

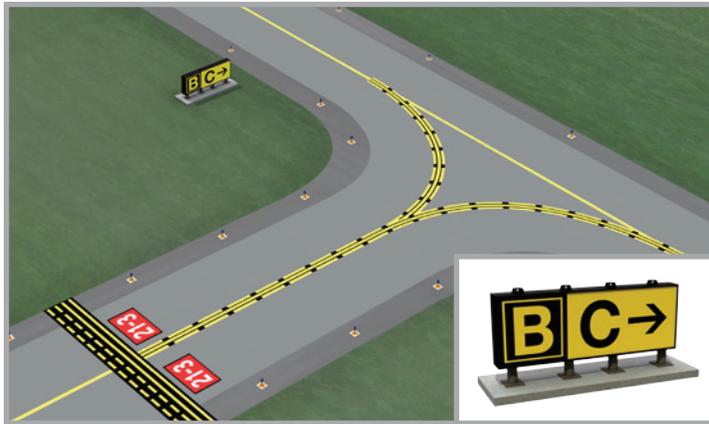


airsafetyinstitute.org

RUNWAY SAFETY FLASHCARDS

Courtesy of the AOPA Air Safety Institute, and made possible by the support of AOPA Insurance, AOPA Finance, and AOPA Pilot Protection Services

The AOPA Air Safety Institute is dedicated to making flying easier and safer for general aviation pilots. For information on free online courses, live seminars, and publications, visit airsafetyinstitute.org.

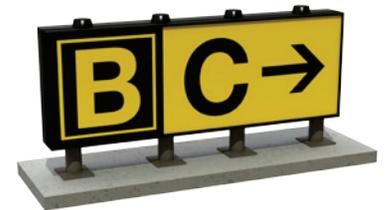


FOLD HERE

Taxiway Direction Sign (Collocated with Taxiway Location Sign)

In many cases, taxiway direction signs are placed next to taxiway location signs. The black sign tells you which taxiway you're on, while the yellow sign identifies an upcoming taxiway.

Ref. AIM Para. 2-3-9/10



CUT HERE

CUT HERE



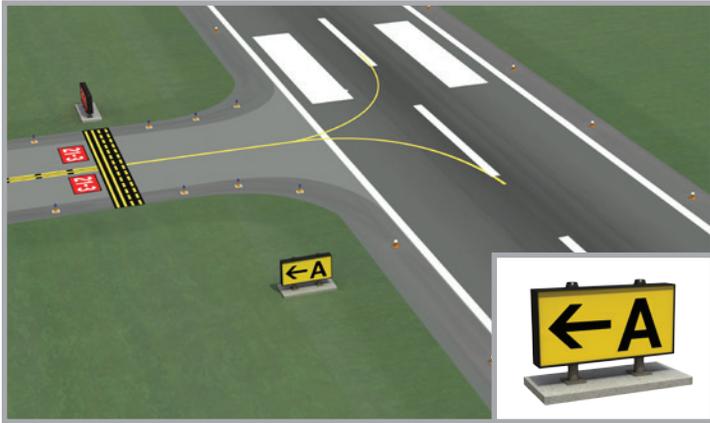
FOLD HERE

Multiple Taxiway Direction Signs (Collocated with Taxiway Location Sign)

Usually located next to or in an array with a taxiway location sign, these yellow signs indicate the name and direction of intersecting taxiways.

Ref. AIM Para. 2-3-9/10





FOLD HERE

Direction Sign for Runway Exit

Indicates a taxiway exit from a runway. Located just prior to the intersection on the same side of the runway as the taxiway exit.

Ref. AIM Para. 2-3-10



CUT HERE

CUT HERE



FOLD HERE

Different Taxi Routes to Multiple Destinations

When a sign shows two or more destinations that are reached by different routes, the destinations are separated by a vertical black bar, and each has its own arrow. In many cases the destinations are runways, but the same type of sign can be used for other destinations.

Ref. AIM Para. 2-3-11



FOLD HERE



FOLD HERE

Common Taxi Route to Multiple Destinations

When a sign shows a common taxi route to two or more destinations, it includes an arrow and a “dot” between the individual destinations. In many cases the destinations are runways, but the same type of sign can be used for other destinations.

Ref. AIM Para. 2-3-11



CUT HERE

CUT HERE



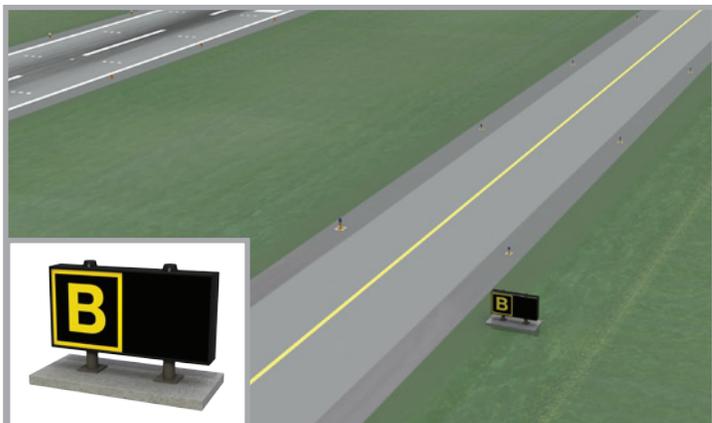
FOLD HERE

Destination Sign

Indicates the direction of a taxi route to a runway(s) or other location.

Ref. AIM Para. 2-3-11





CUT HERE

Taxiway Location Sign

Indicates the taxiway on which the aircraft is located. At larger airports, some taxiways have alphanumeric identifiers (e.g., A3, A4) and some have double-same designators (e.g., AA, BB).

Ref. AIM Para. 2-3-9-a-1



CUT HERE



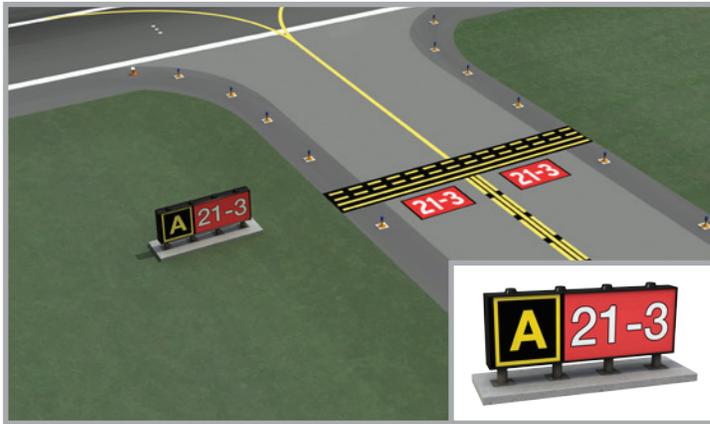
Runway Holding Position Sign at Takeoff End

Where a taxiway meets a runway at its takeoff end, only that runway is identified on the sign (i.e., the reciprocal runway isn't named). However, both runways (e.g., 3-21) would be identified on the sign whenever a taxiway crosses the runway at the runway end.

