An Overview of Aerobatic Practice Areas

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Among the US pilot community, Aerobatic Practice Areas are perhaps the least-known among FAA-designated Miscellaneous Activity Areas within the National Airspace System.[1] This paper introduces APAs, their purpose and how FAA informs pilots about them. It advocates for improving pilot awareness of this airspace in order to step up safety for APA users and non-participants alike.

Aerobatic Practice Areas: Why and What

Federal regulations permit aerobatic flight in most Class E and G airspace above 1,500 feet.[2] That's a sufficient floor for most aerobatically-inclined pilots, though not for all. Airshow pilots, for example, practice—and are tested—at the minimum altitudes they'll fly in their performances. Developing and maintaining the "sight picture" at such low altitudes is essential to flying safely.

Aerobatic competition pilots are similarly situated. Rules for sanctioned competitions permit maneuvering at heights as low as 328'.

Pilots flying aerobatics at these altitudes, or under other conditions prohibited by FAR, operate under the terms of an FAA waiver. Airspace subject to such a waiver is an Aerobatic Practice Area.[3]

FAA has issued waivers for dozens of Aerobatic Practice Areas throughout the United States.

APA Sites

Each APA is situated at a fixed location and bounded laterally and vertically. APAs vary in shape and height. The lateral bounds of some form a circle, others, a rectangle, and a handful, irregular polygons. Low height limits range from the surface to 1,500'; high limits often run to 5,000'.[4]

Several considerations factor into APA placement. Safety—for people and objects on the surface as well as users—is paramount. Topography and noise figure prominently, too. Subtler factors include:

- having an underlying, surveyed and/or marked competition box
- the presence of natural surface features or man-made objects to identify boundaries meaningful to users
- proximity to an airport, to accommodate unexpected situations requiring a safe, speedy return
- surface accessibility by vehicle for ground observers
- distance from federal airways

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[1] APA's better-known brethren, Parachute Jumping Areas and Glider Operating Areas, have been charted for many years.

[2] All altitudes are feet AGL except those within Chart Supplement excerpts; those are MSL unless labeled otherwise.

[3] Aerobatic competition boxes are distinct from APAs and omitted from this paper. Competition boxes are temporary and require issuance of a Class I NOTAM. Given their operational requirements, conflicts by non-participants are rare, monitored by multiple ground personnel and readily resolved.

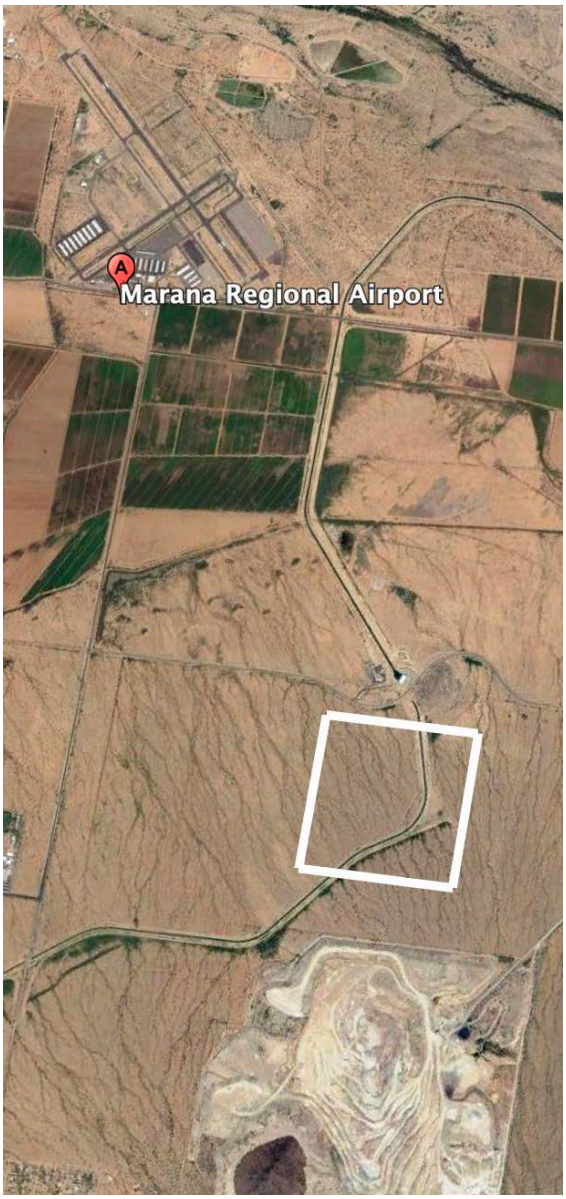
[4] Practice areas used by jets have higher upper limits.

