NORTH DAKOTA AVIATION NEWSLETTER

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M E R R Y C H R I S T M A S A N D A P R O S P E R O U S N E W Y E A R ! ! !

C. A. R. Part 60 REVISIONS

Lately, we have heard many inquiries on the new revisions of Part 60 of the C.A.R., especially on the requirments of Two-Way Radio Communication with FAA Control Towers after Dec. 26th, 1961.

The new revisions are primarily the first national standards for conducting flight operations on and around all controlled airports throughout the country.

In N. Dak. we have four controlled airports which are the Air Force Bases at Grand Forks and Minot; and the Fargo and Bismarck Municipal Fields. In this instance, we are concerned with Fargo and Bismarck.

Each airport providing airport traffic control tower service will have a surrounding airport traffic area encompassing airspace defined by five statue miles in horizontal radius from the center of the airport and extending up to 2,000 feet above the surface. Enroute aircraft will be restricted from flying through this area with out authorization from air traffic control.

The restriction is aimed at eliminating conflictions resulting from the interference of aircraft not planning to land with aircraft operating on airport traffic patterns.

Under the rule, indicated airspeeds exceeding 156 knots (180 MPH) for piston-engine aircraft or 200 knots (230 MPH) for turbine-powered planes will be prohibited within an airport traffic area. For reasons of safety, both civil and military aircraft whose operations requirements demand greater speeds will be limited to the necessary safe minimum speeds.

The new rules, with exceptions, call for two-way radio communications between pilot and control tower at airports served by U. S. Government operated control towers.

Under 60.18, (b) Airport with Control Tower, Sub Title (2) Clearances, section (ii) States: "Pilots shall obtain a visual light signal clearance prior to taxiing on a runway and prior to take-off and landing at those airports where the control tower has authorized noncompliance with the requirement for two-way radio communications, or at those airports at which a non-U. S. Government airport traffic control tower is in operation if, for any reason, radio communications cannot be established".

It is expected, with the exception of high-density airports, that pilots without radio will be able to fly into airports with FAA Control towers from airports with Flight Service Stations.

To have this come about, each Control tower chief would execute letters of agreement with neighboring FS Stations covering the following points.

1. The pilot has been briefed on and understands the light gun signals as prescribed in C. A. R. 60
2. The Pilot is familiar with procedures for a NORDO aircraft entering a control zone and landing at a controlled airport.
3. A flight plan has been filed containing the remarks NORDO or RCVR only.
4. The pilot has been briefed on all current NOTAMS on the controlled airport where he is to land.
5. The pilot has been advised to contact the control tower via telephone, interphone or in person prior to subsequent departure from the controlled field.

Where a control tower is operated by a non-Federal agency, radio contact with the tower will be required if the aircraft is radio-equipped. However, there is no requirement for aircraft to be radio equipped for operation into such airports.

When a FAA Flight Service Station is located at an uncontrolled airport, and is shown on current appropriate aeronautical charts, pilots having a radio, with either two-way or just receiving capability, will be required to maintain radio contact with the station when within five miles of the airport. This will permit the pilot to receive centralized airport traffic advisory information.

GREEN 2 AIRWAY DELETED

Effective at 0001 E.S.T. 14 Dec. 1961 Colored Airway Green No. 2 which spans the continent from Seattle, Washington to Minneapolis, Minn. and from Detroit, Mich. to Dunkirk, N. Y. will no longer be in existence. VOR Federal Airway No. 2 will be use in its place.

The original proposal to discontinue a section of Green 2 was published in Sept. of 1960 and in March of 1961 the proposal was changed to include all of Green 2 from Seattle, Wash. to Minneapolis, Minn. A storm of protests met this proposal and as a result the Airspace Division of FAA scheduled public hearing at Seattle, Minneapolis and Bismarck.

The following is quoted verbatim from Federal Register and is interesting in that it gives some insight to FAA views on the purposes and intended uses of navigational aids and facilities:

As a result of the hearings and in response to the Notice, voluminous objections were received to this proposed action. Comments were received from private pilots, fixed base operators, corporation pilots, members of the Aircraft Owners and Pilots Association (AOPA), West Coast Airlines, and the Directors of the Aeronautics Commissions for the States of North Dakota and Montana. The comments offered at the three public hearings and submitted in written form are summarized as follows:

1. Even though the Notice state that only the revocation of Green 2 was proposed, many individuals were of the opinion that this was a prelude to the decommissioning of the low frequency aids on which the airway is based.

