AIR TRAFFIC BULLETIN PROCEDURES

A communication from the Director of Policy, Mission Support Services
Federal Aviation Administration, U.S. Department of Transportation.

Issue #May 2020-1

***In this Issue**:*
Traffic Advisories and Safety Alerts ~ ADS-B Not Equipped/Not Authorized

*E,*R,*T: Traffic Advisories and Safety Alerts

In 1986, a midair collision occurred over the skies of southern California involving an airliner and a small general aviation aircraft. Below are excerpts from the National Transportation Safety Board's findings from that accident:

"The National Transportation Safety Board has completed its investigation and report of the midair collision between Aeronaves De Mexico (Aeromexico) flight 498, A DC-9-32, and a general aviation Piper PA-28-181, which occurred over Cerritos, California, on August 31, 1986. Aeromexico flight 498 was operating under instrument flight rules (IFR) destined for Los Angeles International Airport on a scheduled passenger flight from Tijuana, Mexico. The PA-28 was climbing under visual flight rules (VFR) after departure from Torrance, California. The collision occurred about 8 miles beyond the point at which flight 498 crossed the boundary of the Los Angeles Terminal Control Area (TCA) near 6,500 feet mean sea level. Both planes fell to the ground within the city limits of Cerritos. Five houses were destroyed and seven other houses were damaged by the wreckage and postimpact fire. Fifty-eight passengers and 6 crewmembers on the DC-9, the pilot and 2 passengers on the PA-28 and 15 people on the ground were killed in the accident."

Source: https://www.ntsb.gov/_layouts/ntsb.recsearch/Recommendation.aspx?Rec=A-87-096

One of the NTSB conclusions in the report:

> *"The limitations in the see and avoid concept of collision avoidance have long been recognized and acknowledged by the Safety Board and other aviation safety advocates. It has also been recognized that the risk of midair collisions is minimized when all airplanes within a given volume of airspace are provided separation by an ATC radar facility. While less effective than ATC-provided separation, midair collision avoidance is significantly improved when the pilots of airplanes operating in a see and avoid environment are alerted to the presence and location of potentially conflicting traffic. Thus, the issuance of safety alerts and traffic advisories to those airplanes communicating with an ATC radar controller and the intelligence that will be provided by the onboard Traffic Alert Collision Avoidance System (TCAS) are key elements in the future prevention of midair Collision accidents."*

There were many contributing factors that resulted in this accident. However, as the NTSB report indicates, the issuance of traffic advisories and safety alerts was an important part of the discussion. While this tragedy occurred 34 years ago, findings show that the system still encounters events in which aircraft under the control of ATC are flying in unsafe proximity to each other without the intervention of traffic advisories (TA) or safety alerts (SA). Additionally, a Headquarters review of recent safety data highlighted that controllers often have aircraft under their control flying in unsafe proximity to one another without any demonstrated positive control or corrective action taken by the controller. The data show that for the events reviewed, controllers failed to issue SAs where SAs are warranted. The issue of controllers not issuing timely TAs and SAs has been identified as an ATO Top 5 initiative.

This Air Traffic Procedures Bulletin (ATPB) relays findings of the recent AJV-P Traffic Advisory and Safety Alerts Mandatory Occurrence Report review. This ATPB addresses rules, procedures, and offers reminders for controllers to practice the science and art of positive air traffic control.

Nearly all of the 135 Mandatory Occurrence Reports (MOR) involving a loss of separation and/or TCAS RA events reviewed for this article, showed both aircraft were under the control of ATC. Not only was there a disturbing lack of traffic advisories, but very few safety alerts were issued. In many instances, issuance of a traffic advisory may have preempted the necessity of the safety alert.

The term, “positive air traffic control,” is defined in FAA Order JO 3120.4, Air Traffic Technical Training, Appendix B, Instructions for Completing FAA Form 3120-25, under Job Subtasks:

Positive control is provided.

Takes command of control situations and does not act in a hesitant or unsure manner. Observes present and considers forcasted traffic to predict if an overload may occur, and takes appropriate action to prevent or lessen the situation.

The Indicators are:

a. Demonstrates confidence and takes command of control situations.
b. Maintains positive control during stressful situations.
c. Recognizes potential overload situations.

Moreover, as we have seen in writing throughout our air traffic control careers, “The primary purpose of the ATC system is to prevent the collision involving aircraft in the system.” Let’s examine this a bit more.

