

Notice 7110.199 - Land and Hold Short Operations (LAHSO)

Department of Transportation  
Federal Aviation Administration

3/26/99

Cancellation Date: 3/26/00

1. PURPOSE. This notice prescribes standards for use by Air Traffic, Flight Standards, and Airports in approving and conducting land and hold short operations (LAHSO). This notice also establishes terms of reference, conditions, and limitations for the application of LAHSO.

2. DISTRIBUTION. This directive is distributed to branch level in Washington and regional Air Traffic, Flight Standards, and Airport Safety and Standards offices, the Office of System Safety, all air traffic field offices and facilities, Flight Standards District Offices, Airport District Offices, and interested aviation public.

3. CANCELLATION. This notice cancels FAA Order 7110.114, Notice 7110.195, Notice 7110.196, GENOT 7110.192, and GENOT 7110.197.

4. ACTION. Facility managers shall ensure all control personnel are briefed on this change prior to working an operational position.

5. EFFECTIVE DATE. April 15, 1999.

6. BACKGROUND. The Federal Aviation Administration (FAA) entered into an agreement with the Air Line Pilots Association and Air Transport Association for the purpose of modifying air carrier operations as they pertain to LAHSO. This notice sets the standards for conducting the following LAHSO combinations:

- a. Land and hold short of an intersecting runway.
- b. Land and hold short of an intersecting taxiway.
- c. Land and hold short of an approach/departure flight path.
- d. Land and hold short of a pre-determined point.

7. EXPLANATION OF CHANGES.

The following changes apply to all LAHSO:

- a. Dry runway operations only.
- b. No night operations except at airports where the FAA LAHSO Lighting Configuration or improved FAA LAHSO Lighting Configuration is installed (see paragraph 9c).

c. Weather minimums will be a ceiling of 1,000 feet and 3 miles visibility for LAHSO.

d. Experimental aircraft are excluded from LAHSO.

e. There shall only be one hold short point on the landing runway.

f. LAHSO shall not be utilized if wind shear advisories are included on the ATIS broadcast. At locations not served by an ATIS, or where the ATIS is out of service, there cannot have been any reports of wind shear for 20 minutes prior to the issuance of a LAHSO clearance.

g. Vertical guidance is no longer required for general aviation LAHSO.

For Air Carrier Operations Only:

h. Foreign Air Carrier and Foreign Commuter aircraft are not to be issued LAHSO clearances.

i. Air Carrier aircraft shall not land or depart on a runway when a non-air carrier aircraft is landing to hold short of the air carrier runway.

j. LAHSO involving air carrier aircraft will only be conducted at the airports and in the configurations listed in appendixes 1 and 2 of this notice.

k. Weather minimums will be a 1,500 foot ceiling and 5 miles visibility for LAHSO. However, if a PAPI or VASI is installed on the landing runway then a 1,000 foot ceiling and 3 miles visibility will be required.

8. DEFINITIONS. For the purposes of this notice, the following definitions are provided:

a. Available Landing Distance (ALD). That portion of a runway available for landing and rollout for aircraft cleared for LAHSO. This distance is measured from the landing threshold to the hold short point.

b. Air Carrier Operation. U. S. Air Carrier and commuter aircraft operating under Part 121.

c. Contaminated Runway. For the purposes of this notice, a runway is considered contaminated whenever standing water, ice, snow, slush, frost in any form, heavy rubber deposits, or other substances are present. A runway is contaminated with respect to rubber deposits or other friction degrading substances when the average friction value for any 500-foot segment of the runway within the ALD falls below the recommended minimum friction level and the average friction value in the adjacent 500-foot segment falls below the maintenance planning friction level.

d. Hold Short Point. A point on the runway beyond which a landing aircraft with a LAHSO clearance is not authorized to proceed.

e. Hold Short Position Marking. The painted runway marking located at the hold-short point on all LAHSO runways.

f. Hold-Short Position Signs. Red and white holding position signs located alongside the hold short point.