Ref. AIM Para. 2-3-8-b-1-(a)



FOLD HERE



CUT HERE

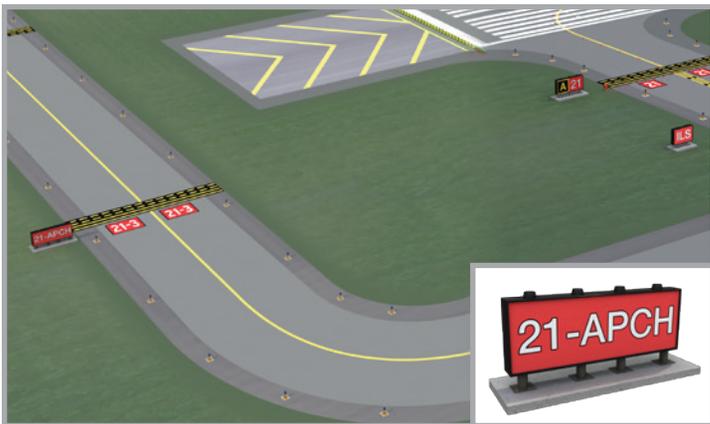
Runway Holding Position Sign (Collocated with Taxiway Location Sign)

Located next to the yellow holding position surface marking on taxiways for taxiway/runway intersections. This sign is often collocated with a taxiway location. In this example, the threshold for Runway 21 is to the left and the threshold for Runway 3 is to the right. Aircraft may not move beyond this sign/marking unless instructed by ATC at towered airports, or by ensuring adequate separation of aircraft at non-towered airports.

Ref. AIM Para. 2-3-8-b-2



CUT HERE



FOLD HERE

Runway Approach Area Holding Position Sign

Located next to the yellow holding position surface markings. Taxiing past this sign may interfere with arriving or departing aircraft. Hold short of this location when instructed by ATC.

Ref. AIM Para. 2-3-8-b-2; 4-3-18-a-8



FOLD HERE



Taxiway Holding Position at the Intersection of Two Runways

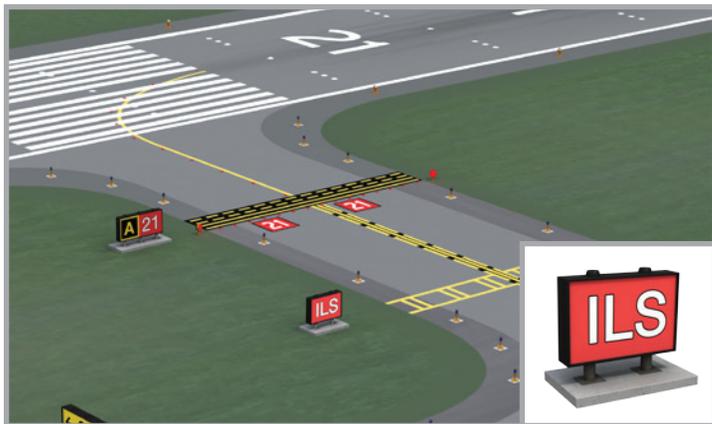
At some airports, two runways intersect—and then a taxiway intersects that intersection. In these cases, there will be two signs: each one including a set of runway identifiers, and each one with arrows that indicate the alignment of the runways and the direction to their respective thresholds.

Ref. AIM Para. 2-3-8-b-1(b)



CUT HERE

CUT HERE



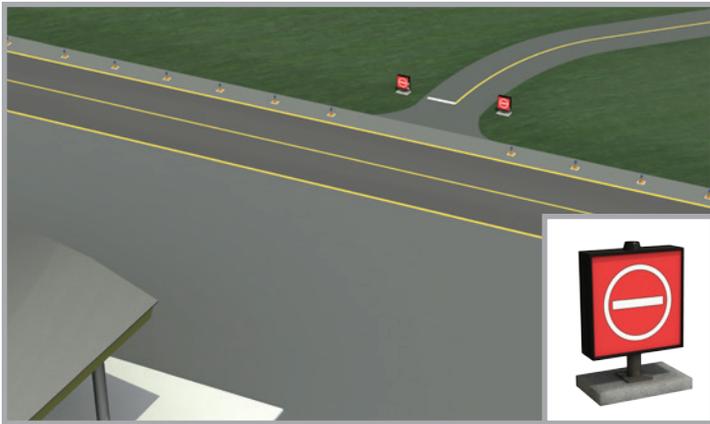
ILS Critical Area Holding Position Sign

Located next to the yellow surface-painted ILS critical area marking. Aircraft taxiing beyond this point may interfere with the ILS signal. Hold short of this location when instructed by ATC.

Ref. AIM Para. 2-3-8-b-3; 4-3-18-a-8



FOLD HERE



FOLD HERE

No Entry Sign

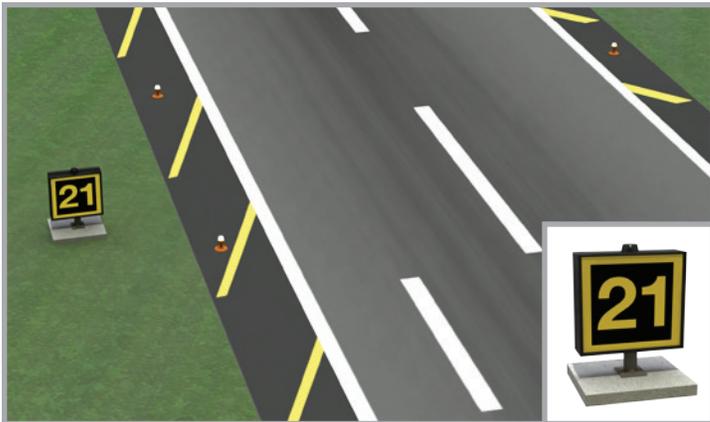
Prohibits an aircraft from entering an area, such as a one-way taxiway or the intersection of a road intended for vehicles.