ATC SERVICE

FAA Order JO 7110.65, Para 2−1−1

a. The primary purpose of the ATC system is to prevent a collision involving aircraft operating in the system.

DUTY PRIORITY

FAA Order JO 7110.65, Para 2−1−2

a. Give first priority to separating aircraft and issuing safety alerts as required in this order. Good judgment must be used in prioritizing all other provisions of this order based on the requirements of the situation at hand.

IFR/VFR Collision Prevention

An Air Traffic Controller’s number one responsibility is to make sure aircraft do not collide; nothing else tops this requirement. FAA Order JO 7110.65, paragraph 2-1-1 and 2-1-2, clearly identify the controller’s duty priority and refer to controller responsibilities for separation and issuing necessary safety alerts. There appears to be a misperception that these only refer to IFR aircraft. However, these refer to ***all*** users in the NAS regardless of the type of flight.

The responsibilities for controllers issuing Safety Alerts and Traffic Advisories are clear.

Safety Alert

FAA Order JO 7110.65, Para 2−1−6

Issue a safety alert to an aircraft if you are aware the aircraft is in a position/altitude that, in your judgment, places it in unsafe proximity to terrain, obstructions, or other aircraft.

Traffic Advisories

FAA Order JO 7110.65, Para 2−1−21. TRAFFIC ADVISORIES

Unless an aircraft is operating within Class A airspace or omission is requested by the pilot, issue traffic advisories to all aircraft (IFR or VFR) on your frequency when, in your judgment, their proximity may diminish to less than the applicable separation minima. Where no separation minima applies, such as for VFR aircraft outside of Class B/Class C airspace, or a TRSA, issue traffic advisories to those aircraft on your frequency when, in your judgment, their proximity warrants it.

FAA Order JO 7110.65, Pilot/Controller Glossary

TRAFFIC ADVISORIES− Advisories issued to alert pilots to other known or observed air traffic, which may be in such proximity to the position or intended route of flight of their aircraft to warrant their attention. Such advisories may be based on:

a. Visual observation.

b. Observation of radar identified and non-identified aircraft targets on an ATC radar display, or Verbal reports from pilots or other facilities.

Why would a controller fail to exercise positive control and/or issue the safety alert when aircraft under their control are in dangerous proximity? As recent Recurrent Training points out, most often, the situation develops because the traffic was overlooked. Overlooked traffic, for our purposes, has two distinct meanings: traffic that was inadvertently missed, and traffic that is seen but not separated from because of misperceptions surrounding certain regulations. The latter typically involves VFR aircraft.

Traffic overload can play a significant factor in overlooking traffic. Causal Factors that may lead to overload are Weather, Traffic Volume, Traffic Complexity, Experience Level of Controller, Fatigue, Distractions, or Lack of Support.

The following scenarios identify four root cause factors:

- Poor judgment- creating "watchable" situations.
- Lack of situational awareness.
- Lack of exercising positive control.
- Lack of knowledge.

Some obvious (or maybe not-so-obvious) scenarios:

a) Controller workload. The volume/complexity of the traffic was such that the controller could not maintain adequate awareness of all of the traffic for which they were responsible. (***lack of situational awareness***)

b) The controller was not aware of creating the conflict. (***lack of situational awareness***)

c) The controller knew at the time the control instruction was issued that there was a potential for conflict but figured that the situation would take care of itself. ***(poor judgment-lack of positive control***)

d) The controller knew at the time the control instruction was issued that there was a potential for conflict, however, they felt confident that they could monitor the situation and take action as necessary at the appropriate time thereby creating a "watchable situation." (***lack of positive control)*** Invariably, in these types of "watchable situations," "Murphy's Law" (if it can go wrong, it will go wrong) prevails. The controller gets distracted by perceived "higher priority" duties and forgets about the potential conflict.

e) The controller did not believe they had any responsibility to separate the VFR aircraft or possibly that they were not authorized to issue control instructions to VFR aircraft. (***lack of knowledge***)

Controllers have been trained that VFR aircraft are to "see and avoid" other aircraft. When traffic conflicts arise, the controller may issue traffic to the aircraft, but leaves separation responsibility to the pilots. The common belief is, "The aircraft know about each other, so I have fulfilled my obligation." On the contrary: The VFR status of an aircraft does not alleviate the duty of a controller to issue instructions, traffic calls, or safety alerts to those VFR aircraft. Take positive control. *Take action*. Keep them apart. Keep the pilots informed.