g. FAA LAHSO Lighting Configuration. Five, six, or seven in-pavement, pulsing white lights at the LAHSO hold short point as currently installed at BOS, DFW, and IAD.

h. Improved FAA LAHSO Lighting Configuration - A minimum of six in-pavement, continuously illuminated white lights at the LAHSO hold short point, and a minimum of six in-pavement, pulsing white lights at the alert point (1,000 feet /300 meters prior to the hold point).

i. Proposed International LAHSO Lighting Configuration. A minimum of six in-pavement, continuously illuminated red lights at the LAHSO hold short point, and two elevated, flashing red lights outboard of the runway edge and abeam the LAHSO hold short point, and a minimum of six in-pavement, pulsing white lights at the alert point (1,000 feet/300 meters prior to the hold point).

j. Vertical Guidance. Electronic or visual vertical guidance.

k. Rejected Landing. Go-around that is executed when touchdown in the first one-third of the runway, but in no case greater than 3,000 feet down the runway is not assured.

l. LAHSO. An acronym for "land and hold short operations." These operations include landing and holding short of an intersecting runway, a taxiway, a predetermined point, or an approach/departure flight path.

m. Dry Runway. Defined as no visible moisture.

9. LAHSO PROCEDURES.

a. General. The following conditions shall exist at the airport:

1. Ceiling and Visibility Requirements:

(a) Non Air Carriers: ceiling 1,000 feet and visibility 3 miles.

(b) Air Carriers: ceiling 1,500 feet and visibility 5 miles unless the landing runway is equipped with PAPI or VASI in which case 1,000 feet ceiling and 3 miles visibility shall be applicable.

2. The LAHSO runway ALD must be dry.

3. The tailwind on the hold short runway shall be calm (less than 3 knots).

4. LAHSO shall not be utilized if wind shear advisories are included on the ATIS broadcast. At locations not served by an ATIS, or where the ATIS is out of service, there cannot have been any reports of wind shear for 20 minutes prior to the issuance of a LAHSO clearance.

5. Air Carrier LAHSO will only be conducted at the airports and in the configurations listed in appendices 1 and 2 of this notice.

b. Runway Equipment and Facilities. Markings and signs shall be installed in accordance with AC 150/5340-1, Standards for Airport Markings, and AC 150/5340-18, Standards for Airport Sign Systems.

1. Runway hold short position markings shall be installed and clearly visible at all hold short points.

2. There shall be only one designated hold short point on a runway.

3. Runway hold-short position signs shall be installed at each hold-short point and shall be located on both sides of the runway.

c. Lighting:

1. Lights are required for all LAHSO associated with a taxiway, a predetermined point or an approach/departure path. Additionally, lights are required for all LAHSO conducted at runway/runway intersections, except:

(a) Non-air carrier daytime LAHSO,

(b) Air Carrier daytime LAHSO may be conducted without lights until June 12, 2000, at which time the Improved FAA LAHSO lighting configuration shall be installed for Air Carrier LAHSO. Before June 12, 2000, if the FAA LAHSO lighting configuration is installed, these lights shall be turned on for daytime Air Carrier LAHSO, and

(c) Non-air carrier night LAHSO may be conducted without lights until July 17, 2000.

2. Night Air Carrier LAHSO shall be conducted only where the FAA LAHSO lighting configuration or the Improved FAA LAHSO lighting configuration is installed.

3. For in-pavement lighting, when two or more lights are out, the entire bar is out of service. When in-pavement lighting is out of service, any LAHSO requiring those lights shall be terminated.

4. When LAHSO in-pavement lighting is available, the lights shall be on when LAHSO are included on the ATIS broadcast.

d. Vertical Guidance.

1. Air Carrier LAHSO is not authorized on a runway that does not have electronic or visual vertical guidance (PAPI or existing VASI is acceptable, PLASI is not acceptable for vertical guidance).