Ref. AIM Para. 2-3-8-b-4



CUT HERE

CUT HERE



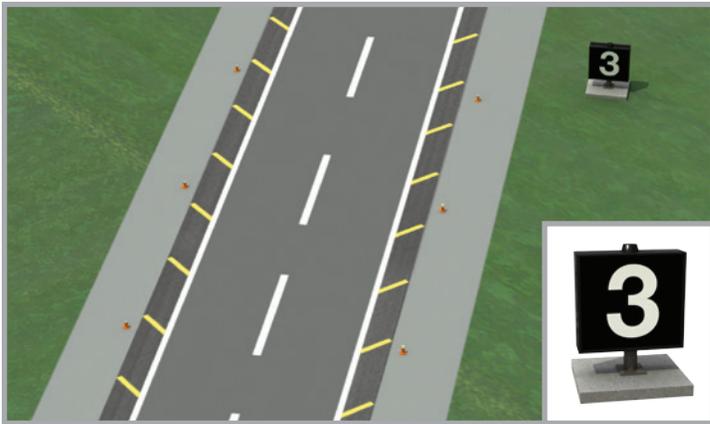
FOLD HERE

Runway Location Sign

Identifies the runway on which the aircraft is located.

Ref. AIM Para. 2-3-9-a-2





FOLD HERE

Runway Distance Remaining Sign

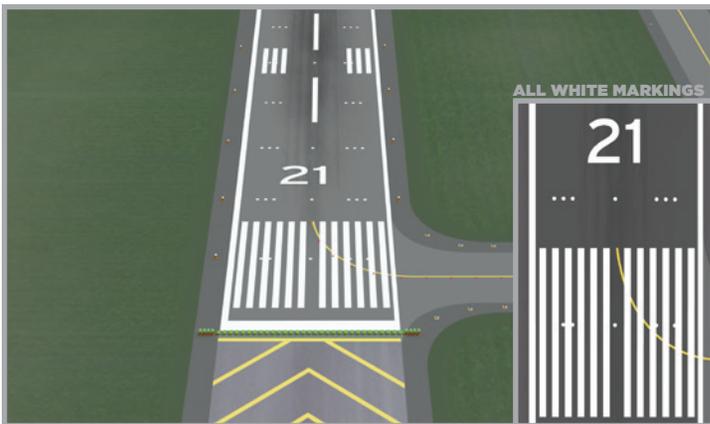
Indicates the distance of runway remaining in thousands of feet. In this example, 3,000 feet remain on the landing runway. These are usually seen at larger airports.

Ref. AIM Para. 2-3-13



CUT HERE

CUT HERE

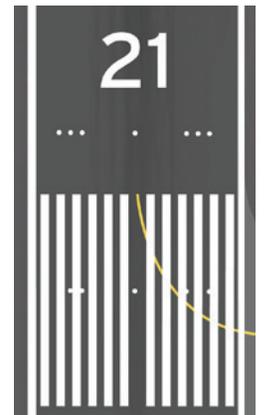


FOLD HERE

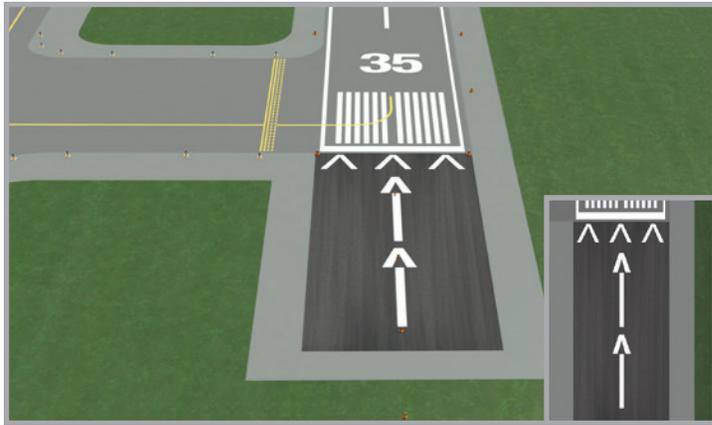
Runway Markings

Runway markings vary with the size and type of runway, but they are always white.

Ref. AIM Para. 2-3-3



FOLD HERE



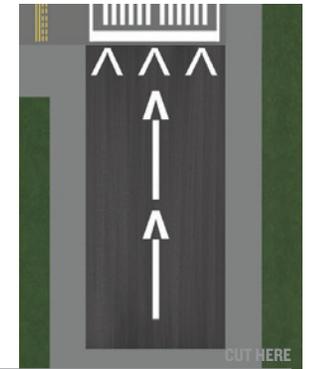
CUT HERE

Displaced Threshold

A displaced threshold designates where the runway's landing area starts. White arrows along the centerline of the runway indicate the portion between the beginning of the runway and the displaced threshold. This portion is available for takeoffs in both directions and landings from the opposite direction.

**Unless declared distances are in effect. Consult the FAA U.S. Chart Supplements (formerly, Airport/Facility Directory (A/FD)) to confirm available landing distances in each direction.*

Ref. AIM Para. 2-3-3-h-2



CUT HERE

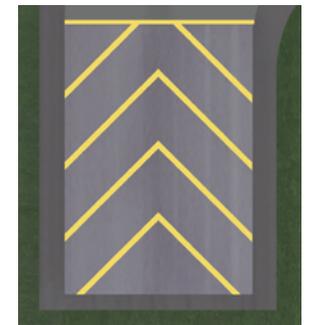


FOLD HERE

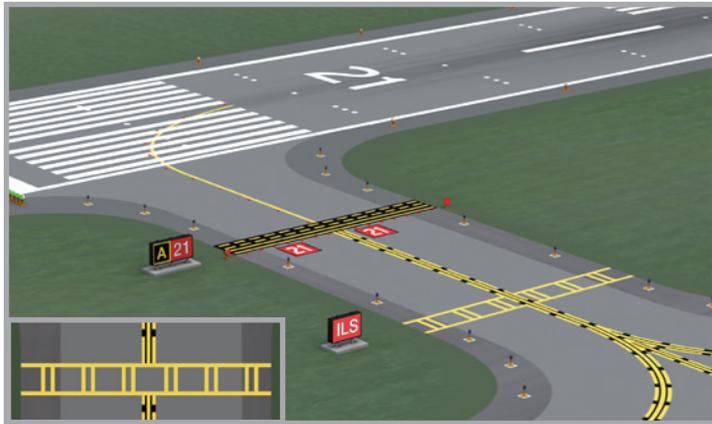
Chevron Markings

Indicate areas of pavement aligned with the runway that are unusable for taxi, takeoff, or landing. Chevrons cover blast pads or stopways, which are constructed to protect areas from erosion caused by jet blast and to provide extra stopping distance for aircraft (stopways).