2. Great concern was expressed as to the effect the discontinuance of this segment of Green 2 would have on VFR flying in the mountainous areas.

3. This low frequency airway should be continued to serve as a backup for the Victor airway system because of the unreliability of VORs.

As to the first point, this agency has analyzed the views and opinions expressed by various individuals at the three public hearings as well as other information received and is of the opinion that the low frequency navigational aids supporting the airway are utilized primarily for random flying and that the airway is seldom used. As stated previously, the Notice did not propose the decommissioning of the facilities; therefore, action in this regard would not be taken until a specific proposal to do so is widely publicized and interested persons are given an opportunity to express their views on the subject. However, the information received indicates sufficient use of the facilities to warrant their retention as low frequency ranges or converted low frequency radio beacons with transcribed weather broadcast service. Such facilities will be equipped with an automatic identification feature to provide both IFR and VFR air navigation capability.

With regard to the second point, both VOR and colored airways are primarily for the control of IFR traffic. Therefore, the retention or revocation of Green 2 is not related to VFR traffic. The low frequency air navigation facilities will still be available to aid both VFR and IFR pilots operating in the mountainous areas.

As to the third point, it was never planned and it is not intended that low frequency airways serve as a backup for VOR airways. All Agency VOR stations are dual equipped. Should the equipment in a station fail, an automatic change-over feature switches to the stand-by equipment. As a matter of interest, a facility reliability survey was conducted from August 1959 thru August 1960 on VOR and low frequency NAVAIDs in the northwest and these aids were out of service because of failure less than one per cent of the time.

VOR Federal airway No. 2 is adequate for IFR traffic over the route in question since, for all practical purposes, Victor 2 coincides with Green 2 between Seattle and Minneapolis. Accordingly, the revocation as proposed will be effected.

9TH OF JANUARY THIRD LEVEL AIRLINE HEARING AT NORTH PLATTE, NEBRASKA

The 9th of January has been set as a tenative date by the Civil Aeronautics Board to hear the application of Hi-Plains Airway Docket 12258, and others who are interested in obtaining route structures in Colorado, Missouri, Kansas, Nebraska, South Dakota and North Dakota on a third level airline basis. Bismarck would be the Northern terminus on a route that would include Mobridge and Pierre, S. Dak., Valentine, North Platte and McCook, Nebraska and on to Hill City, Kansas.

Hi-Plains will also ask for routes from Denver to Omaha and others. The firm plans to use Aero Commanders on a route structure which if granted as proposed will cover over 10,000 miles daily.

NEW AIRPORT SERVICE HEAD

Cole H. Morrow of Racine, Wisconsin formerly head of J. I. Case Machinery Co. had been named Director of Airport Service. George R. Borsari, Washington, D. C. formerly head of the now abolished Airports Division will be ass't director.

It is hoped that Mr. Morrow will bring a fresh new concept to the Federal Aid to Airports.

A pilot since 1929, Morrow has broad experience in aviation industrial engineering. He was a member of the Board of National Business Aircraft Association from 1948 to 1957.

Congress has authorized $75,000,000 a year for the next two years to be spent on a 50-50 basis to help build Airports, through out the nation. N. Dak. share is $565,000 for the fiscal year of 1962 which began July 1, 1961 and runs to July 1, 1962.

REGIONAL AERIAL APPLICATORS' WORK SHOP MEETINGS PROPOSED

In a recent meeting at Bismarck with the Aeronautics Commission Director Harold Vavra, Wayne Colberg, State Entomologist and Lars A. Jensen, State Agronomist proposed that the Commission and their offices jointly, in cooperation with local aerial applicators, sponsor a series of aerial applicator's work shop meetings around the state.

