUTHORITY BEING EYED BY DEVILS LAKE AND DICKINSON

The City of Devils Lake and Ramsey County and the Dickinson Municipal Airport Authority and Stark County are separately considering the creation of a Regional Airport Authority, which would extend the user tax base county-wide for the operation and improvement of each respective airport. The 1973 Session of the N.D. Legislature authorized cities and counties to join to create a regional airport authority.

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PILOTS REMINDED ELT INSTALLATION DEADLINE NEARS

The December 30th deadline for installation of Emergency Locater Transmitters (ELT) in nearly all categories of general aviation aircraft is rapidly coming up, Mervyn M. Martin, Director of the Rocky Mountain Region of the Federal Aviation Administration, Department of Transportation, said today.

He noted that the requirement for the equipment, which automatically sends a distress signal when an aircraft crashes, enables search and rescue teams to find the downed aircraft quickly, often in time to save the lives of those on board.

Martin said that Congress, in 1970, passed the Occupational Safety and Health Act, that became law in 1971. The amendment to this law requiring installation of ELT equipment on private and business aircraft, was sponsored by Colorado's Senator Peter Dominick (R). This action amended Section 601 of the Federal Aviation Act of 1958, thereby making the FAA the regulating agency responsible for its enforcement. Any extension of the December 30 deadline would have to come as a result of Congressional action and FAA cannot grant any exemptions, Martin said, although there are specific exemptions, such as crop-dusting aircraft.

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MAX CONRAD ARRIVED SAFELY IN AUSTRALIA

Last September 22nd, Commander Aviation of Bismarck hosted a dinner in honor of Max Conrad, noted Winona, Minnesota endurance record pilot. Max in an informal 2-hour talk, enthralled an audience of approximate 130 people of which a good one-third were ladies. In listening to the ladies after the talk, many comments were heard that they enjoyed his style of delivery and non-technical parlance. Max talked about his flights and especially about the attempt to circumnavigate the globe via the poles and his mishap at Anartica. The biography "Into the Wind" written by New York commercial pilot Sally Buegeleisen, has chronicled the famous pilots exploits during his past 45-year career.

Commander Aviation prevailed on Max to deliver a PA-39 Twin Comanche, which they had sold to Australia. The ship was a turbo charged model fitted with counter-rotating propellers and modified with a complete Robertson STOL kit, and according to Conrad, one of the best aircraft he had ever ferried. He departed from San Francisco on the 24th of September, landing in Hawaii on the 27th in fifteen hours of flying time, landing with a four-hour fuel reserve. He spent four days in the hospital on Johnson Island in an unplanned landing, because of a severe case of disentary, although he had on enough fuel and had planned on flying to Tarawa. The 70-year old pilot arrived in Rock Hampton on the 2nd of October, where he was again to be feted by a dinner, but which turned out to be a mammoth outdoor beef barbecue party attended by 2,000 of the inhabitants of 8,000 total of Rock Hampton.

BISMARCK MUNICIPAL AIRPORT HAS NEW FIXED BASE OPERATOR

Steel is being erected for a building 40' X 40' for a office and classroom complex and a 60' X 60' shop and hangar to house Bismarck's newest fixed base operation to be known as O.K. Aviation. The building is being erected just north of the service road leading to the terminal building. The two section building is to cost $100,000. and the project is to be completed by December 30, 1973. Hardsurfacing for a driveway, auto parking and a ramp for aircraft parking have all been completed. Dr. Norbert J. O'Keefe, a radiologist at one of the local hospitals and one of the incorporators of the business said that the new facility will offer all phases of general aviation service including flight training, charter service, air ambulance, maintenance and aircraft rentals. A flight simulator will also be installed, as well as a weather teletype. O.K. Aviation is employing four people and is presently operating temporarily from offices in the west end of the south hangar building on the field. Employed are Neil Kelstrom, Mechanic; Lyle Hilden, Chief Instructor; Marty Gartner, Secretary & bookkeeper and Robert Bennett, General Manager.

The firm has a fleet of five aircraft: 2-150 Cessna's, 1-172 Cessna, 1-210 Cessna and a Twin Bonanza D-50 and is franchised as a Cessna Pilot Training Center.