Ref. AIM Para. 2-3-3-i-1



FOLD HERE

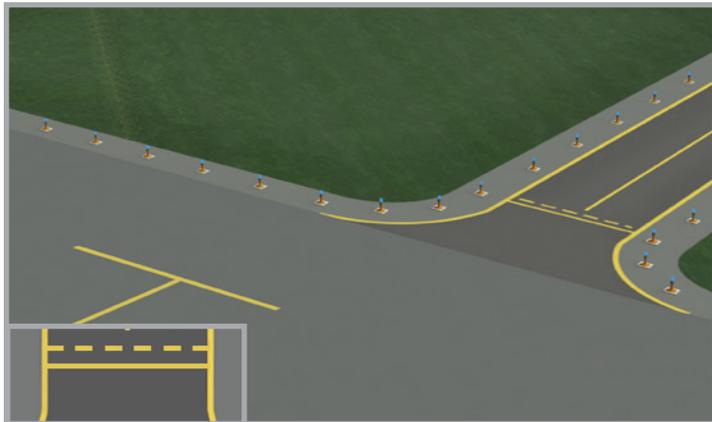
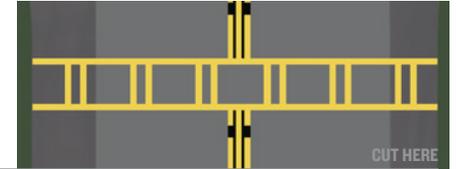


CUT HERE

Holding Position Marking for ILS

Typically collocated with the red and white ILS Critical Area Holding Position sign, this surface marking indicates the boundary of the ILS critical area. Aircraft taxiing beyond this point may interfere with the ILS signal. Hold short of this location when instructed by ATC.

Ref. AIM Para. 2-3-5-b



FOLD HERE

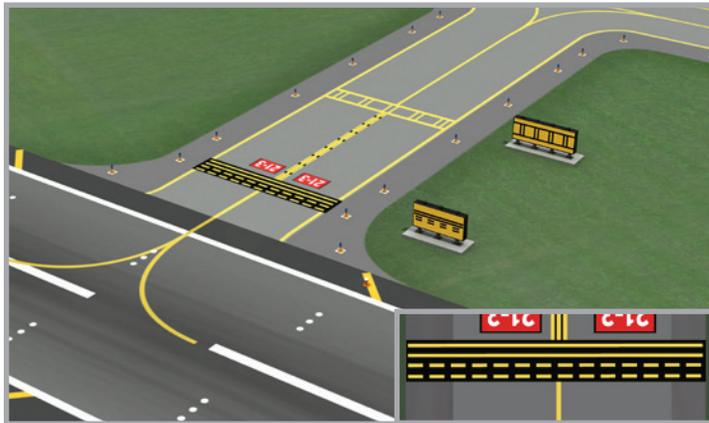
Nonmovement Area Boundary Markings

These markings can be seen at towered airports where hangar or apron areas are located adjacent to a taxiway. The dashed side indicates the movement area, which is under ATC control, and the solid line indicates the nonmovement area (e.g., FBO ramps and hangar areas), which is not under ATC control.

Ref. AIM Para. 2-3-6-c



FOLD HERE



CUT HERE

Runway Holding Position Markings on Taxiways (Runway Perspective)

The dashed lines of the holding position marking are always on the runway side. Aircraft exiting the runway are not considered “clear” until they’re across the entire marking. From the runway perspective, the pavement markings are mirrored by a runway boundary sign with the same symbol as the pavement markings.

Ref. AIM Para. 2-3-5-a-1



CUT HERE



FOLD HERE

Runway Holding Position Markings on Taxiways (Taxiway Perspective)

A yellow surface-painted marking on a taxiway, typically collocated with a red and white runway holding position sign, indicates that an aircraft or vehicle must stop at the double solid lines until cleared to cross by ATC. This marking may also be seen on a runway, or with a taxiway approach hold sign, in which case ATC will provide appropriate hold short instructions.

Ref. AIM Para. 2-3-5-a-1



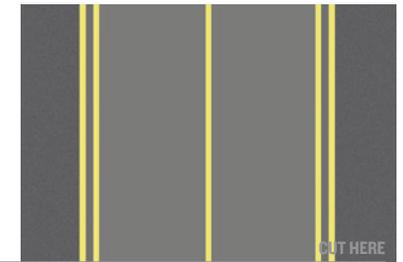


FOLD HERE

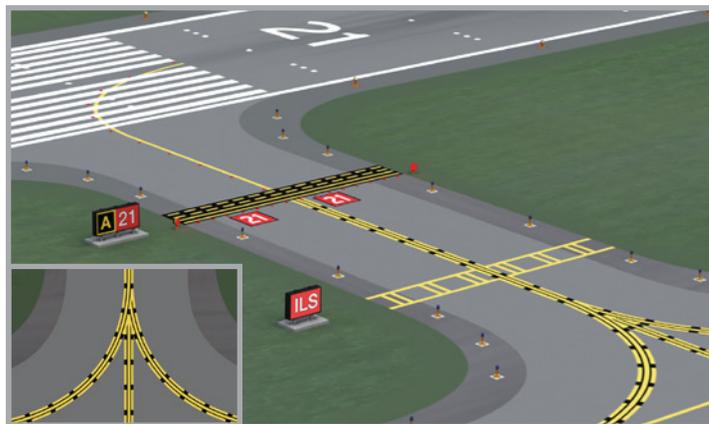
Taxiway Markings

Specific marking styles vary somewhat, but taxiway markings are always yellow.

