

The Short Course

Airport Pavement Markings

The weather is much better, you are off to the airport and so are your fellow pilots. Things could get a little busy with all of the pent up demand to prove Bernoulli's Principal.

One challenge we have as pilots is to keep current according to the regulations, and stay proficient according to the type of flying we do. We review flight maneuvers, instrument procedures and takeoffs & landings. When was the last time you reviewed Airport Markings and Signs?

Safety on the ground is as important as safety in the air. Statistically, it may be more important as the largest loss of life (aircraft passengers & crew) resulted from the collision of two 747s while operating on the ground at Tenerife on March 27, 1977. One aircraft was back taxiing on an active runway, while the other was departing the same runway. There were a number of contributing factors, but the point is that they were both on the ground when the accident occurred.

The use of airport markings, although standardized, will vary from airport to airport. Small airports may only use pavement markings, while larger airports may also use signs, lighting and electronic surveillance to direct ground traffic and prevent runway incursions.

"A runway incursion is any occurrence at an airport involving an aircraft, vehicle, person, or object on the ground that creates a collision hazard or results in a loss of separation with an aircraft taking off, landing, or intending to land." – Aeronautical Information Manual (AIM)

The best source of information on Airport Markings and Signs is the Aeronautical Information Manual, Chapter 2, Section 3. As a Short Course, only the most common markings encountered by ultralight and sport pilots at uncontrolled airports will be covered here. The markings discussed are painted on the runway or taxiway.

Runway Markings

Runway markings for smaller airports are shown below in figure 2-3-2 and labeled "Visual Runway Markings". The markings are painted white and consist of the runway centerline and designation markings. Longer runways may also have aiming point markings.

The runway centerline identifies the center of the runway

and provides alignment guidance during takeoff and landing.

The designation marking (runway numbers) is at the approach end of the runway and is the magnetic direction of the runway, divided by 10 and rounded.

As you are lined up on the runway centerline for departure, your magnetic compass or other magnetic direction indicator should agree with the runway numbers, times 10 and allowing for rounding.

The runway aiming point marking serves as a visual aiming point for a landing aircraft and is approximately 1,000 feet from the landing threshold. It can be found on runways in excess of 4,000 ft.

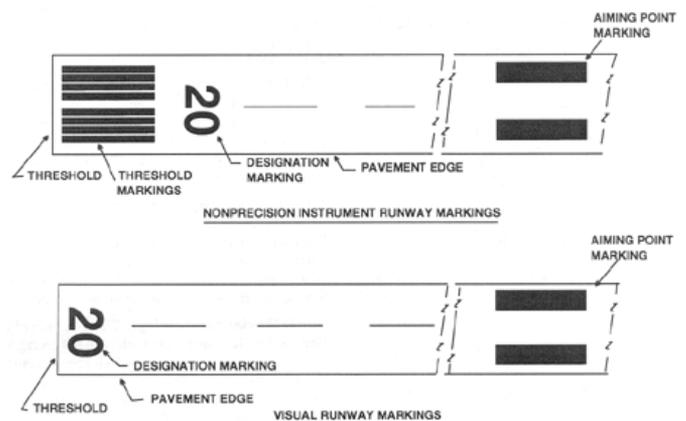


FIG 2-3-2

Nonprecision Instrument Runway and Visual Runway Markings

Displaced Threshold

A displaced threshold is a threshold located at a point on the runway other than the designated beginning of the runway. Note the standard threshold in figure 2-3-2 above and the displaced threshold in the figure below.

Displacement of a threshold reduces the length of runway available for landings.

The portion of runway behind a displaced threshold is available for taxiing, takeoffs in either direction and landing/rollout from the opposite direction.

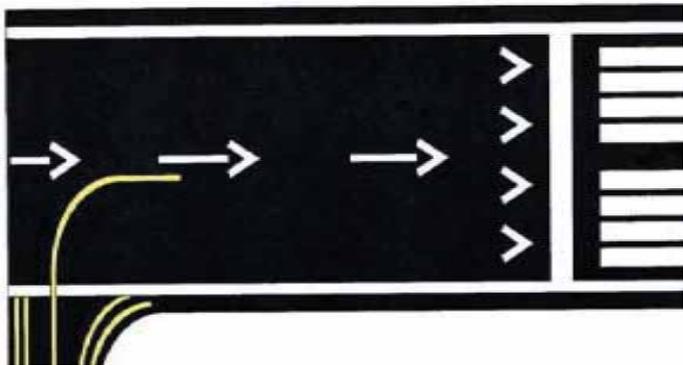
A white threshold bar is located across the width of the runway at the displaced threshold. White arrows are located

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along the centerline in the area between the beginning of the runway and displaced threshold. White arrow heads are located across the width of the runway just prior to the threshold bar.

The object of a displaced threshold is to create a touchdown point farther down the runway. As a result, a normal approach to the new touchdown point will clear obstructions close to the runway.

Landing on the surface before the displacement bar (on or near the arrows) is considered to be landing short of the runway.



Displaced Threshold

Taxiway Markings

The most common taxiway markings are the centerline marking and the runway holding position marking. Taxiway markings are painted in yellow.