A controller has the authority to assign a VFR pilot to a specific altitude (or range of altitudes) or assign a heading to avoid traffic. If the pilot cannot maintain VFR at the altitude or on the assigned heading, or elects to take another course of action, the pilot has an obligation to advise air traffic.

(Reference: FAA Order JO 7110.65, paragraphs, 2-1-1, 2-1-2, 5-6-1, 7-6-1, 7-7-5, 7-8-2, 7-8-5, 7-9-2, 7-9-3, AIM 4-4-1, 5-5-6, 14 CFR 91.3)

It is the responsibility of the pilot to comply with the applicable parts of CFR Title 14. Exercising good controller judgment and exercising POSITIVE CONTROL is key. You are not OVERCONTROLLING the aircraft; rather, you are effectively controlling the situation.

NATCA and the FAA have collaborated to produce informational safety cards. The safety cards address safety issues, with one set of cards addressing IFR/VFR traffic conflicts.

The main points of the IFR/VFR traffic conflict cards are:

Minimizing Conflicts. What is more effective in minimizing conflicts between IFR and VFR aircraft? Expectation Bias-Data suggests that expectation bias is prominent when IFR/VFR conflicts exist.

- What you need to know:
    - "See and avoid" is less effective than one might think.
    - IFR/VFR conflict events reviewed showed that only one in three aircraft visually acquired the other aircraft after ATC provided a traffic advisory.
    - Controllers should have a backup plan even after a traffic advisory to prevent a conflict from developing further.

Be Prepared. Generate a plan and take appropriate action. Proactive planning and action is crucial in reducing the risk of IFR/VFR aircraft encounters.

- What you need to know:
    - Controllers must issue traffic advisories and safety alerts in time for pilots to be able to use them.
    - The issuance of advisories/alerts after TCAS or Conflict Alert has gone off does not provide pilots with useful information to maintain safe distances from other aircraft.

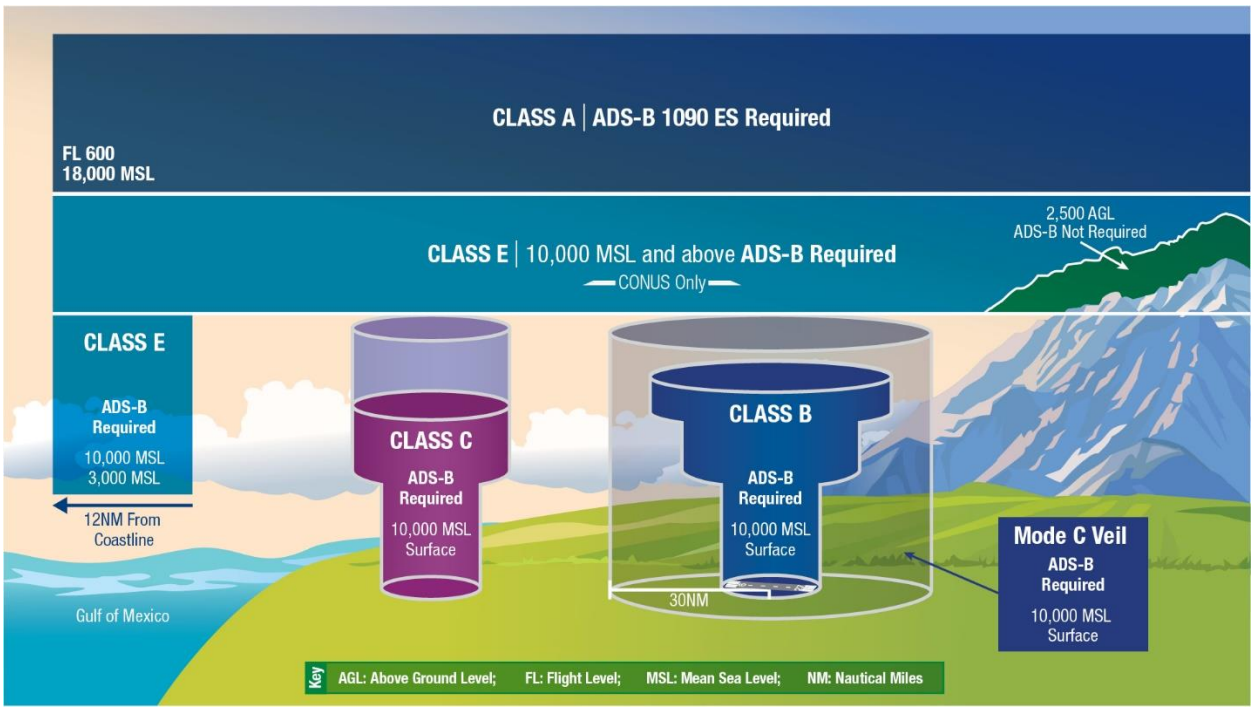
What's my legal responsibility? One in three close proximity events in which a traffic advisory and/or safety alert was NOT issued was an IFR/VFR traffic mix.