Possible locations of such meetings would be at Fargo, Grand Forks, Jamestown, Minot, Bowman, Devils Lake and Williston. The work shops would center around the Federal Food and Drug regulations; the requirements for bidding and obtaining federal grasshopper contracts; FHA and Bank Money credit and state and federal regulations.

These meetings would be billed as Work-Shops with full participation of those attending including the County Agents.

The important question to resolve, will enough aerial applicators attend individual meetings to make them practical. State-wide meetings have been held in the past years, but many smaller operators have never attended. The importance of Federal food and drug requirements on the use of chemicals can not be minimized. A letter will be sent to all aerial applicators shortly after the first of the year to determine if a number of work-shop sessions is preferred to one or two state-wide meetings. Your comments are welcome.

HOW HARMFUL IS DETONATION?

Detonation is a magic and sinister word. It implies destruction and disaster. If is defined as "spontaneous combustion after the gnition event." Detonation is very hard to identify with certainty on an aircraft engine. It is likely that it will make its presence known to you only in the form of an increase in cylinder head temperatures and a loss of power. Detonation effects will be best felt by your wallet when (and if) your engine reaches overhaul.

The road to the junkyard is littered with pistons which have been discarded before they have finished their useful life. The greatest enemy of otherwise good pistons is detonation.

When an engine is permitted to detonate the pistons are subjected to many hundreds of sledge hammer blows per minute. The scars of this mutilation are visible at engine overhaul in the form of cracked and dished piston heads.

In a detonating cylinder the temperatures rise to abnormal heights. The alloys from which the cylinder head and pistons were made were not intended to withstand this amount of heat. These high cylinder head temperatures can cause the piston head to soften and the ring lands to warp. Warped ring lands will result in stuck piston rings. When the top ring is no longer free to rotate, a part of the burning gases is able to go down the side of the piston at the now stationary ring gap. An area of local overheating is created and the ring land further softens. The ends of the top ring start to flutter against the softened ring land until the ring breaks. A top ring land failure is born. It is likely that this failure will be laid at the door of piston design or some metallurgical weakness. The real culprit is detonation.

Broken rings, cracked, dished, burned and scuffed pistons are not the only victims of detonation. The excessive temperatures experienced induce stresses into cylinder heads. These stresses take form in an unusually high cylinder head rejection rate due to cracks.

Exhaust valve seats, exhaust valve guide bosses and exhaust valves errode and burn when they are subjected to the passage of exhaust gases of higher than normal temperatures.

The effects of detonation are cumulative. An engine that is permitted to detonate for only short periods at a time does not escape unharmed. Each period of detonation adds its measure of damage. Frequently an engine fails in normal operation as a result of the damage it received while detonating many hours ago.

(Continued on last Page)

GYROPLANES TO HAVE SEPARATE FAA RATINGS.

Under Flight Standards Service Release No. 452 FAA will provide a new rating separate and apart from Helicopter or the Rotocraft Category. In other words they are dividing the present Rotorcraft Category for pilot rating into two classes, Helicopter and Gyroplane.

Certificated rotorcraft pilots would get the appropriate new rating without further tests. Pilots who obtained their Rotorcraft ratings through helicopter tests would be issued a Helicopter class rating, and pilots who have passed autogiro flight tests would get a Gyroplane rating. Pilots with recent flight experience in a class of rotorcraft also would be elegible for a rating in that class. Flight tests for the Gyroplane rating would not call for hovering, sideward or backward flight. Applicants would have to show they can make jump take-offs in gyroplanes with this capability. They also would be required to demonstrate full flare landings with little or no landing roll as well as steep turns, maneuvers by reference to ground objects and flight at speeds as low as 27 miles per hour.

VICTOR 181 OFFICIAL, 14 DECEMBER 1961

Effective 0001 E.S.T. 14 Dec. 1961 Victor airway No. 181 will be in being from the Sioux Falls, S. Dak. control area to the United States/Canadian Border including an East alternate. The airway is described as follows:

From the Sioux Falls, S. Dak., VORTAC via the Watertown, S. Dak., VORTAC; Fargo, N. Dak. VORTAC; Grand Forks, N. Dak. , VOR including an E alternate; INT of the Grand Forks VOR 353° and the Winnipeg, Canada, VOR 180° radials; to the United States/ Canadian Border via the Winnipeg VOR 180° radial.