Taxiway Centerline

The taxiway centerline is a single continuous yellow line that provides a visual cue to permit taxiing along a designated path. The aircraft should be kept centered over this line during taxi. However, being centered on the taxiway centerline does not guarantee wingtip clearance with other aircraft or other objects.



Taxiway Centerline Marking

Runway Holding Position Marking

These markings identify the locations on a taxiway where an aircraft is supposed to stop when it does not have clearance to proceed onto the runway at a tower controlled airport or you have cleared yourself to proceed at an uncontrolled airport.

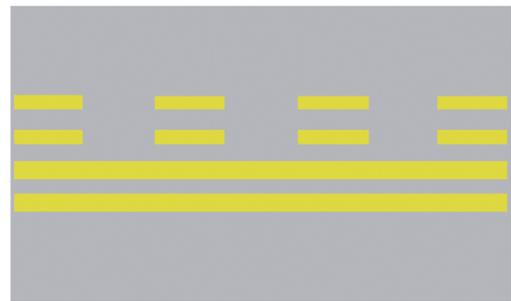
They consist of four yellow lines, two solid and two dashed and extending across the width of the taxiway. The solid lines

are always on the side where the aircraft is to hold.

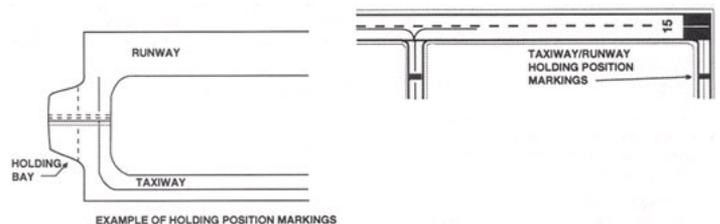
When approaching an active runway, a pilot should not cross the runway holding position marking without assuring adequate separation (time & distance) from other aircraft (on the runway and on final or base leg) at uncontrolled airports. An aircraft exiting a runway is not clear of the runway until all parts of the aircraft have crossed the applicable holding position marking.

At both controlled and uncontrolled airports, this is the most important marking. Do Not cross the runway hold position marking, approaching an active runway, until you have clearance at a controlled airport or until you have cleared yourself of all traffic at an uncontrolled airport.

When approaching the runway, hold on the solid lines side of the marking. When exiting the runway, taxi through (dash through) on the dashed lines side of the marking.



Runway Holding Position Marking



EXAMPLE OF HOLDING POSITION MARKINGS

EXTENDED ACROSS HOLDING BAY

Runway Holding Position Markings on Taxiway

Runway or Taxiway Closed

Closed runways are marked a cross "X" placed on the runway at each end of the runway. The crosses are yellow in color.

Closed taxiways are usually blocked with barricades.

However, as an

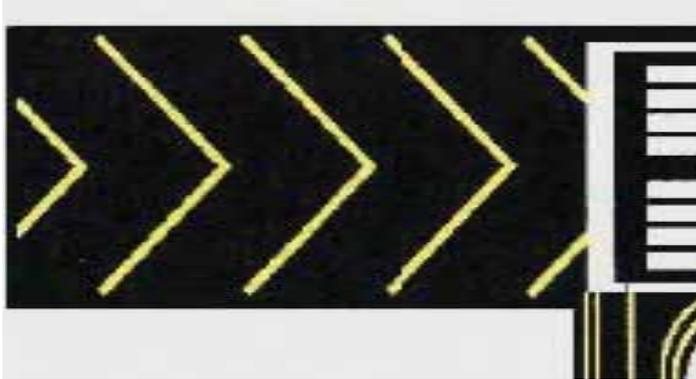


Runway or Taxiway Closed

alternative a yellow cross "X" may be installed at each entrance to the taxiway.

Chevrons

These markings are used to show pavement areas aligned with the runway that are unusable for landing, takeoff, and taxiing. The chevrons are yellow.



Chevrons

Suggestions to prevent runway incursions at uncontrolled airports

- Know and understand all runway and taxiway markings at your airport
- Use CTAF to announce your intentions for taxiing, departure and arrival
- Visibility and Communications are paramount during all

runway operations especially when intersecting runways are in use

- When taxiing, do not cross an active runway until you have cleared all traffic and announced on CTAF
- Do not cross the hold short line for departure until:
- The departure checklist is completed
- The aircraft, your passengers and you are ready for flight
- You have checked for traffic on the base and final approach legs
- The runway is clear
- You have reviewed your Departure Plan of Action (What is your out?)
- You announce taking the runway and departure intentions on CTAF

Airport Signs will be covered next in The Short Course.

Test your knowledge of Airport Signs and Markings. The Air Safety Foundation has a flash card set that you can download and print. The flash cards work well as a quick review of markings and signs. The flash card set may also be available at Safety Seminars and at the AOPA booth at fly-ins.

AOPA - Air Safety Foundation Flash Cards

http://www.aopa.org/asf/flashcards/fcards_files/frame.htm

References

Aeronautical Information Manual

Chapter 2, Section 3. Airport Marking Aids and Signs

http://www.faa.gov/airports_airtraffic/air_traffic/publications/ATpubs/AIM/Chap2/aim0203.html

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