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JAMES PETERSON, FARGO FIXED BASE OPERATOR OFFERS FREE PILOT REFRESHER SEMINAR

"FREE PILOTS REFRESHER SEMINAR"to be held at the Holiday Inn in Fargo on 26th January, 1974. Flight Development, Inc. will conduct a free pilots' refresher course in order for pilots to comply with the academic phase of the new FAA biennial flight review requirements. The review will cover FAA regulations, flight performance and maneuvers, new procedures and flight safety.

Over 50 rooms have been reserved at Fargo's new Holiday Inn, adjacent to West Acres Shopping Center, with Dutch lunch, cocktail hour and buffet planned. Spend a weekend vacation with indoor pool, shopping and flying talk while accomplishing half of the required flight review.

Mail your reservation now to: Flight Development, Inc., Box 5076,
University Station, Fargo, N.D. 58102

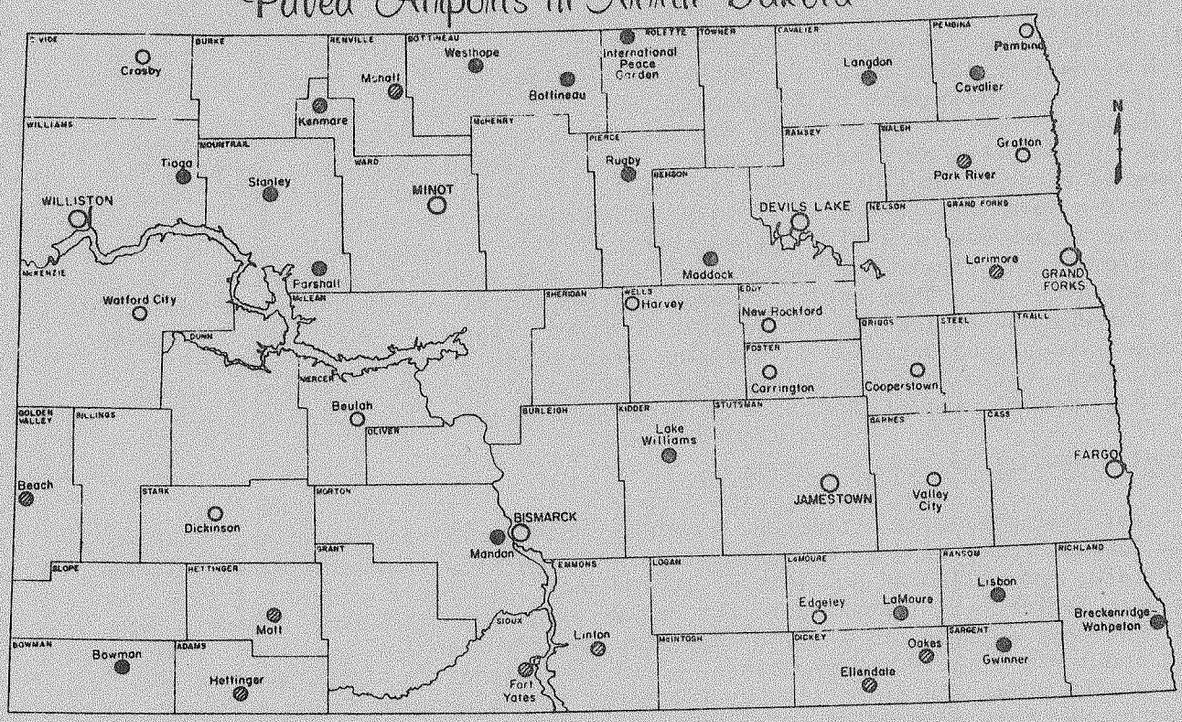
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Please reserve a room for _____ for _____
dates

I plan on attending the cocktail hour and buffet _____ _____
yes No

Remember, January 26th, 1974 at 9:30 a.m. at Holiday Inn.