Ref. AIM Para. 2-3-4



CUT HERE

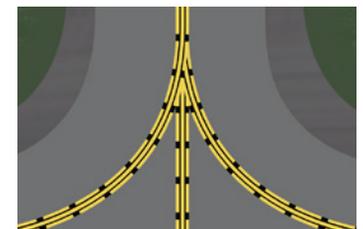


FOLD HERE

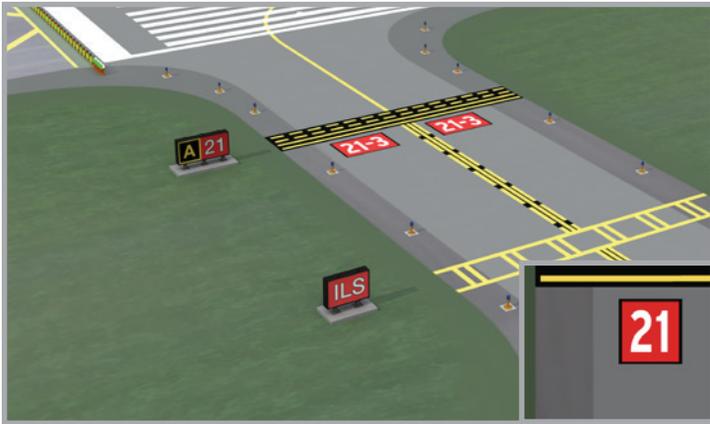
Enhanced Taxiway Centerline Markings

These markings indicate that the aircraft is approaching a runway. Prior to a runway holding position marking, the taxiway centerline will be “enhanced” to include a set of yellow dashed lines. Installed at more than 500 airports throughout the U.S., these dashed yellow markings extend 150 feet from the runway holding position on either side of taxiway centerlines.

Ref. AIM Para. 2-3-4-b-2



FOLD HERE

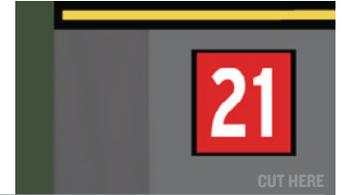


CUT HERE

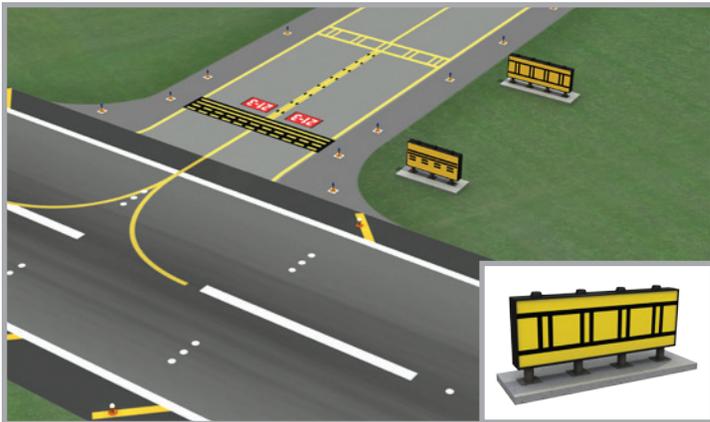
Surface Painted Holding Position Sign

A single surface-painted holding position sign that is centered on the taxiway centerline is used on taxiways that are 35 feet wide or less, one or two signs are used for taxiways wider than 35 feet, and repetitive signs (placed on both sides of the taxiway centerline) are used only on taxiways that are wider than 200 feet.

Ref. AIM Para. 2-3-5-3-d, AC 150/5340



CUT HERE



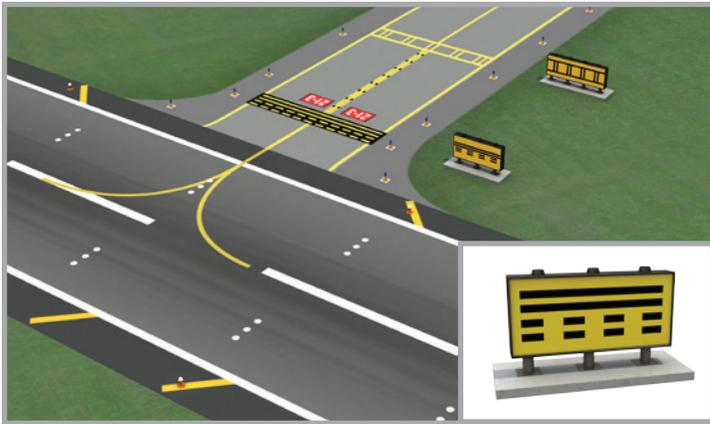
FOLD HERE

ILS Critical Area Boundary Sign

Positioned in conjunction with the ILS holding position markings, but seen only when taxiing or driving away from the runway. Aircraft or vehicles exiting the runway are clear of the ILS critical area when they move entirely beyond the holding position marking.

Ref. AIM Para. 2-3-9-a-4





FOLD HERE

Runway Boundary Sign

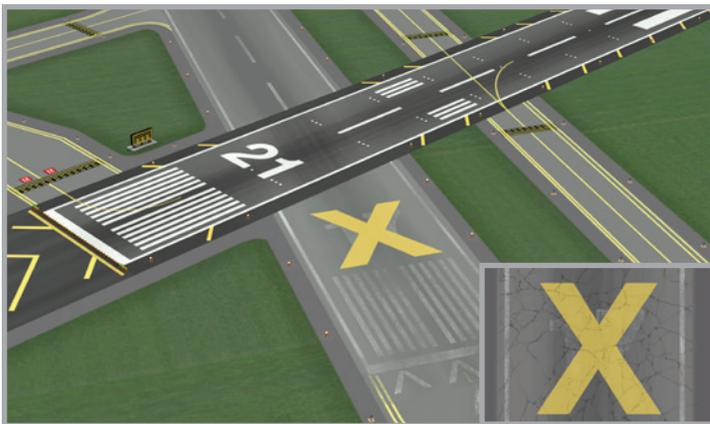
This sign faces the runway and is visible to pilots exiting the runway. It is located next to the yellow holding position markings painted on the taxiway pavement. Taxi past this to be sure you are clear of the runway.

Ref. AIM Para. 2-3-9-a-3



CUT HERE

CUT HERE



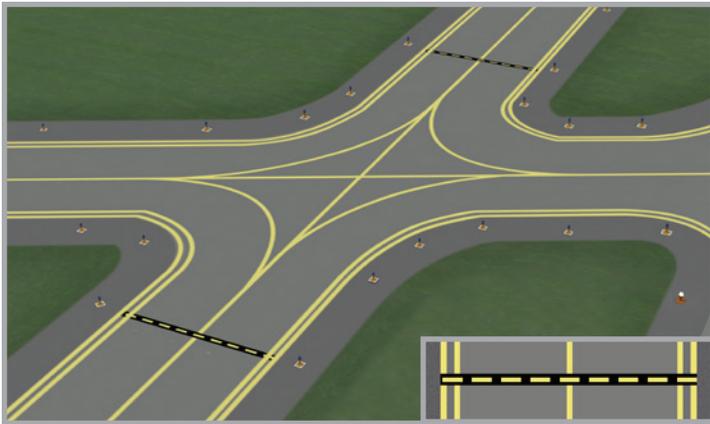
FOLD HERE

Closed Runway and Taxiway Marking

Indicates a closed runway or taxiway.