NEW LOW LEVEL HEAVY BOMBER TRAINING ROUTE OVER CENTRAL MONTANA

Strategic Air Command B-47's and B-52's are now flying low-level training missions over central Montana and it behoves all pilots to keep a sharp lookout for the monsters also to listen to Flight Service Stations for the actual times that the runs are being made. The runs are normally made at 320 miles per hour.

Both types of bombers will fly at altitudes between 500 and 1,000 feet above the highest point along the route.

The route begins at Williston, North Dakota, and continues southwest over Central Montana to the termination point five miles east of Melstone. Flight path will be in the vicinity of Sioux Pass, Andes, Richey, Circle, Van Norman, Jordon, Edwards and Melstone - all in Montana.

NEW NOTIFICATION OF LANDING AREA RULE EFFECTIVE NOW

A new rule Part 625 became effective on the 15th of November and states that with a few exceptions all persons proposing to establish, alter or deactivate a landing area are required to give prior notice thereof to the Administrator in the form and manner prescribed. The form to be used is FAA-2681 and is to be submitted in triplicate to the FAA District Airport Engineer.

KEEP HEAD OUT OF COCKPIT

The pilot who attempts to tune in his ground control frequency at the same time that he is turning off the active runway is, sooner or later, going to lose control of his aircraft. He may even taxi into another aircraft or runway light. He should be looking outside his aircraft whenever it is in motion. He should stop his aircraft when something within the cockpit needs attention during any ground operation.

FLYING FARMERS & RANCHERS SELECT CONVENTION SITE

The Board of Directors of the North Dakota Flying Farmers and Ranchers Asso'n met in Bowman recently and selected Watford City as the site for the 1962 Flying Farmers annual convention, according to Robert Chitwood, Alexander, President.

Bids for the 1962 convention were submitted by representatives from Watford City, Bottineau, Fargo and Williston. The convention dates will be set later by the Convention Committee, according to Richard Swenson, Belfield, Chairman.

The Board of Directors asked each State District Director to assume responsibility for arranging for a Fly-In in his district between now and the convention.

The Flying Farmers wound up the Board meeting with a pot-luck lunch and flying contests which included spot landing, ballon busting and bombing.

NORTH DAKOTA AERONAUTICS COMMISSION
RECEIPTS AND DISTRIBUTION OF AIRCRAFT REGISTRATION FUNDS
January 1, 1960, ending December 31, 1960

County	Total for Distribution	County Share (75%)	State Share (25%)	No. of Planes	Out-of-state Planes Included
Adams	$ 424.94	$ 318.71	$ 106.23	32	6
Barnes	272.87	204.65	68.22	25	-
Benson	80.64	60.48	20.16	6	-
Billings	45.31	33.98	11.33	4	-
Bottineau	302.43	226.82	75.61	28	-
Bowman	173.32	129.99	43.33	16	1
Burke	223.52	167.64	55.88	14	1
Burleigh	773.85	580.39	193.46	42*	2
Cass	1,504.27	1,128.20	376.07	97**	7
Cavalier	104.64	78.48	26.16	8	1
Dickey	140.29	105.22	35.07	12	2
Divide	352.14	264.11	88.03	20	2
Dunn	18.76	14.07	4.69	2	-
Eddy	145.55	109.16	36.39	15	-
Emmons	78.90	59.18	19.72	6	-
Foster	83.28	62.46	20.82	8	-
Golden Valley	37.50	28.13	9.37	2	2
Grand Forks	1,157.84	868.38	289.46	73	5
Grant	55.14	41.36	13.78	4	-
Griggs	133.55	100.16	33.39	13	-
Hettinger	170.67	128.00	42.67	14	1
Kidder	80.05	60.04	20.01	8	-
LaMoure	96.01	72.01	24.00	8	-
Logan	67.53	50.65	16.88	7	1
McHenry	28.14	21.11	7.03	3	-
McIntosh	9.38	7.04	2.34	1	-
McKenzie	179.09	134.32	44.77	13	4
McLean	183.38	137.54	45.84	18	-
Mercer	43.14	32.36	10.78	4	-
Morton	112.15	84.11	28.04	9	-
Mountrail	169.55	127.16	42.39	16	-
Nelson	109.26	81.95	27.31	11	-
Oliver	7.50	5.63	1.87	1	-
Pembina	293.83	220.37	73.46	24	2
Pierce	169.65	127.24	42.41	12	-
Ramsey	317.78	238.34	79.44	25	2
Ransom	115.53	86.65	28.88	9	-
Renville	123.50	92.63	30.87	12	-
Richland	345.02	258.77	86.25	27	4
Rolette	82.53	61.90	20.63	8	-
Sargent	74.28	55.71	18.57	7	-
Sheridan	-	-	-	-	-
Sioux	18.76	14.07	4.69	2	-
Slope	37.52	28.14	9.38	4	-
Stark	133.89	100.42	33.47	9	-
Steele	58.52	43.89	14.63	6	-
Stutsman	451.55	338.66	112.89	35	-
Towner	101.11	75.83	25.28	9	-
Traill	75.39	56.54	18.85	4	1
Walsh	372.79	279.59	93.20	27	-
Ward	855.81	641.86	213.95	61	-
Wells	154.00	115.50	38.50	15	-
Williams	488.73	366.55	122.18	36	2
	$11,634.78	$ 8,726.15	$ 2,908.63	872	46