Paved Airports in North Dakota



LEGEND	
○	PAVED AIRPORTS — NO STATE AID
●	PAVED AIRPORTS — STATE AID FROM THE N. D. AERONAUTICS COMMISSION
⊘	AIRPORT PAVING PROJECTS EXPECTED TO BE COMPLETED IN 1974
○	NOTE. ENLARGED SYMBOLS DESIGNATE AIR CARRIER AIRPORTS

29	COUNTIES HAVE AT LEAST ONE PAVED AIRPORT
9	COUNTIES PLAN PAVING INITIAL AIRPORT IN 1974
15	COUNTIES HAVE NO PAVED AIRPORTS
53	TOTAL COUNTIES IN NORTH DAKOTA

75 - 25 FUNDING CREATES AIRPORT PROJECTS IN NORTH DAKOTA

With the increase of the percentage of federal aid money from 50% to 75%, airport projects in North Dakota have taken a swing upward and the results should be very noticeable in a few years, in improved facilities throughout the state.

While Beach, N.D. was the first airport to sign a grant for the 75% aid, it was Bowman that completed the first project under the new funding. The Aeronautics Commission has informally adopted a goal to have at least one hardsurfaced airport in each county and an additional goal of the hardsurfacing of 3 airports per year for the next ten years, providing the continuation of federal funding of 75%.

A resume of projects completed or anticipated follows, and while not all will require federal aid, it is interesting to note the renewed activity.

BEACH: While as stated before, this western community signed the first 75% federal aid grant to build their airport, difficulties with water in the subgrade, prevented the grading of the runway this past construction season. Land has been purchased for a new airport site approximately 1 mile east of the City of Beach and construction will begin next spring on 3400 X 60 ft. of hardsurfaced NWSE runway, with a ramp of 150 X 150 ft. and 270 X 30 ft. connecting taxiway.

BOWMAN: All that remains to be done on a 4000 ft. X 75 ft. WNW-ESE next spring, will be minor touch up work and runway painting and Bowman will have one of the finest general aviation facilities in the State. A large ramp and a connecting taxiway was also constructed. Bowman has the distinction of basing the largest number of twin engine aircraft in the state, having at various times, as many as eleven.

CARRINGTON: According to Mayo Meadows, Secretary of the Carrington Airport Authority, both the NW-SE and the NE-SW, plus the parking ramp have been overlayed with a 2" asphalt map applied by Border States Construction. This overlay was made without Federal aid.

CENTER: Interest has been renewed in the building of a airport to serve this inland city and the power generating stations that the area serves. Perhaps, the Oliver County Airport Authority, which was formed a few years, could become active and take on this type of project.

COOPERSTOWN: An engineering firm has been hired and plans are being made to lengthen and widen the present NW-SE runway. A large ramp area is to be included with connecting taxiway. Additional land will also be purchased for the extension and clear zones. Federal-aid funds will be requested for the project as well as State funds.

DEVILS LAKE: Plans are being formulated to rebuild the present NE-SW and to add an overlay to the NW-SE runway, as well as terminal area improvements. A push is also in the works to form a Regional Airport Authority.

DICKINSON: The Queen City Municipal Airport Authority has received a Federal Planning Grant to study the needs and make recommendations back to the Authority as to what the future needs may be. The study will also give cost estimates of the suggested development plus some environment impact study.

ELGIN: After struggling with a marginal airport that did not lend itself to expansion, this city is planning on moving to a new site. The Airport Authority will be doing the entire project on their own, as Elgin at the present time, cannot qualify for Federal-aid. The reason being that at the present time, they have only one aircraft and consequently not enough traffic. They presently will be buying only enough acreage for a NW-SE and parking area. Plans are for a turf landing area, which will be lighted and in which costs the State Aeronautics Commission will participate to the extend of 50%. The State Aeronautics Commission does not participate in costs of land purchases.

ELLENDALE: A go-ahead has been given to an engineering firm to prepare plans and specifications and to apply for a Federal-aid grant, to improve the Ellendale Municipal Airport. Plans call for the hardsurfacing of the principal runway with a ramp area and connecting taxiway. It is expected that the State Aeronautics Commission will also participate in the project.