Ref. AIM Para. 2-3-6-d





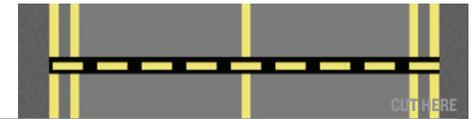
FOLD HERE

Holding Position Marking for Taxiway/Taxiway Intersections

Extending across the width of a taxiway, this yellow dashed line indicates where an aircraft should stop if instructed to do so by ATC. When the marking is not present, stop the aircraft to provide adequate clearance from an aircraft on the intersecting taxiway.

Ref. AIM Para. 2-3-5-c

CUT HERE



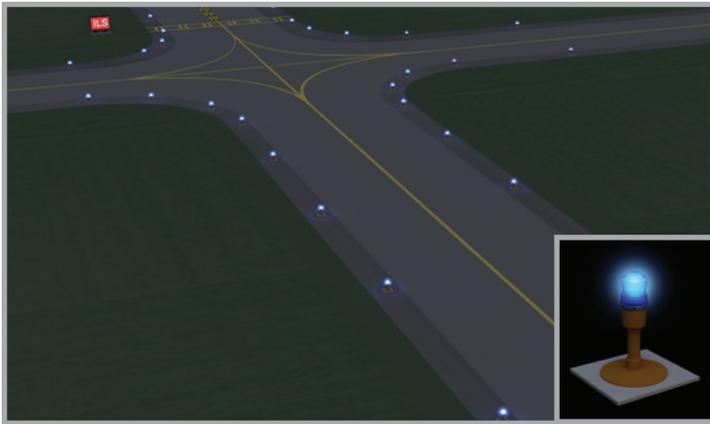
FOLD HERE

Runway Edge Lights

On runways without instrument approaches, all of the edge lights are white. On instrument runways, however, yellow replaces white on the last 2,000 feet, or half the runway length, whichever is less.

Ref. AIM Para. 2-1-4





FOLD HERE

Taxiway Edge Lights

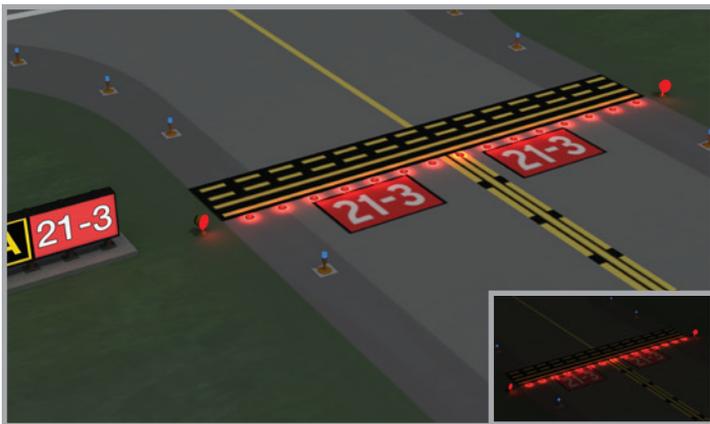
Taxiway lights are blue to clearly distinguish them from runway lights.

Ref. AIM Para. 2-1-11



CUT HERE

CUT HERE

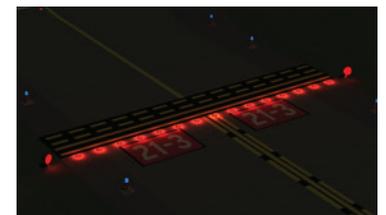


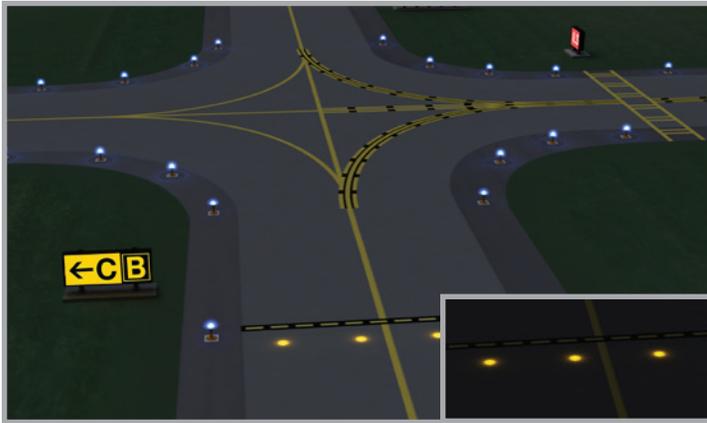
FOLD HERE

Stop Bar Lights

Normally seen at larger airports, these consist of red in-pavement lights across the taxiway at the runway holding position, along with elevated red lights on either side. Never cross an illuminated red stop bar, even when ATC has given a clearance. When it's safe to proceed, the lights will be turned off.

Ref. AIM Para. 2-1-11-e



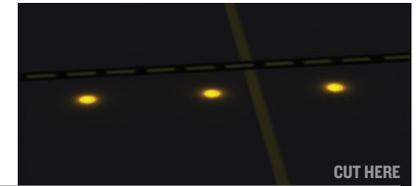


FOLD HERE

Clearance Bar Lights

At larger airports, three steady yellow lights are sometimes installed in the pavement at taxiway holding positions (i.e., where taxiways intersect other taxiways).

Ref. AIM Para. 2-1-11-c



CUT HERE



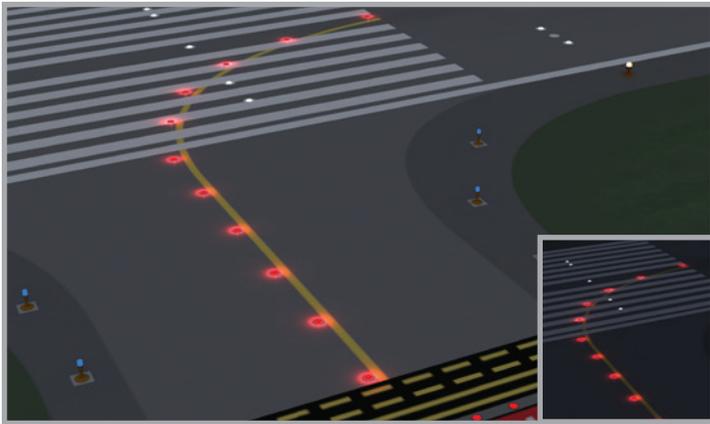
FOLD HERE

Runway Guard Lights

Installed at taxiway/runway intersections (usually at larger airports), these lights help pilots identify intersections in low-visibility conditions. They consist of a pair of elevated, flashing yellow lights on either side of the taxiway, though sometimes yellow in-pavement lights are used. Pilots sometimes refer to these as "wig-wag" lights.