* Includes 5 complimentary registrations, 4 issued to State Agencies and 1 issued to Civil Air Patrol.

** Includes 7 complimentary registration certificates issued to Civil Air Patrol.

NORTH DAKOTA AERONAUTICS COMMISSION
RECEIPTS AND DISTRIBUTION OF AERIAL SPRAYING LICENSE FEES IN ACCORDANCE WITH CHAPTER 89 OF THE 1957 LAWS OF THE STATE OF NORTH DAKOTA

January 1, 1960 ending December 31, 1960

County	Total for Distribution	State General Fund (50%)	County Share (50%)	No. of Aerial Spray Planes Licensed
Adams	$ 135.00	$ 67.50	$ 67.50	9
Barnes	120.00	60.00	60.00	8
Benson	15.00	7.50	7.50	1
Billings	-	-	-	-
Bottineau	180.00	90.00	90.00	12
Bowman	90.00	45.00	45.00	6
Burke	90.00	45.00	45.00	6
Burleigh	30.00	15.00	15.00	2
Cass	435.00	217.50	217.50	29
Cavalier	45.00	22.50	22.50	3
Dickey	30.00	15.00	15.00	2
Divide	45.00	22.50	22.50	3
Dunn	-	-	-	-
Eddy	75.00	37.50	37.50	5
Emmons	45.00	22.50	22.50	3
Foster	30.00	15.00	15.00	2
Golden Valley	30.00	15.00	15.00	2
Grand Forks	315.00	157.50	157.50	21
Grant	-	-	-	-
Griggs	45.00	22.50	22.50	3
Hettinger	45.00	22.50	22.50	3
Kidder	-	-	-	-
LaMoure	45.00	22.50	22.50	3
Logan	30.00	15.00	15.00	2
McHenry	15.00	7.50	7.50	1
McIntosh	15.00	7.50	7.50	1
McKenzie	45.00	22.50	22.50	3
McLean	90.00	45.00	45.00	6
Mercer	-	-	-	-
Morton	30.00	15.00	15.00	2
Mountrail	45.00	22.50	22.50	3
Nelson	60.00	30.00	30.00	4
Oliver	-	-	-	-
Pembina	165.00	82.50	82.50	11
Pierce	30.00	15.00	15.00	2
Ramsey	255.00	127.50	127.50	17
Ransom	45.00	22.50	22.50	3
Renville	90.00	45.00	45.00	6
Richland	150.00	75.00	75.00	10
Rolette	75.00	37.50	37.50	5
Sargent	30.00	15.00	15.00	2
Sheridan	-	-	-	-
Sioux	-	-	-	-
Slope	30.00	15.00	15.00	2
Stark	60.00	30.00	30.00	4
Steele	45.00	22.50	22.50	3
Stutsman	105.00	52.50	52.50	7
Towner	45.00	22.50	22.50	3
Traill	15.00	7.50	7.50	1
Walsh	150.00	75.00	75.00	10
Ward	240.00	120.00	120.00	16
Wells	45.00	22.50	22.50	3
Williams	150.00	75.00	75.00	10
	$3,900.00	$1,950.00	$1,950.00	260