ENDERLIN: The Enderlin Airport Authority is in the process of purchasing the Oehlke private airport. This is another project in which the local airport authority will have to go it alone, as Enderlin under present criteria, is not eligible for Federal-aid. Criteria under the ADAP program (Airport Development Aid Program) call for all Federal-aid projects to be no nearer to each other than 30 minutes of driving time (legal). This proximity to the City of Lisbon, which is on the National Airport Plan, precludes aid to Enderlin.

FESSENDEN: This Wells County City has been in a dilemma as to a location of an airport for several years. Plans do call for the purchase of suitable land as soon as a site can be chosen.

FORT YATES: After a "on again" "off again" status for nearly 3 years, the Fort Yates project is on again. The FAA grant was available for nearly 2 years, but the hitch was in the Economic Development Administration funding. Plans call for a airport approximately 1 mile SW of the City, which will put it on the SW side of a bay that surrounds Fort Yates on the south. The Standing Rock Sioux Tribe will be the local sponsor and will be building a NW-SE 3700' X 60' hardsurfaced with a NE-SW turf of 3000' X 120' plus ramp area and connecting taxiway.

GARRISON: This city on the north side of Garrison Reservoir is trying to locate a new site. The present airport and the Municipal Golf Course were co-tenants for years about ¼ mile SE of the City, but the rebuilding of N.D. Highway #37, which is also the north boundary of the airport, caused some problems, so it was decided to relocate the airport. The old site was not readily expandable nor was it eligible for Federal-aid because of the Golf fairways crossing the runway.

GRAFTON: Plans and specifications are being prepared for the construction of a new E-W runway which will be hardsurfaced. The present N-S runway will also be reconstructed and the ramp area will be enlarged and connecting taxiway built. The project will be built under Federal Grant, State Aid and local funds.

HETTINGER: With a target date of bid opening shortly after the first of the year, this active city in the SW area of the State, will go into construction on a NW-SE runway, ramp and connecting taxiway early in 1974. The NW-SE will be reconstructed and lengthened to 4,650' X 75' with a ramp of 150' X 200', and connecting taxiway of 965' X 30'. Widths of over 60' require extra justification before FAA will participate in the cost of construction. This consists of projected use of light and medium twins of the facility. To accomplish this, a letter of intent of use by operators of light and medium twins, must be secured.

HILLSBORO: The newest sugar beet city is in process of forming an Airport Authority according to Ron Stuart, the mayor. The implementation of an Airport Authority should give Hillsboro good long range planning and continuity of purpose the Mayor said. Improvements are direly needed and Hillsboro must act in the near future he added. Hardsurfacing of the principal runway is planned.

KENMARE: Hardsurfacing of the E-W runway is planned for a 1974 project. Possibly 3200' X 50' will be paved with a ramp and connecting taxiway. Kenmare has been fighting mud in the spring thaws for quite a few seasons and the pavement will be a welcome relief.

KILLDEER: Dunn County has become the latest county to form a County Airport Authority and this is a county that perhaps should build an airport someplace equidistant to Manning-Killdeer and Dunn Center. Serious thought should be given to a joint use airport and with the road system presently in use, it would appear that an airport somewhere Southeast of Killdeer would be the most logical location.

LANGDON: Federal aid will be requested to strengthen the existing 3,000' X 50' with an overlay plus extending the ramp area 150' X 330' and also build a connecting taxiway of 40' X 225'. Congestion of the terminal area by aircraft associated with the construction of the anti-ballistic site is creating quite a problem according to Hank Charbonneau, Chairman of the Langdon Municipal Airport Authority.

LAKE WILLIAMS TOWNSHIP: This Kidder County Airport near Robinson, N.D. was completely graded and hardsurfaced this past construction season by Lake Williams Township Municipal Airport Authority. The principal runway 32-14 of 2550' X 45' was hardsurfaced as was the first 1300' of 03-21 on the SW end plus a ramp area. The remainder of 03-21 consists of well established turf. Unicom is available and lighting will be installed in 1974.

AIRPORT PROJECTS - continued

LAKOTA: Activity has grown by such an extent at Lakota that they have need for improved facilities. The present site has been cut down by the rebuilding of Highway #2 and necessitates the relocation of their principal runway. This problem is compounded by the fact that the site also serves as a golf course.