Ref. AIM Para. 2-1-11-d





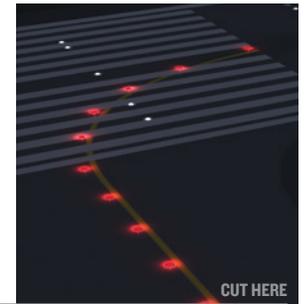
FOLD HERE

Runway Entrance Lights (REL)

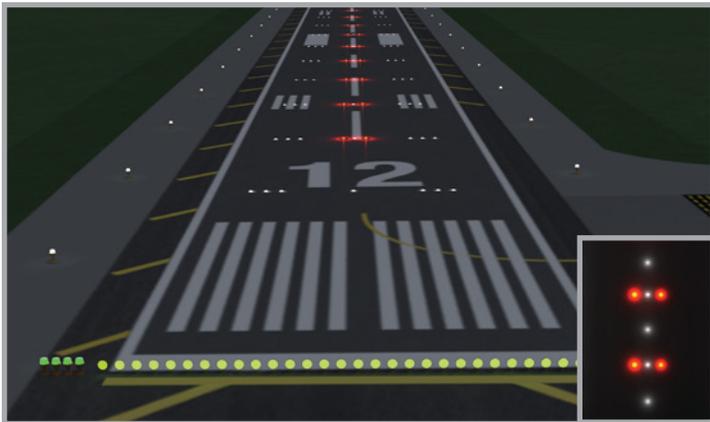
These flush-mounted, in-pavement, unidirectional red lights run parallel to the taxiway centerline and are directed toward the pilot at the hold line. Stop at the hold line when the lights are illuminated, which means there is traffic on the runway or final approach within the activation area.

Contact ATC if your clearance to proceed onto the runway conflicts with the lights. If they become illuminated when you're already on the runway, proceed according to your best judgment knowing that the runway is unsafe to enter or cross. Contact ATC at the earliest possible opportunity.

Ref. AIM Para. 2-1-6-b



CUT HERE



FOLD HERE

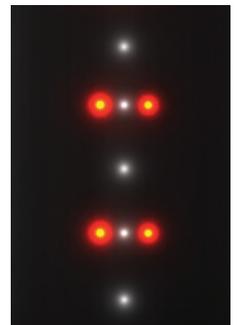
Takeoff Hold Lights (THL)

These flush-mounted, in-pavement, unidirectional red lights are in a double row aligned with either side of the runway centerline lighting, and are directed toward the arrival end of the runway at the "line up and wait" point where aircraft are in position for takeoff or rolling, and extend for about 1,500 feet in front of the holding aircraft.

Illuminated lights provide a signal to aircraft in position that it's unsafe to takeoff because the runway is occupied or about to be occupied by another aircraft or vehicle. For aircraft already on the takeoff roll, it may be impractical to stop for safety reasons. In this case proceed according to your best judgment while knowing that the runway is unsafe. Contact ATC at the earliest possible opportunity.

Extinguished lights are not a clearance to begin a takeoff roll. All takeoff clearances will be issued by ATC.

Ref. AIM Para. 2-1-6-c





FOLD HERE

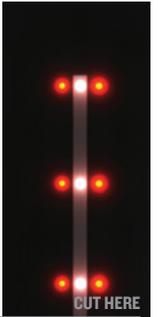
Runway Intersection Lights (RIL)

These flush-mounted, in-pavement, unidirectional red lights are in a double row aligned with either side of the runway centerline lighting—and similar to the "Takeoff Hold Lights," they are directed toward the arrival end of the runway at the "line up and wait" point where aircraft are in position for takeoff or rolling. These lights, however, extend for 3,000 feet in front of an aircraft that is approaching an intersecting runway. The lights end at the land-and-hold-short operation (LAHSO) light bar or the hold short line for the intersecting runway.

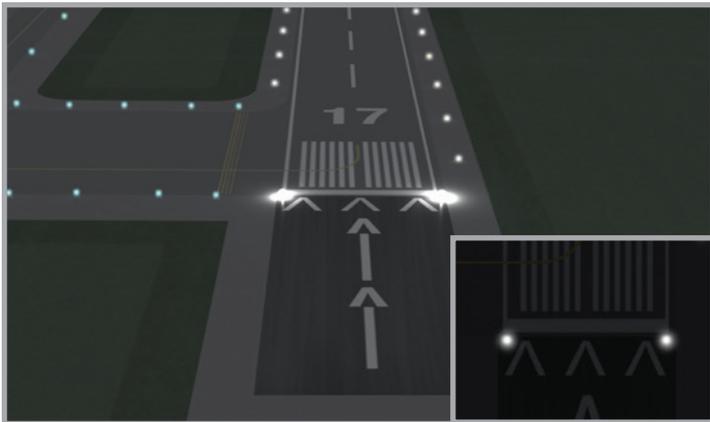
The lights will illuminate when aircraft are departing, in position to depart, or doing a landing rollout when there is high-speed traffic on the intersecting runway. When the lights are illuminated, pilots departing or arriving should stop before the LAHSO stop bar or the hold line for the intersecting runway.

For aircraft already on the takeoff roll, it may be impractical to stop for safety reasons. In this case proceed according to your best judgment while knowing that the runway is unsafe. Contact ATC at the earliest possible opportunity.

