

AERONAUTICS BULLETIN



THE STATE OF MINNESOTA PROVIDES THIS TECHNICAL BULLETIN
IN THE INTEREST OF AVIATION SAFETY AND TO PROMOTE
AERONAUTICAL PROGRESS IN THE STATE AND THE NATION

Dan McDowell, Editor

OFFICE OF AERONAUTICS, ST. PAUL, MN 55155
(651) 296-3404

www.mndot.gov

Calm wind runways



By Rick Braunig /AvRep

We all know to takeoff into the wind, but on those rare days when the wind isn't blowing, how does a pilot decide which runway to use? This isn't mandated in some obscure federal regulation. The pilot can choose to use any runway on the airport, but at some airports there is a designated calm wind runway that the airport management would like pilots to use.

There are a number of reasons to designate a no wind runway. Safety would be the number one reason. When arriving at an airport we check the AWOS/ASOS for the winds or get the latest observation from air traffic control. We can then plan on using the runway best aligned with the wind and we expect that other aircraft operating at the airport will do the same.

We know where to look for traffic and how to set up for entry into the landing pattern. Most sources consider winds of less than 5 knots to be calm winds. When the wind is calm aircraft could be using any runway at the airport so pilots have to exercise caution, looking everywhere for traffic.

When there is an established calm wind runway pilots can expect aircraft to be using that runway on no wind days. Of course you always need to be wary of aircraft operating contrary to the established pattern, just as you need to watch for aircraft landing crosswind or even downwind on windy days.

Runway length is another reason to specify a calm wind run-



Braunig

way. Longer runways accommodate more types of aircraft. We are seeing some high performance general aviation aircraft showing up at non-towered airports and Very Light Jets are starting to take to the air. These aircraft need longer runways and landing and takeoff distances for all aircraft are longer when the winds are calm. Establishing the runway with the longest length as the no wind runway is the safest course of action.

The availability of the instrument approaches can also figure into the calm wind runway designation. Most non-towered airports will only have an ILS to one end of one runway. Even though the weather might be good, if there is flight training at the field, aircraft could be practicing the instrument approach. While these approaches are usually straight-in approaches, it is easier to work them in with a pattern that is operating to the same runway.

Sometimes the airport layout plays a part in the calm wind runway selection. If an airport has a full length parallel taxiway, that makes it easier for aircraft to get on and off the runway in the shortest amount of time. Without a full length taxiway, access to the ramp should be a consideration. Sightlines should figure into the decision.

A runway end that provides visibility of all other runways allows pilots the best chance of seeing conflicting traffic. Sometimes hangars or terrain obstruct the view of the ends of other runways.

Another reason to specify a calm wind runway is for commu-

See WINDS, page 13

FAA confirms commitment to ADS-B

The following news release is presented in its entirety as provided by the Aircraft Owners and Pilots Association, (AOPA), May 4, 2006. This article is the most current update about ADS-B (automatic dependent surveillance-broadcast) and its role in aviation's future. It is also recommended that readers review the March 2006 Aeronautics Technical Bulletin article on ADS-B by Rick Braunig, published in the March 2006 issue of the Minnesota Flyer. His article will give you a more in-depth picture of how ADS-B will function.

The FAA announced Tuesday that it will extend ADS-B (automatic dependent surveillance-broadcast) nationwide, along with FIS-B (flight information service-broadcast) for weather information and TIS-B (traffic information service-broadcast) for traffic.

That's good. AOPA has been pushing ADS-B as GA's system of choice for air traffic control modernization, especially because of the benefits of weather and traffic information in the cockpit. But it doesn't mean an immediate new expense for general aviation aircraft owners.

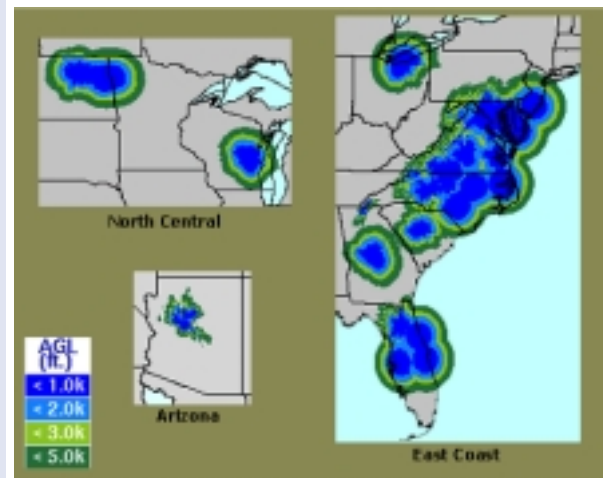
While the FAA said that ADS-B will become mandatory in the future, "It won't be required aboard GA aircraft until it's affordable and FIS-B and TIS-B are available everywhere," said AOPA President Phil Boyer. "With the additional information ADS-B brings into the cockpit, we think every pilot will want it."