LARIMORE: Plans call for the paving of Larimore's NW-SE runway as soon as the contractor will be able to accomplish the work next spring. This project will be financed by local and state funds only as the site does not meet FAA standards. Lights were installed this fall, with the North Dakota Aeronautics Commission furnishing the wire as well as a 50% of cost grant not to exceed $1,500.

LINTON: Bids have been let and construction is slated for early next spring for the construction of a 3100' X 50' WNW-ESE hardsurfaced runway, as well as a 150' X 150' ramp and a 30' X 225' connecting taxiway. The $110,000 project is a 75% Federal funded project with the State contributing $10,000 and the balance from the local Airport Authority. Mr. Arthur Rudy, Chairman is to be commended in that during his long service on the Authority, funds were so well managed that no bond issue will be made, the entire local amount is cash on hand.

MANDAN: The Mandan Municipal Airport Authority has secured an engineering firm and have directed them to prepare plans and specifications for a new relocated NW-SE 4000' X 75' hardsurfaced runway. Plans call for the present runway to be used as a parallel taxiway with the new runway approximately 450' further to the NE. Larger clear zones will also be incorporated to allow non-precision instrument approaches. Additional connecting taxiway stubs will be constructed from the present runway to the new alignment. This project will be 75% federally funded by the Airport Development Aid Program (ADAP).

MADDOCK: The Maddock Airport Authority under the Chairmanship of Ervin Pederson, have paved their E-W runway the past year and this fall have installed lights. The wire was furnished by the Aeronautics Commission and as mentioned before, in Larimore's case, a grant was also made in the amount not to exceed $1,500.

MOHALL: 1974 is the target date for construction of a 3100' X 60' NW-SE hardsurfaced runway with a 100' X 150' ramp and 30' X 370' connecting taxiway. Expanded clear zones will be incorporated into the design for non-precision instrument approaches. Funding of the project will be from the ADAP trust fund, with a $10,000 grant from the Aeronautics Commission and local funds.

MOTT: This city purchased 100 acres of land and did the grading for a 4400' X 120' landing strip in 1972. During the 1974 construction period, they hope to implement an ADAP project to hardsurface the WNW-ESE runway 4,000' X 60' with a 250' X 250' ramp and 30' X 270' connecting taxiway. Temporary lighting has been installed this fall, using wire supplied by the Aeronautics Commission. Caution is advised in using the strip at night when snow will be plowed as the entire width between the lights may not be plowed.

NEW TOWN: An engineering firm has been directed to study the feasibility of expanding the present 2800' landing strip to a 3800' X 60' hardsurfaced runway. New Town also is having problems with their sewage lagoon and is attempting to secure 35 acres from the airport to build a new lagoon. Recently a delegation of Airport Authority members, City Fathers, and representatives from Farmers Home Administration, N.D. Aeronautics Commission and the Federal Aviation Administration met in Bismarck to find solutions for the problems.

OAKES: This City situated on the east bank of the James River and a few miles north of a irrigation district, has in the past moved their airport, so as not to interfere with the Bureau of Reclamation sponsored irrigation project, finds themselves moving again. They have directed their engineering firm to study several alternative sites and make a report as soon as feasible. The project is to be ADAP funded with assistance from the Aeronautics Commission.

PARK RIVER: Drainage problems, land acquisition and use justification to satisfy the National Airport Plan, have plagued this project from its inception. Most of the problems having been cleared, it now appears that a good airport can be built on the old airport site, once owned by Bill Skjerven and now owned and operated by Bernie Troftgruben. A hardsurfaced runway of 3100' X 60' is planned with ramp area and connecting taxiway. The financing will be through ADAP, State assistance and local funding.

PEMBINA: Lights have been added to this facility with the help and assistance of materials and funding from the State Aeronautics Commission.

ROLLA: This is another of the state airports that are co-tenants with a golf course, but in this case, the Golf duffers are moving to a new site. Meetings will be held this winter to formulate plans for the proposed improvements.

WISHEK: Lights have been added to their NW-SE according to word received from Dr. Warren Schubert, Vice Chairman of the Airport Authority. The Authority had a grant for lighting from the Aeronautics Commission, plus enough wire for the project.

