

TRANSPONDER OPERATIONS ON THE GROUND



What is ASDE-X and why should you care? Standard ASDE (no “X”) is Airport Surface Detection Equipment - ground radar that depicts primary returns (raw radar) on the airport as an aid for the ground or ramp controller. ASDE-X is a multi-modal system that will display an ID tag next to every radar target depicted on the ground controller’s display. This is obviously a tremendous advantage to the ground or ramp controller, but it comes at the price of a small compromise on the part of pilots.

Where ASDE-X is operational, the ATIS will request pilots to set their transponder to “On” while operating on taxiways and runways. This is so the system will pick up your ID from your transponder code, and depict that on the controller’s ASDE display. The system will also sense and display an ID and position of every suitably equipped vehicle on the airport’s movement area, based on an ADS-B broadcast.

If your airplane’s transponder is tied to a “weight-on-wheels” switch, the FAA says that some functionality of Mode-S transponders may be affected (e.g. TCAS-II), but the avionics capability to provide the aircraft’s squawk code when interrogated is not affected.

Setting the transponder to “On” while on the ground contradicts traditional pilot training and current procedures. As you know, the reason transponders are currently left in “Standby” is to prevent the Airport Surveillance Radar (ASR) from “acquiring” our airplane as an airborne target. At airports with ASDE-X, acquisition by ASR will be inhibited with a software patch, so we can “squawk” without affecting ASR. Unfortunately, differences in size and layout mean that every airport must have a unique mask made for the software patch to the ASR. Ultimately, it is the FAA’s goal that we may leave the transponder on at all times, but that is several years away. Until all airports have this capability, we will be required to know which procedures are in use at which airports.

In the meantime, if you hear the ATIS broadcast an instruction to set your transponder to “On” while on taxiways and runways, you know the airport is operating with ASDE-X. Adjust your thinking, and your checklists, to comply with this request. At all other airports, continue to set your transponder to “Standby” or “Off” while on the ground.

Airports with ASDE-X Surveillance Systems (* Not All Inclusive)

ABQ Albuquerque International Sunport
ATL Hartsfield Atlanta International
CLT Charlotte Douglas International
AUS Austin–Bergstrom International
BDL Bradley International
BOS Boston–Logan International
BUR Burbank–Glendale–Pasadena
CMH Port Columbus International
COS Colorado Springs Municipal
DFW Dallas/Ft. Worth International
FLL Ft. Lauderdale/Hollywood
HNL Honolulu International – Hickam AFB
HOU William P. Hobby (Houston, TX)
IAD Washington Dulles International
IND Indianapolis International
LAX Los Angeles International
MCO Orlando International
MDW Chicago Midway
MEM Memphis International
MKE General Mitchell International
OAK Metropolitan Oakland International
ONT Ontario International
ORD Chicago O'Hare International
PHX Phoenix Sky Harbor International
PVD Theodore Francis Green State
RDU Raleigh–Durham International
RNO Reno/Tahoe International
SAN San Diego International
SAT San Antonio International
SDF Louisville International Standiford
SEA Seattle–Tacoma International
SJC San Jose International
SJU San Juan International
SLC Salt Lake City International
SMF Sacramento International
SNA John Wayne – Orange County
STL Lambert–St. Louis International
TPA Tampa International

* Check airport diagram for notes/information regarding ASDE-X operations.



U.S. Department
of Transportation
**Federal Aviation
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InFO

Information for Operators

InFO 11012
DATE: 5/23/11

Flight Standards Service
Washington, DC

http://www.faa.gov/other_visit/aviation_industry/airline_operators/airline_safety/info

An InFO contains valuable information for operators that should help them meet certain administrative, regulatory, or operational requirements with relatively low urgency or impact on safety.

Subject: Transponder/Traffic Alert and Collision Avoidance System (TCAS) Operations While on the Airport Surface

Purpose: This InFO informs air carriers and operators of the proper transponder selections during aircraft taxi, in order to support air traffic control (ATC) ground surveillance systems as well as minimize 1090 megahertz (MHZ) frequency congestion.

Background: During recent cockpit enroute inspections, Federal Aviation Administration (FAA) Aviation Safety Inspectors (ASI) have noticed that some operating procedures direct flightcrews to select traffic advisory/resolution advisory (**TA/RA**) during all surface movement operations. This procedure is contrary to the FAA TCAS guidance as discussed in Advisory Circular (AC) 120-55C, Air Carrier Operational Approval and Use of TCAS II.

Discussion: TCAS II operation on the airport surface provides no safety benefit, except when approaching or taxiing onto an active runway. Routine ground operations with the transponder selected to **TA-ONLY** or **TA/RA** enables TCAS II to interrogate other aircraft at high power levels. This unnecessarily contributes to 1090 MHZ frequency congestion. Routine operation of TCAS II on the ground can degrade:

- Performance of ATC radars
- Surveillance performed by airborne TCAS II units in the vicinity of your aircraft

Operating with the transponder on (**XPNDR or ON**) is sufficient to ensure that aircraft are visible to ATC surface surveillance systems.

Recommended Action: Directors of safety, directors of operations, chief pilots, fractional ownership program managers, training managers, and operators of aircraft should emphasize the importance of adhering to the guidance found in AC 120-55C and the procedures listed below.

- **Departures.** Select transponder to **XPNDR or ON** during pushback. Select **TA/RA** when taking the active runway.
- **Arrivals.** Select transponder to **XPNDR or ON** after clearing the active runway. Select **STBY or OFF** per company operating procedures at the completion of the flight.

Additionally it is a good operating practice to turn TCAS on in the TA-ONLY or TA/RA mode for a short period of time before crossing an active runway to double-check for the presence of any aircraft on short final.

NOTE: It takes several seconds to display traffic when switching to TA-Only or TA/RA. The time period varies between different TCAS II equipment manufacturers. Consult your TCAS II vendor to establish the amount of time it takes to display traffic. Operators electing to implement this use of TCAS II must establish and publish procedures for the flight crew to follow.

Contact: Questions or comments regarding this InFO should be directed to Roger Sultan, Flight Technologies and Procedures Division, Future Flight Technologies Branch, AFS-430 at (202)-385-4586.