FIS-B delivers Nexrad radar images and METAR and TAF weather reports directly to a cockpit multifunction display, while TIS-B can show other nearby aircraft on the same display. AOPA is advocating that ADS-B shouldn't be mandated until at least eight years after FIS-B and TIS-B are universally available.

"What this decision also demonstrates is that the FAA can replace an outdated technology costing billions with one costing millions, which certainly calls into question the claim that the agency needs more money to modernize the ATC system," said Boyer.

That's because ADS-B will ultimately replace the FAA's aging radar network, which costs some \$150 million a year just to maintain and would cost an estimated \$2.5 billion to upgrade.

To build the entire ADS-B system, by contrast, will cost an estimated \$1 billion, and \$30 million annually to operate and



ADS-B Coverage Map

maintain.

The FAA plans to "let vendors install and maintain the equipment, and to lease services from them, just as the agency today buys telcom services from telecommunications companies. They will both reduce costs and give the agency greater flexibility," the agency said in a press release.

"This shows that by making smart decisions on modernization, the FAA can improve the sys-

tem using the current funding system," said Boyer. "The agency doesn't need more money. The aviation tax system isn't broken."

Nor will ADS-B break the pilot's bank. That's because AOPA has insisted that equipage not become mandatory until the system is available everywhere with weather and traffic information provided for free, and the equipment becomes affordable. "We want to see a basic ADS-B installation that costs no more than a Mode C transponder," said Boyer.

But by the time ADS-B does become mandatory, many GA aircraft owners will already have it installed. Much like what happened with GPS, pilots will see the value of near-real-time weather graphics in the cockpit and appreciate the additional collision avoidance warning from the traffic information service.

ADS-B for general aviation takes the place of radar and transponders by broadcasting the aircraft's GPS-derived position through a universal access transceiver (UAT) radio. That signal is picked up by simple radio receivers on the ground and translated to target information on a controller's scope. That same information can also be received and displayed by nearby aircraft.

The UAT radio establishes a two-way datalink with the ground, so that weather and other information can be transmitted to the aircraft.

ADS-B is a much simpler system than the radar/secondary beacon system currently used for ATC surveillance. It doesn't suffer from line-of-sight limitations like radar, and it can be easily installed in remote areas where radar would be prohibitively expensive.

For more information, see "President's Position: ADS-B" and AOPA's issue brief.

May 4, 2006 <http://www.aopa.org/>

Cut to the CHASE

The Aeronautical Information Manual (AIM) provides a wealth of information for pilots including some do's and don'ts for thunderstorm flying. The following info is taken directly from the AIM.

"Do's"

- o Above all, remember this: never regard any thunderstorm "lightly" even when radar observers report the echoes are of light intensity. Avoiding thunderstorms is the best policy.

- o Avoid by at least 20 miles any severe thunderstorm identified or giving an intense radar echo.

- o Circumnavigate the entire area if the area has 6/10 thunderstorm coverage.

- o Clear the top of a known or suspected severe thunderstorm by at least 1,000 feet altitude for each 10 knots of wind speed at the cloud top. This will exceed the altitude capability of most aircraft.

- o Regard as extremely hazardous any thunderstorm with tops 35,000 feet or higher.

"Don'ts"

- o Don't land or takeoff in the face of an approaching thunderstorm. A sudden gust front of low level turbulence could cause loss of control.

- o Don't attempt to fly under a thunderstorm even if you can see

through to the other side. Turbulence, wind shear and hail under or near the storm could be disastrous.

- o Don't fly without on-board radar into a cloud mass containing scattered embedded thunderstorms.

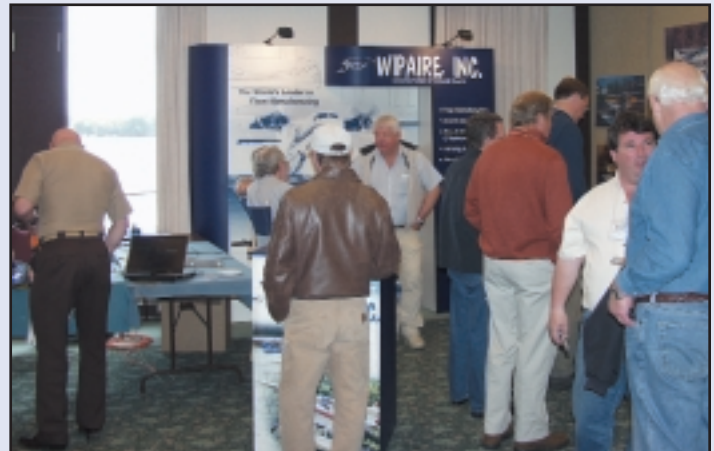
- o Don't trust visual appearance to be a reliable indicator of the turbulence inside a thunderstorm

- o Don't fly under the anvil of a large cumulonimbus.
(from AIM 7-1-29)

Remember, as stated in the AIM, "inflight weather information is available from any FSS within radio range. The common frequency is 122.2. Discrete frequencies for individual stations are listed in the A/FD." (From AIM chapter 7-1-2)

Section 7-1-29 has a great deal of information about what to do and what not to do involving T-storms and flight.