2. Night LAHSO may not be conducted without visual vertical guidance (PAPI or existing VASI) after February 8, 2000, by air carrier aircraft.

e. Provide a listing of runways authorized for LAHSO, along with the appropriate "available landing distance (ALD)," for publication in the procedures publications. On a temporary basis, a Notice to Airmen maybe issued in lieu of the above.

f. LAHSO clearance shall not be issued to any aircraft that is not listed in Appendix 3, Aircraft Group/Distance Minima. LAHSO operations involving helicopters may be authorized upon operator request. An aircraft stopping distance list for each LAHSO configuration shall be placed at all affected positions.

g. If an arriving pilot identifies himself/herself as a "SOLO" student pilot, that pilot shall only be offered a LAHSO clearance for dry-day runway/runway.

h. When LAHSO operations are expected to be utilized, an announcement shall be made on the Automatic Terminal Information System (ATIS); e.g., "LAHSO in effect" or "Expect landing

on Runway 22 to hold short of Runway 27." The ALD for the LAHSO runway shall be included on the ATIS Broadcast.

i. When LAHSO is conducted at locations not served by an ATIS, or the ATIS is out of service, pilots shall be advised on initial contact or as soon as practicable thereafter, to expect a LAHSO clearance.

j. Aircraft conducting closed traffic operations need only be advised once that "land and hold short operations are in effect." Acknowledgment of current ATIS meets this requirement.

k. Traffic information shall be exchanged and a read back shall be obtained from the landing aircraft with a LAHSO clearance. An acknowledgment shall be received from the crossing aircraft/vehicle.

l. Aircraft/vehicles may be allowed to cross the portion of the runway surface beyond the hold short point. All other operations beyond the hold short point are prohibited.

m. Air Carrier aircraft shall not be issued a clearance to land or depart on a runway when a non air carrier aircraft is landing to hold short of the air carrier runway.

n. LAHSO shall be terminated for any situation or weather condition which, in the judgment of the tower supervisor/controller-in-charge, would adversely affect land and hold short operations.

o. Rejected Landing Procedures (Air Carriers Only). LAHSO is authorized for runway configurations which do not require a rejected landing instruction, or for which a rejected landing instruction is published.

Note - 1 The following assumptions are used to determine the need for a rejected landing instruction for an aircraft accepting a LAHSO clearance: a heading and/or altitude assignment for the LAHSO aircraft is required if, for the full length landing aircraft, the distance from the arrival runway threshold to the intersection where the hold short clearance is effective is less than 3,000 feet; a heading and/or altitude assignment for the LAHSO aircraft is required if, for the full length departing aircraft, the distance from the departure runway threshold to the intersection where the hold short clearance is effective is greater than 2,000 feet.

2 If a rejected landing becomes necessary, the pilot will promptly notify ATC. Heading and/or altitude assignments will be flown as published until directed otherwise by ATC.

3 The procedures are intended to provide protection against a conflict between aircraft where neither the pilot nor the controller are able to effectively do so.

p. In the event of a rejected landing, a controller will be responsible for issuing safety alerts in accordance with FAA Order 7110.65. It is further understood that pilots are always responsible for the general flight rule that they see and avoid other aircraft.

q. Airports and runway configurations requiring rejected landing procedures are listed in appendix 2.

r. Landing Distances. Listed in appendix 3.

10. ENACTMENT OF WRITTEN AGREEMENTS. The conduct of LAHSO in accordance with the provisions of this notice requires that airport operators agree to undertake specific actions, including the installation and maintenance of required markings, signs, and in-pavement lighting. This not only involves a considerable capital investment, but imposes specific responsibilities and obligations on the airport operator. In order to ensure that LAHSO is conducted safely and in strict accordance with the provisions of this order, and to ensure that airport operators agree and are fully aware of their responsibilities, formal signed Letters of Agreement (LOA) between the airport operator and the air traffic control facility manager are required for the approval and implementation of LAHSO. A sample LOA is attached as Appendix 4 of this order. LOA's shall address, as a minimum, the following:

- a. The location of approved hold-short positions.
- b. Installation and maintenance of required markings, signs, and lighting.
- c. Determination of the measured length of the ALD.
- d. Coordination procedures for prompt exchange of required information (e.g., periodic friction measurements, inoperative lights, pilot reports, braking action reports, etc.).

