

## Engineered Materials Arresting System (EMAS)

### WHAT IT IS

An Engineered Materials Arresting System (EMAS) is an installed surface placed beyond the end of a runway, and designed to safely stop an overrunning aircraft. The EMAS bed is designed to stop an aircraft by exerting smooth deceleration forces on its landing gear as the aircraft enters the bed and the EMAS material deforms. The EMAS bed design minimizes the potential for structural damage to aircraft.

### HOW TO IDENTIFY IT

When an EMAS is installed on a runway it will be depicted on the aerodrome chart. While there is no standard method to depict EMAS, various methods of depiction are shown below:

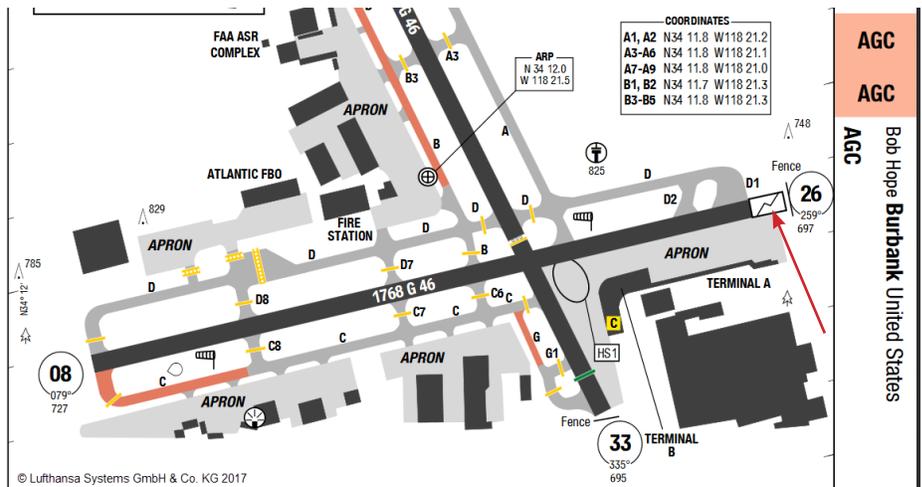
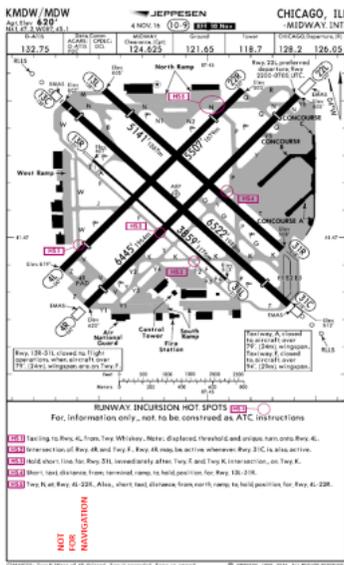


Figure 2 Example depiction of EMAS on Lido Charts - Not for Navigation

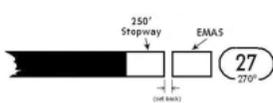


Figure 1 Example depiction of EMAS on Jeppesen Charts - Not for Navigation

Visually, EMAS appears as a raised grey bed at the end of a runway, often with yellow chevrons painted on top. Some examples are included below:



Figure 3 EMAS installation on Boston Logan Departure End of 15R.  
Photo Courtesy of Mark Crystal.



Figure 4 EMAS installation at Chicago Midway.  
Image Courtesy of RunwaySafe.

## HOW TO USE IT

IFALPA does not provide procedures for aircraft operators. However, following the guidance below provided by the EMAS manufacturers ensures that the aircraft engages the EMAS according to the design entry parameters.

During the takeoff or landing phase, if a pilot determines that the aircraft will exit the runway end and enter the EMAS, the following guidance should be adhered to:

- 1. Continue deceleration**  
Regardless of aircraft speed upon exiting the runway, continue to follow Rejected/Aborted Takeoff procedures, or if landing, Maximum Braking procedures outlined in the Flight Manual.
- 2. Maintain runway centerline**  
Not veering left or right of the bed and continuing straight ahead will maximize the stopping capability of the EMAS bed. The quality of deceleration will be best within the confines of the bed.
- 3. Maintain deceleration efforts**  
The arrestor bed is a passive system, so this is the only action required by the pilot.
- 4. Once stopped, do not attempt to taxi or otherwise move the aircraft**  
The aircraft will need to be towed out.
- 5. Follow your operator's procedures when making any evacuation decision.**

## REMEMBER TO BRIEF IT

Before take off and landing, pilots should be aware of the presence of an EMAS bed. Pilots should review the aerodrome chart and other aerodrome information to determine if the runway that they will be using is equipped with an EMAS.

## FURTHER READING

[https://www.faa.gov/documentLibrary/media/Advisory\\_Circular/150\\_5220\\_22b.pdf](https://www.faa.gov/documentLibrary/media/Advisory_Circular/150_5220_22b.pdf)