Please read this section carefully. Make sure you know what to do if you have to cut to the chase!



Winds

Continued from page 11

When the wind requires its use the case can be made to surrounding residents, but when the wind is calm it is only neighborly to avoid using that runway. This is often the driving reason to establish a calm wind runway at towered airports and at non-towered airports without a crosswind runway.

Working with pilots and the community and taking into account the issues discussed above, the designation of a calm wind runway is a good idea for most airports with more than one runway. When a calm wind runway is designated that information should be posted at the airport as part of the local operating rules

nity concerns. Sometimes the airport will have a runway that generates noise complaints when it is used.

along with the traffic pattern altitude. These two locally decided items are usually the most poorly publicized information about an airport. You can find the traffic pattern altitude in the Minnesota Airport Directory and sometimes in the Airport/Facility Directory. We will list calm wind runway designations in the Minnesota Airport Directory and put a remark into the federal airport database.

Calm wind runways like traffic pattern entries are recommended procedures. Use of the designated runway when the winds are calm should be encouraged. The pilot in command still has the last word, but as with so many other things in aviation, courtesy and voluntary compliance make the experience safer and more enjoyable. If only we could instill these traits in more automobile operators.

Editor's Note: The photos you see in this month's Tech Bulletin were taken by the Minnesota Flyer at the annual Minnesota Seaplane Conference, held in early May on East Gull Lake. The Office of Aeronautics supports this safety seminar.

The total package

Every spring we look forward to the renewal of life whether vegetation or simply the return of song birds. It is a joyous time of the year and a time when the lengthening days and increasing warmth allows us to shed the bulky coats and have a little more time to have fun.

With summer knocking at the door our excitement is growing. Soon long, lazy, hot days will drive us to go flying and enjoy the clean cool air above the sweltering ground. These same hot, lazy days can also be a good excuse for an impromptu hangar gathering of friends and family just to sit in the shade and enjoy the open spaces of the airport.

While all this is certainly good reasons to be involved in aviation, we must also remember to be thorough and responsible in everything we do in and for aviation. For instance, we must make sure we have a current medical certificate and we must be fully aware of any physical and mental conditions that could impair safety in the air. Yes, I said mental conditions. If you are stressed to a high level for any reason, the cockpit is not where you should be.

Flying requires focus, concentration, and clear thinking. Stress from outside of aviation can impair your thinking and judgment without you realizing it until it may be too late to correct a mistake. Your mental health is as important as your physical health especially if you plan to fly. Clear thinking is a very important anytime you are around an airplane. Clear thinking is a must any time you plan to fly.

The point is, your health, just like your airplane, is a total package. Just because you have the medical certificate, doesn't mean you don't have a responsibility to make sure you stay in good condition from head to toe, and recognize outside influences that could affect your time in the air. You wouldn't takeoff in a plane that you thought might have problems, would you?

My hope is that every pilot and every aircraft owner will take advantage of the beautiful Minnesota skies this spring and summer, and spread the excitement about aviation to every corner of the state. But please, keep aviation safe. Make sure the total package is ready before you take to the air.

— Raymond J. Rought
Director, Office of Aeronautics



Fast Facts about Ford

It seems that few people really know the impact on aviation that Henry Ford, the automaker, really had. Ford had a keen interest in aviation and realized its value to America.

- Ford designed and built the first all-metal, multi-engined, commercial airliner, the Ford Trimotor.

- Ford Airport in Dearborn, Michigan, was (built in 1924. It is notable in aviation history for being the first airport to the first commercial airliner flight guided by radio; the first regularly scheduled passenger service; the first passenger terminal; and featured the first airport hotel (the Dearborn Inn).

- After Charles Lindbergh's solo flight across the Atlantic Ocean to Paris in 1927, he returned to the US and met Henry Ford. Lindbergh gave Ford his first ride in an airplane in the Spirit of St. Louis. Lindbergh later went on to become the nation's first chief commercial pilot...for the Ford Motor Company.

- In 1941 during World War II, Henry Ford built Willow Run Airport near Ypsilanti, Michigan. There he constructed a huge manufacturing facility with a mile long assembly line designed to mass produce the B-24 Liberator bomber.

- During World War II, almost 8,700 B-24 "Liberator" bombers were built at Willow Run. During its peak operation, the plant employed 42,000 people including "Rosie the Riveter."