- What you need to know:
    - ATC has the legal responsibility and authority to issue control instructions, traffic advisories, and safety alerts to VFR aircraft.
    - ATC instructions include headings, turns, altitude, and general direction.
    - Pilots flying in controlled airspace must comply with all ATC instructions regardless of whether the pilot is flying VFR or IFR.

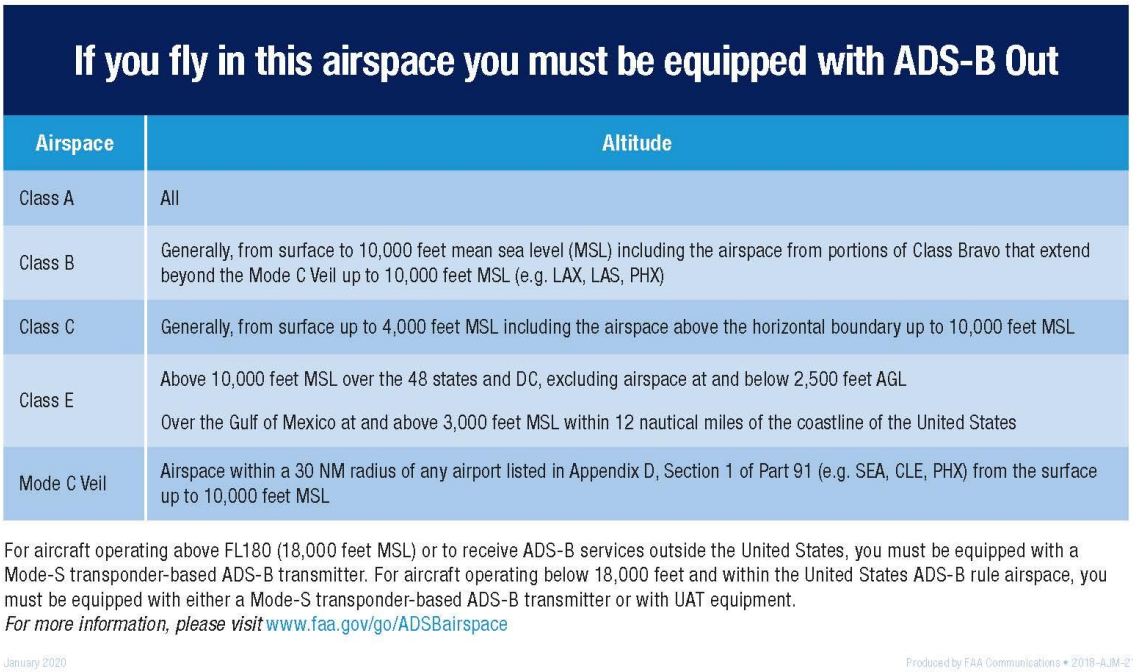
If you think an unsafe situation may develop, issue traffic advisories or exercise positive control by issuing a heading or an altitude restriction to separate the aircraft. If you feel that you are becoming overloaded in your area of responsibility, exercise good controller judgment by notifying your Supervisor/CIC and request assistance.

***E,*R,*T: ADS-B Not Equipped/Not Authorized**

The Automatic Dependent Surveillance-Broadcast (ADS-B) Out mandate took effect on January 2, 2020. Although aircraft owners had approximately ten years to equip, not everyone was able or had a need to before the mandate. An option for pilots of non-ADS-B Out aircraft is to request a deviation from the requirement. However, some aircraft operators may choose to file a flight plan around ADS-B airspace. It is the FAA's policy not to penalize operators who file around ADS-B required airspace and are subsequently navigated through this airspace by air traffic control. Updated guidance to aircraft operators regarding ADS-B operations was published in the Aeronautical Information Manual (AIM) on January 30, 2020. Among that direction will be airborne aircraft operator responses to air traffic control instructions that may encroach or transit into ADS-B rule airspace.