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FOR SALE: 1967 Cessna 172 Skyhawk, majored to new engine standards, 40 hrs. since major, 1800 TT, Basic instrument radios, 3 new tires, never damaged and always hangared at Bismarck Municipal. Contact H. Michelson, 511 W. Turnpike Ave, Bismarck, N.D. 58501 Tel: 255-2770.

TO WARM OR NOT TO WARM By Frank J. Clifford , FAA Aviation News

Old airplane sayings, like old wives' tales, never seem to wear out. Take the one that admonishes pilots to make sure their engine is fully "warmed up" before taking off. A cold engine may conk out on takeoff when you need it most, the story goes, so be sure to warm it up. This warning had a measure of truth back in the early history of aviation when poor ignition, poor fuel, or unsophisticated engine design led to frequent engine failures.

But today, it is hazardous to operate the typical "flat-six" air-cooled engine used to power modern light planes for extended periods on the ground. Unless the weather is very cold, the time needed to taxi to an assigned takeoff runway is generally sufficient to bring the engine to optimum operating temperature. (This does not apply to the relatively few radial engines, used mainly in agricultural and antique aircraft, or liquid-cooled engines in vintage WW II planes.)

The exact ground running time recommended for a particular engine at a specific ambient temperature can be obtained from the engine manufacturer. Factors to be considered, in addition to prevailing ground temperature, are cowl flaps and high crankshaft/propeller shaft gear ratio. Either of these can cause the engine to run at a dangerously high temperature after only a short period of operation on the ground.

The problem arises because modern engines may be said to be streamlined "to a fault." Furthermore, while a sleek cowling enclosing the engine reduces the overall drag, the fit is so snug that it often restricts the amount of cooling air which reaches the last two cylinders on each side of the crankcase, when the engine is operated on the ground with the plane stationary.

HEAT IS THE ENERGY: Ram air is needed to permit a sufficiently cooling draft of air to reach all cylinders, and this is achieved only when the aircraft is in its natural element, cruising through the skies. Prolonged run-ups on the ground may over heat the aft cylinders.

The penalty for excessive heating is varied, but in all cases it is expensive. High cylinder head temperatures can be expected to produce scored cylinders and broken rings, which could lead to the total destruction of the engine. This can occur on the ground during run-ups, or soon after takeoff when a sudden rush of cool ram air causes the overheated rear cylinders to cool rapidly. The hot cylinder barrels, cooling faster than the pistons, could cause the pistons to seize--resulting in an emergency landing or a serious accident.

In the "old days" one of the chief reasons for running an aircraft engine for any length of time on the ground was uneven quality and performance of lubricating oils. This is no longer valid because of the ready availability of a wide variety of high quality aircraft lubricants: if an owner or operator sticks to the engine manufacturer's recommendations he can expect trouble-free performance.

How is a pilot to know when his aircraft is safe to take off? Normally, the engine is ready to go when it will accept a steady throttle advance without hesitation while the oil pressure remains steady. If the aircraft is equipped with cylinder head temperature gauges, the aircraft manual will indicate approved operating ranges.

For most general aviation aircraft ground power checks, including carburetor heat, magnetos and propellers should be done at about 1,700 rpm, unless otherwise stated by the aircraft or engine manufacturer. In order to take advantage of all possible cooling, the run-up should be done facing into the wind.

To avoid engine damage due to foreign objects carburetor heat should never be used while taxiing or during extended ground run-up. With carburetor heat on the in-rushing air bypasses the filter and enters the engine directly, bringing with it abrasive particles; so carburetor heat should be checked immediately before takeoff with the aircraft on a paved surface or sod -- never on sand.

On tightly cowled aircraft the cooling effect of ram air is also restricted during takeoff and climb, even though the plane is moving through the air. Improved engine performance can be gained by climbing out with the fuel mixture in full rich. The evaporation of the extra fuel has a cooling effect on the engine, which is lost if the mixture is leaned out too soon.

For best engine cooling, the climbout speed should be consistent with the aircraft's best rate of climb--by climbing at a high rate of speed, engine cooling will be more effective. A long slow climbout, with lean mixture, will tend to overheat the engine and could cause internal damage.

