airservices

A guide to runway stop bars

Stop Bars Purpose

Stop bars are considered a valuable defence against aircraft and vehicles inadvertently entering a runway without Air Traffic Control (ATC) clearance).

Many Runway Incursion (RI) incidents result from pilots or drivers acknowledging ATC hold short instructions and then continuing to proceed across the runway holding point line.

Stop bar lighting is prescribed in International Civil Aviation Organisation (ICAO) Annex 14 for low visibility operations and is in use at many international airports. Several Australian airports have installed stop bar lighting to enhance low visibility operations at the airport. The installation of stop bars, together with other new facilities, will allow landings and take-offs to take place in low visibility conditions where otherwise extensive delays would occur.

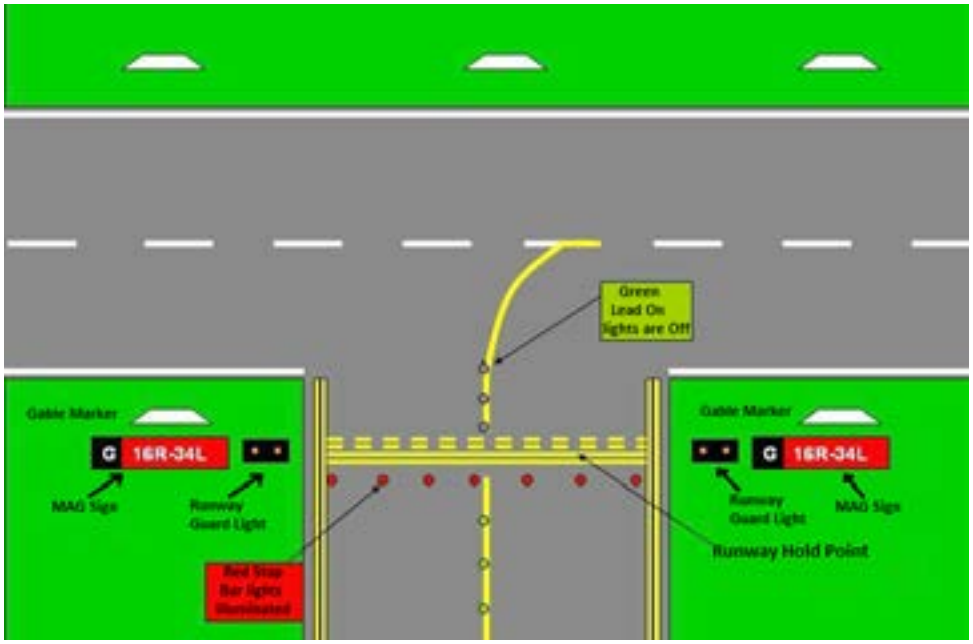
Stop bar operations require no special equipment in aircraft or vehicles but merely require the pilot/driver to stop and hold at a lit stop bar and to **only proceed when ATC gives the appropriate verbal instruction and switches off the stop bar**.

Stop bars are:

- Described in ICAO Annex 14 - low visibility operations including fog
- An enabler for Category II and III operations
- Enhance safety - supplement verbal instructions with lights

Runway holding point markings

Runway holding point markings on taxiways, identify the location where an aircraft/vehicle is required to stop when it does not have a clearance to proceed onto a runway. A red and white runway holding point sign and possibly runway guard lights or stop bars also provide visual aids.



Click on image for a larger version

- Display is Unidirectional
- Shows red in the direction of approach to the stop bar from the taxiway
- Are at right angles to the taxiway centreline
- Co-located with the runway holding point markings

When instructed by ATC to **"hold short of runway XX"** or **"taxi to holding point XX",** you should read back and stop so no part of the aircraft/vehicle extends over the first sold line of the runway holding point marking. Keep you head up - distances of runway holding point markings from the centreline of a runway can vary event at the same aerodrome.

When approaching the runway holding point marking, you should not cross the marking without ATC clearance

An aircraft/vehicle exiting a runway is not clear of the runway until all parts of the aircraft/vehicle have crossed the applicable runway holding point marking.

Stop bar lighting display

The red stop bar light is switched off as the verbal instruction is given to reinforce that an aircraft or vehicle is cleared to enter the runway.

An aircraft taxiing or a vehicle operating on the maneuvering area must stop and hold at all lighted stop bars. The aircraft or vehicle may only proceed further when in receipt of a clearance by ATC **and** the stop bar lights have been switched off.

If the stop bar lights have not been switched off after receipt of a clearance, the pilot or vehicle driver MUST seek clarification from ATC. Do not cross an illuminated stop bar.

Key Points:

- Aircraft and vehicles must stop and hold at lit stop bars.
- Aircraft/vehicles can proceed when:
  - verbal instruction from ATC is given **and**
  - stop bar red light is switched off
- This will reinforce that an aircraft or vehicle is cleared to enter the runway

Stop Bar Techniques

There are a number of techniques that pilots should employ when operating at aerodromes that have stop bars in place.

Several incidents have occurred where crew have rolled right up to the holding point line thereby impairing their ability to view the lights. With bigger aircraft, the closer you are, the more difficult they are to see. If you sit a little bit back from the stop bar, one or both pilots can sight and confirm the stop bar is extinguished.

However, at some airports, there may be a requirement to taxi right up to the holding point to maintain the airport's operational capacity (line up efficiency) or because there is a lack of taxiway flexibility (space) behind an aircraft at a holding point. At Sydney, for example, there is severely limited taxi space behind aircraft at holding points. At some airports, raised stop bar lights have been installed at each of the stop bar to ensure visibility of lights in this scenario.

Crews should always check ERSA for the airport you are operating at to see if raised stop bars are installed and the lead on light configuration for the aerodrome.

Contingency Procedures

In the event that a fault occurs during stop bar switching, ATC has contingency procedures in place to ensure the safe movement of aircraft.

If a stop bar switching fault occurs, ATC will not immediately implement contingency procedures. A minimum period of 15 minutes will be allowed for corrective action to occur. If the stop bar switching is still faulty, ATC may implement contingency procedures to allow traffic to cross an illuminated stop bar.

The contingency procedure involves two critical items of information:

1. Advice that the stop bar switching is faulty and that contingency procedures are in operation:
   "STOP BAR SWITCHING [AT HOLDING POINT(S) (name of holding point(s))] UNSERVICEABLE, STOP BAR CONTINGENCY PROCEDURES IN FORCE - may be delivered by the ATIS or direct transmission.
2. Specific phraseology to authorise crossing the illuminated stop bar:
   "AT (holding point), CROSS THE ILLUMINATED STOP BAR, LINE UP (or CLEARED FOR TAKE-OFF or ENTER or CROSS) RUNWAY (number)".

Both of these items are required before you can cross an illuminated stop bar.

Contingency procedures will not be employed if the visibility is less than 550 metres.

Pilot Safety Aspects

Conditional clearances will not be used if stop bars are operating.

Only when contingency procedures are in place, and a pilot/driver is in possession of a specific ATC instruction, can an aircraft/vehicles cross an illuminated stop bar.

Stop bar configuration, including raised stop bar lights and lead on lights can be subtly different at all aerodromes. ERSA should be consulted prior to operating at any aerodrome.

Stop bars are a defence against human error in situation awareness. Remember, NEVER cross an illuminated stop bar. If in doubt, query ATC as to the intent of the instruction.

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