Ref. AIM Para. 2-1-6-d



CUT HERE

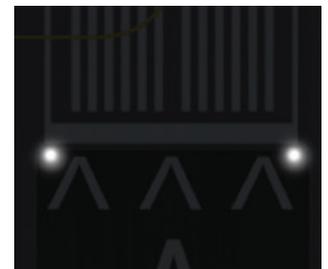


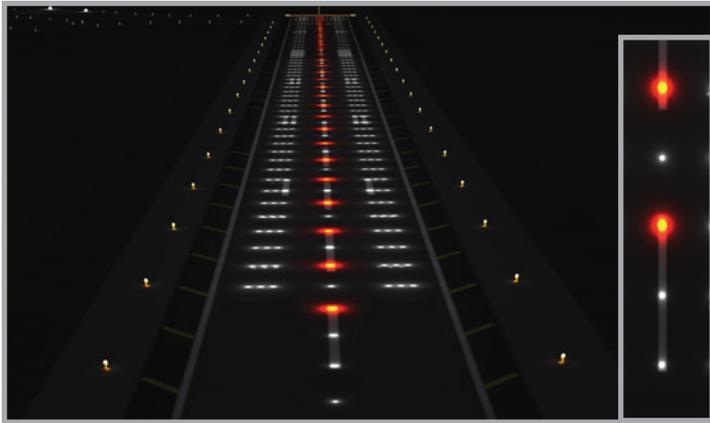
FOLD HERE

Runway End Identifier Lights (REIL)

REILs are installed at many airports to help provide positive identification of the approach end of a particular runway. These synchronized flashing lights are located on each side of the runway threshold.

Ref. AIM Para. 2-1-3





FOLD HERE

Runway Centerline Lighting System (RCLS)

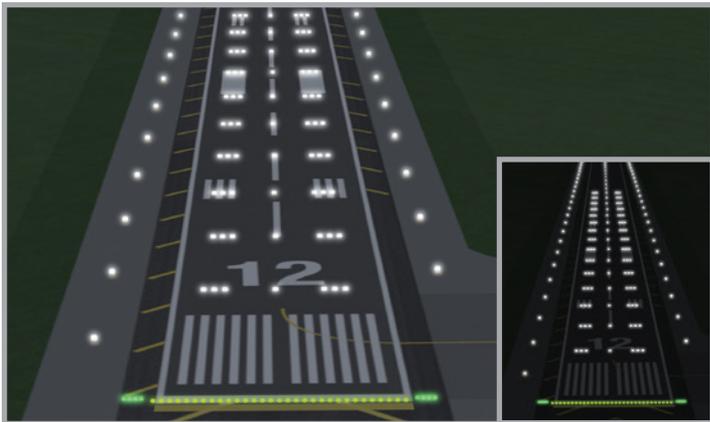
These lights are installed on some precision approach runways to facilitate landing under low-visibility conditions. They are located along the runway centerline at 50-foot intervals. When viewed from the landing threshold, the runway centerline lights are white until the last 3,000 feet of the runway. The white lights begin to alternate with red for the next 2,000 feet, and for the last 1,000 feet of the runway, all centerline lights are red.

Ref. AIM Para. 2-1-5-a



CUT HERE

CUT HERE



FOLD HERE

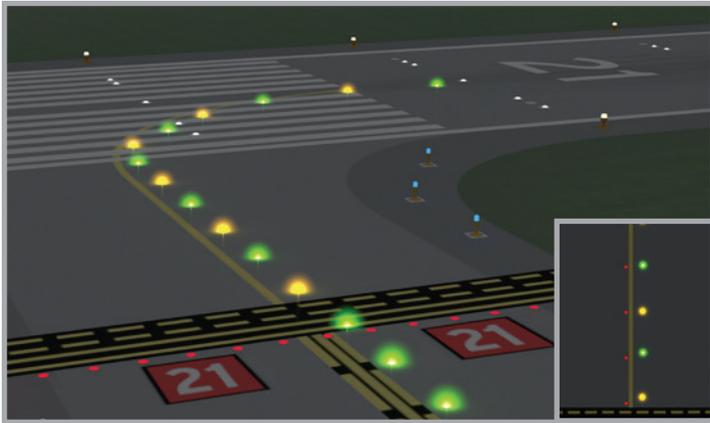
Touchdown Zone Lights (TDZL)

These lights are installed on some precision approach runways to indicate the touchdown zone when landing in low-visibility conditions. They consist of two rows of white light bars that are aligned parallel to the runway centerline, and start 100 feet beyond the landing threshold and extend to 3,000 feet beyond the landing threshold or to the midpoint of the runway, whichever is less.

Ref. AIM Para. 2-1-5-b



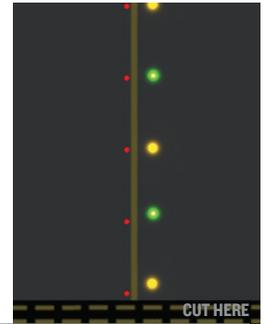
FOLD HERE



Taxiway Centerline Lead-On Lights

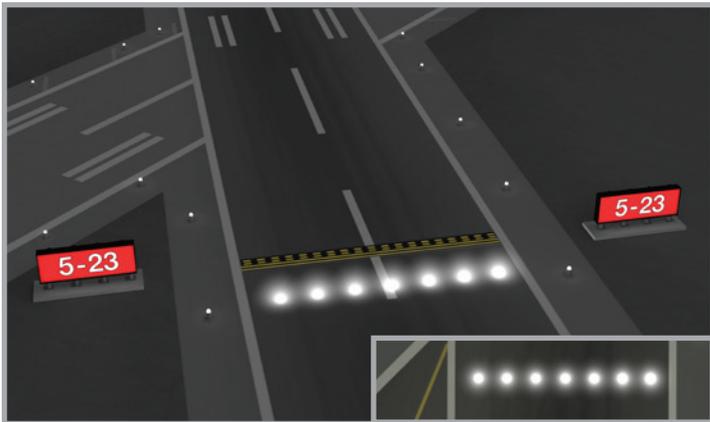
These bidirectional lead-on lights provide visual guidance to aircraft entering the runway. They are color-coded the same as lead-off lights to warn pilots and vehicle drivers that they are within the runway environment or instrument landing system (ILS) critical area, whichever is more conservative. One side of the light emits light for the lead-on function while the other side emits light for the lead-off function. Any fixture that emits yellow light for the lead-off function must also emit yellow light for the lead-on function.

Ref. AIM Para. 2-1-5-d



CUT HERE

CUT HERE



Land and Hold Short Lights

These lights are used to indicate the hold short point on certain runways that are approved for land-and-hold-short operations (LAHSO). Land and hold short lights consist of a row of pulsing white lights installed across the runway at the hold short point, and are collocated with hold short markings and signage. Where installed, the lights will be on anytime LAHSO is in effect. These lights will be off when LAHSO is not in effect.

Ref. AIM Para. 2-1-5-d



FOLD HERE