General practice should be to allow aircraft to fly their planned route assuming that aircraft operators may have filed around ADS-B required airspace. In the event that an aircraft is taken off-route and into ADS-B required airspace, aircraft operators have been instructed to advise controllers that they are not authorized to enter ADS-B airspace. *(e.g., - *"Be advised, we are negative ADS-B equipment and have not received authorization to operate in ADS-B airspace."*) Regardless of the reason for route changes (e.g., – emergency, weather, traffic, etc.) controllers have the option to return the aircraft to the previously assigned route or reroute the aircraft as planned. *Reference – AIM 4-5-7. Automatic Dependent Surveillance – Broadcast (ADS-B) Services



If you fly in this airspace you must be equipped with ADS-B Out

Airspace	Altitude
Class A	All
Class B	Generally, from surface to 10,000 feet mean sea level (MSL) including the airspace from portions of Class Bravo that extend beyond the Mode C Veil up to 10,000 feet MSL (e.g. LAX, LAS, PHX)
Class C	Generally, from surface up to 4,000 feet MSL including the airspace above the horizontal boundary up to 10,000 feet MSL
Class E	Above 10,000 feet MSL over the 48 states and DC, excluding airspace at and below 2,500 feet AGL Over the Gulf of Mexico at and above 3,000 feet MSL within 12 nautical miles of the coastline of the United States
Mode C Veil	Airspace within a 30 NM radius of any airport listed in Appendix D, Section 1 of Part 91 (e.g. SEA, CLE, PHX) from the surface up to 10,000 feet MSL

For aircraft operating above FL180 (18,000 feet MSL) or to receive ADS-B services outside the United States, you must be equipped with a Mode-S transponder-based ADS-B transmitter. For aircraft operating below 18,000 feet and within the United States ADS-B rule airspace, you must be equipped with either a Mode-S transponder-based ADS-B transmitter or with UAT equipment.
For more information, please visit www.faa.gov/go/ADSBairspace

January 2020 Produced by FAA Communications • 2018-AJM-214

*E,*R,*T: ADS-B Performance Anomalies

The FAA is aware of some Universal Access Transceiver (UAT) ADS-B transmitters that exhibit performance anomalies. These were designed and marketed as low-cost/easy-to-install units for GA compliance with the ADS-B Out rule. These units "listen" for the conventional transponder reply to a Secondary Surveillance Radar (SSR) interrogation, and then set the ADS-B Mode A code to the same value. However, if the aircraft does not enter SSR coverage, these UAT units will not detect a Mode A code; and if the aircraft leaves SSR coverage, the UAT will stop transmitting the Mode A code after 60 seconds. ADS-B transmissions without a Mode A code are considered "invalid" by automation and are not processed by STARS or ERAM. Therefore, when outside of SSR coverage and within ADS-B coverage, the controller will lose surveillance on these aircraft and will have to apply procedural separation to such aircraft. This may vary among aircraft since other aircraft may be equipped with ADS-B avionics that continues to broadcast ADS-B information to the automation system (STARS, ERAM and Micro-EARTS) in the absence of transponder replies. Please note that this applies only to a subset of UAT, as other brands/models of UAT and all 1090ES units do not rely on conventional transponder replies for setting their Mode A code.

If you observe an ADS-B equipped aircraft drop from coverage in an area where you would have expected to see it, please take note, document the anomaly, and forward it to adsb@faa.gov. If you see something, say something.

The Air Traffic Procedures Bulletin (ATPB) is a means for headquarters to remind field facilities of proper application of procedures and other instructions. It is published and distributed on an as needed basis.

Articles must be submitted electronically in Microsoft® Word by the offices of primary responsibility with approval at the group level or above. Articles may be submitted throughout the year.

*In this publication, the option(s) for which a briefing is required is indicated by an asterisk followed by one or more letter designators, i. e., * T – Tower, *E – ARTCC, *R – TRACON, or *F – FSS.*

(Reference FAA Order JO 7210.3, Facility Operation and Administration, paragraph 2-2-9)
Archived ATPB issues are available online: www.faa.gov/air_traffic/publications/