ACCIDENTS

Pilot: Alfred Mongeon, Rolette, N. Dak.
Time & Place: July 3, 1961 - 8:45 P.M. - 1 mile East of Thorne, N. Dak.
Pilot Time: 98 hours TT - Private, ASEL- Age 31
Aircraft & Damage: Piper J-3 - Spare sprung. Bottom of nose damaged, parts of carburetor damaged.
Injuries: None
Pilot Statement: Coming home from Dunseith at dusk, flying relatively low and passenger in back wanted to close window. Trying to assist passenger, plane trimmed at heavy stick, motor sputtered, plowed field below, attempted landing, misjudged depth and hit ground causing breakage of landing gear and other damage.

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Pilot: Dwaine C. Melby, Box 48, Bowbells, N. Dak.
Time & Place: July 23, 1961 - 10:30 A.M. Outside Farm place on country road.
Pilot Time: 1550 hours TT - Private SEL, Age 38
Aircraft & Damage: Piper PA-18 - Damaged Wing tip.
Injuries: None
Pilot Statement: Landing, when weeds caught spraying booms, pulling aircraft back and forth until one wheel got in ditch. Applying full rudder and brakes on opposite side, the airplane turned and threw wing against the ground.

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Pilot: Donald D. Kitzmiller, 106-1 Raintree Circle, Minot AFB, Minot, N. Dak.
Time & Place: Sept. 16, 1961 - 4:30 P.M. - Minot International Airport
Pilot Time: 3100 hours TT - Commercial ASMEL, Instrument, Age 42
Aircraft & Damage: Cessna 140 - Damage to prop tips.
Injuries: None
Pilot Statement: Instructor demonstrated a wheel landing, student following through. Student was performing second wheel landing with instructor following through. The touch down resulted in a slight bounce and the student over controlled by forward pressure on the controls, the prop ticked the runway before the instructor could preclude it from doing so.

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Pilot: Walter J. Walsh, 909-7th Ave. S.E., Jamestown, N. Dak.
Time & Place: Sept. 16, 1961 - 3:30 P.M. - Strasburg, N. Dak.
Pilot Time: 1000 hours TT - Private, Age 65
Aircraft & Damage: Stinson - Vertical Stab. Rudder, top of fuselage, left ½ of windshield, both wings, prop, nose cowl.
Injuries: None
Pilot Statement: Landed in plowed field, aircraft nosed over.

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Pilot: Harold G. Vavra, 1006½ East Rosser, Bismarck, N. Dak.
Time & Place: Oct. 22, 1961 - 1:30 P.M. - Bismarck Municipal Airport
Pilot Time: 1,727 hours TT - Private - Age 47
Aircraft & Damage: Cessna 170B - Damaged Wing cap and to edge of Aileron.
Injuries: None
Pilot Statement: Landed aircraft to west. West wind 44 miles per hour with gusts. Landing uneventful. Upon turning to the North on taxi strip, had difficulty holding airplane on the taxi-way due to 44 mile per hour, 90 degree cross wind. Aircraft while taxing had tendency to weather vane into wind. Had full right brake and rudder, but aircraft began turning to the left into the wind. Apparently the right brake had overheated. About 500 ft. down the taxiway, a gust caught the right wing as the airplane weather-vaned into the wind, causing the left wing tip to scrape the ground doing slight damage to wing cap and to edge of aileron.

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Pilot: William Nelson Peterson - Kenmare, N. Dak.
Time & Place: Nov. 9, 1961 - 2:30 P,M. - Bowbells Municipal Airport
Pilot Time: 315 hours TT - Private, SEL, Age 32
Aircraft & Damage: Piper PA-22 - 2 wings, propeller, nose gear and tail.
Injuries: None
Pilot Statement: Plane was taxied to East-North side of runway. Run made in field that had been plowed up and reseeded and leveled. The aircraft did not leave the ground, approx. for 75 yds. Nose wheel dug in, gust of south wind caught left wing, then swung into the wind. Plane nosed over on the right side of nose wheel onto its back damaging nose wheel, right and left wing, rudder, vertical stabilizer.