The cooling efficiency of the engine can be affected by factors other than pilot manipulation. Cooling fins broken from cylinders, missing or bent baffle plates, or gross dents in the cowling can result in dangerously high operating temperatures, even during actual flight. Visual inspection of the engine should catch these deficiencies.

Modern aircraft engines are sophisticated, well-engineered machines that do not require "babying" under normal circumstances. They function best at altitude, and the sooner they level off "upstairs" the better they like it. Prolonged warm-ups and shallow climbouts are for the older generation.

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FOR SALE: 1948 Stinson Station Wagon, 165 heavy case engine, fresh annual. Anyone interested, call 782-6814 - Harry Reamann, Braddock, N.D. 58524

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FOR SALE: 1966 Mooney Super 21, 1800 TT, 450 SMOH, Nav 12 King 150B, 3 light marker PC, ELT, no damage, Call 701-775-4641 day - 775-5404 night, Neil Trautman, 412 Alpha Ave., Apt. 205, Grand Forks, N.D. 58201

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FOR SALE: 1970 Cessna 150 Trainer, 2125 TT, 200 SMOH, MK 12B, 360 ch with VOR and LOC, Turn and bank, heated pitot, individual bucket seats; 1972 Cessna Skyhawk, 1249 TT, NAV-COM 360 with VOR & LOC, Narco ADF-31A, true airspeed indicator, beverage cup holder, dual controls, NAV lite detectors, Grnd service plug, heated pitot, Omniflash beacon, courtesy lites, primer system, LH sea vert adj, alternate static source, ventilation system rear seats, all tinted windows. Contact Capital Aviation Corp. Box 1471, Bismarck, N.D. 58501 Tel: 223-0260

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FOR SALE: 1974 Cessna Skyhawk II ferry time; 1973 Cessna Skylane 490 TT, everything but DME; 1973 Cessna 150 Commuter 350 TT, 300 NAV/Comm.; 1973 Cessna 150 Commuter 435 TT, 300 NAV/Comm; 1972 Cessna 150 Commuter 755 TT 300 NAV/Com; 1972 Cessna 150 Commuter 1030 TT, 300 NAV/Comm; 1965 Cessna 337 Super Skymaster 1296 TT, clean;

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1965 Cessna 206 "0" remanufactured engine and prop; Beech D-18S Volpar Trigear 10,200 gross, everything but radar; 1966 Beech C-55 Baron 550 & 50 hr engines; 68 Beech Bonanza 36, 600 hrs on Cont. "0" time; 1966 Beech D-95A Travelaire; 56 Beech Bonanza G 35; 67 Beech Musketeer Sport, 1650 SMOH; 67 Beech Musketeer Sport 1300 SMOH; Contact Flight Development, Inc., Hector Airport, Fargo, N.D. 58102 Tel: 701-237-0123

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FOR SALE: Excellent 140A Cessna, two owners since manufacture in 1949, 764 TT, 10 since top overhaul, new tires, never damaged. Call Matt Butler, 701-235-6472, Box 2587, Fargo, N.D. 58102

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FOR SALE BY BID: 1963 Cessna Skyhawk Powermatic, 175 engine with constant speed prop, 2300TT TTE 1200, engine & airframe in top condition. Contact Bob Nelson, Game & Fish Department, Bismarck, N.D. Tel: 224-2180

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FOR SALE: 69 Robertson STOL Turbo Centurian, full IFR equipped, a real performer; 1973 Aero Commander 112, ferry time only, super sport paint & interior; 1971 Arrow, 200 hp, King 170, KMA-20 w/3 lite, auto control III; 1968 Cherokee 140, full panel, Mk 12, 1970 Turbo CR Twin Comanche, only 750 TT, full IFR equipped with Altamatic III, 1966 Turbo 210, only 685 TT, fresh license; 1974 Cherokee 235, Ferry time only, King 170B, auto control III; 1957 Cessna 172, 2450 TT, 450 SMOH, full panel, recent paint; 1974 Arrow II, ferry time only, auto control III, King 170 B. We pay top cash prices for clean pre-owned aircraft. Contact Commander Aviation Corp., Box 1014, Bismarck, N.D. 58501. Tel: 701-223-6862 - nights 223-3388