11. WAIVER PROCESS. Any waiver to the provisions of this notice must be approved by the Program Director for Air Traffic Operations, ATO-1, with concurrence from the Director, Flight Standards Service, AFS-1. Waivers of more than a 2-year duration may not be issued. Any waiver to the markings, lights and signs require coordination and approval through the Director, Office of Airport Safety and Standards, AAS-1. A waiver cannot be issued that would impact procedures associated with Air Carrier operations.

## 12. RESPONSIBILITIES.

a. The Air Traffic Service is responsible for:

1. Incorporating the applicable standards, procedures, criteria, and requirements contained in this notice into appropriate Air Traffic documents.
2. Publishing appropriate pilot information for LAHSO in the AIM.
3. Publishing ALD data in both the Airport Facility Directory (A/FD) and in appropriate flight information publications.

b. Air Traffic Managers are responsible for:

1. At each facility where LAHSO is used, the Agency shall prepare a list of aircraft types authorized to participate for each configuration utilized at the facility. The list shall be readily available for controller use prior to operational use of LAHSO.
2. At each facility listed in appendices 1 and 2 of FAA Notice 7110.199, the agency shall prepare a list of air carrier aircraft authorized to participate in LAHSO at the airport. The list shall be readily available for controller use prior to operational use of LAHSO.

c. The Flight Standards Service is responsible for:

1. Incorporating applicable standards, procedures, criteria, and requirements into appropriate Flight Standards documents.
2. Initiating international coordination efforts to update International Civil Aviation Organization (ICAO) Annex 6, Operation of Aircraft, to include LAHSO procedures.
3. Developing appropriate information on flight procedures for incorporation into the AIM.
4. Providing guidance materials needed to reach and educate both the pilot community and FAA inspectors concerning proper LAHSO procedures.
5. Approving all air carrier LAHSO training procedures, including any special or unique go-around procedures resulting from a rejected landing.
6. Requiring the Aviation Safety Program to develop educational programs and other initiatives to reach the general aviation pilot population concerning proper procedures and safety concerns when conducting LAHSO.
7. Recommending what LAHSO subject matter should be included in appropriate flight training curriculums under part 141, and in the curriculums for Certificated Flight Instructor (CFI) Revalidation Clinics.
8. Providing ATS information relative to aircraft performance required for conducting LAHSO. AFS will provide support as outlined in FAA Order 7210.3, Facility Operations and Administration, para 10-3-7, Land and Hold Short Operations. AFS will

support identification of eligible aircraft for operating within assigned ATS groups for use by controllers as a planning tool.

d. The Office of Airport Safety and Standards is responsible for:

1. Incorporating applicable standards, procedures, criteria, and requirements contained in this notice into the appropriate documents.

2. Initiating international coordination efforts to update ICAO, Annex 14, Visual Aids, and Annex 2, Rules of the Air.

3. Publishing technical standards, siting specifications, and guidance for the design and installation of all hold-short position markings, signs, and in-pavement lighting as required by this notice.

4. Publishing standards and guidance for maintaining skid-resistant pavements and for publishing standards and guidance for evaluating these pavements with friction measuring equipment.

5. Developing appropriate information on visual aids for incorporation into the AIM.

6. Providing instructions to airport certification inspectors for reviewing and inspecting hold short position markings, signs and lights required for LAHSO at certificated airports.

e. The Office of System Safety is responsible for:

1. Maintaining/developing a risk assessment for LAHSO which considers safety of operations.

2. Providing analytical support essential to continuing trend analysis of site specific incidents/accidents involving LAHSO.

3. Coordinating with Air Traffic the publication of supplemental guidance and criteria to define and systematically collect LAHSO operational error reports.

4. Coordinating with Flight Standards the publication of supplemental guidance and criteria to define and systematically collect LAHSO pilot deviation reports.

/s/

Jeff Griffith

Program Director for Air Traffic Operations