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Pilot: Louis K. Koland - Bottineau, N. Dak.
Time & Place: Nov. 23, 1961 - 5:40 P,M. - Bottineau, N. Dak.
Pilot Time: 242 hours TT - Private, ASEL, Age 46
Aircraft & Damage: Mooney Mark 20A - Landing gear, cowling, wing tip leading edge and propeller.
Injuries: None
Pilot Statement: Turned on final to land at Bottineau Municipal Airport. Crossed threshold lights IAS 80 MPH. Flared aircraft, reduced power. Everything appeared normal. I waited for contact with runway. As I expected to touch down the stall warner sounded very loud without any of the usual preliminary short squauks and the aircraft settled to the ground, folding the nose gear. I cut the switches at once and the aircraft came to a stop after turning about 90 degrees to the right. There were no injuries to any of the occupants.

FOR SALE - (2) Sets Skis, Federal A-1500 used and in good condition. Engines,Lycoming, 125 h.p. O-290-G. Get yours early and get the best deal. Also have Cont.65 h.p. coming in on trades and have parts for Lycoming and Continentals. We are your new BANKS MAXWELL propeller dealer. Dan's Aviation Service Inc. Box 392, Rugby, N. Dak.

FOR SALE - 1959 Mooney M-20, Full Panel M-11 OMNI 320 SMOH 850 TT. R- Beacon Custom Cab, Curtains. Excellent Condition. Reason for sale, party leaving town. Will consider trade $10,800.00 L.K. Koland, Bottineau, North Dakota

WILL TRADE - Hay for airplanes in any condition. Howard Dullum, Gardner, ND.Ph.2751

PILOTS - Get your multi-engine rating now. Only $30.00 per hour in our fully equipt, low time Apache. See or call Willard Steichen at Southport Field, just south of Minneapolis on Cedar Ave. Tele. Rosemount GA 33881.

CASH - for your plane. See or call Willard Steichen at Lead Aire Inc. Southport Field. Rosemount,Minn. Tele. GA 33881.

DETONATION - (Continued) - 1. The use of fuel with a lower than recommended octane rating. 2. Excessive use of carburetor heat. 3. Prolonged ground run-ups when the ambient air temperature is unusually high. 4. Premature use of high ratio super-charging. 5. Inadequate cylinder head cooling due to poor maintenance of cylinder air deflectors, cowling, and/or air seals. 6. Improper ignition timing. 7. The abusive use of horsepower. 8. Possibly the greatest offender, leaning of the fuel beyond the point of normal combustion.

GRAFTON - Hod Hutson, Mgr. says that runway lights are now installed and available by request upon a call to Grafton 160. The lights are on the N-S paved runway which will be kept open for wheels this winter.

BOWBELLS- The west end of the E-W runway has had some grading done on it the past season. It was also re-seeded over its entire length and in the process the surface was loosened - caution is advised in the event a cross-wind landing or take-off is attempted.

VALLEY CITY - Chester Brostrom, Mgr. of the Valley City Municipal Airport announces that Valley City has 24 hr. service and is offering 80 & 100 octane fuel plus aircraft storage.

Arnold Reed, former Maintenance Standards Inspector at Fargo now stationed at Wichita, Kansas dropped us a card, and he mentioned that they have over 900 active A & P's plus 16 repair stations, and that the Ducks and Pheasants are few and far between.

John Smith the former Flight Standards Inspector at Bismarck is also stationed there and writes from Las Vegas that he is presently checking out in a F-27 and is enjoying the work immensely. Jerry Harchenko, spray pilot of Minot & Bismarck, writes and says he is now working out of Salem, Oregon flying a Stearman-sprayer for a local operator.

FOR SALE - A 75 Cont. engine, Low time since major, complete with Prop Hub, Motor Mount, Heat and Oil Indicators. Excellent for Snow Sled. Price $175.00./
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