APA users are responsible to see and avoid traffic, like all other VMC operators within the NAS. FAA often impose further obligations on APA users, such as requirements for weather minima in excess of basic VFR, regularly scanning the area for conflicting traffic and monitoring/announcing on CTAF if an airport is nearby.

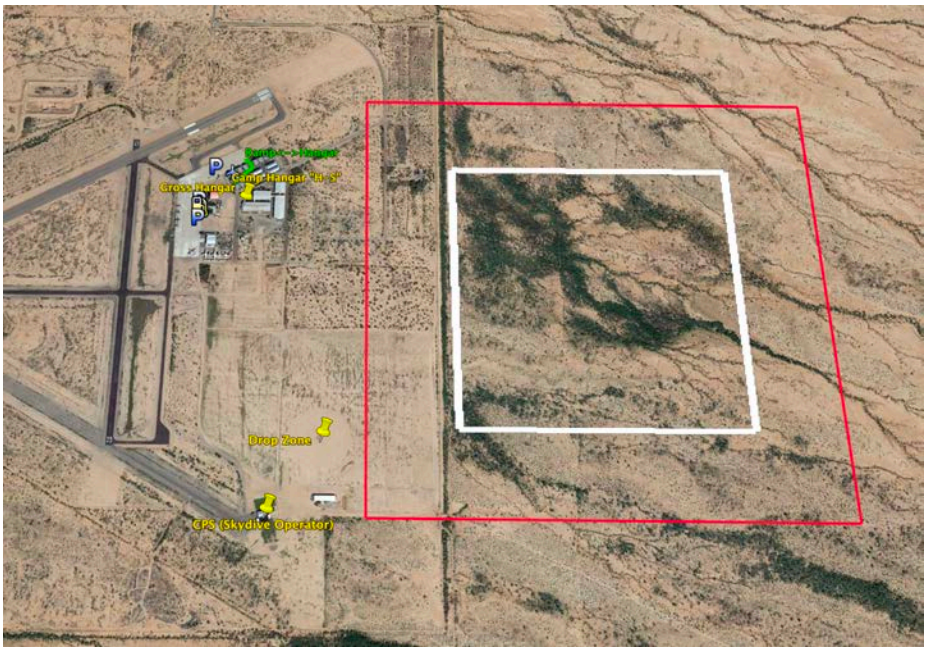
APAs Near Airports

Most APAs are adjacent to airports or a short distance away. While they don't influence runway safety, they do affect pattern safety and warrant non-participating pilots' attention. A few cases illustrate why:

- At Marana, AZ, the APA is a 1 kilometer/side square centered about 2 miles SSE of the runway 30 numbers. It overlies a surveyed, permanently marked competition box. Anyone departing toward the prominent quarry south of the airport flies through. Pilots mistakenly flying left traffic for runway 30 sometimes fly through, too.



- The Coolidge, AZ APA lies over airport property east of runways 17-35. Underneath is a competition box, presently unmarked. Arrivals via a crosswind for runway 5 fly through, as do departures off any runway making an early turn east over the airport.



- The Ephrata, WA APA and marked competition box lies overhead the airport. Here, the traffic pattern is moved to the west and south sides of the field for all runways each time the APA/box is in use. Transiting pilots occasionally fly through, off CTAF frequency, en route to or from the nearby VOR. Now and then, landing pilots accustomed to east-side traffic for runways 3, 11 and 21 join a 45º entry before making a radio call and learning the APA is active.

Vigilance by APA users is essential to safety. At airports like these, participants announce their APA usage on CTAF, then monitor the frequency and scan for traffic while maneuvering. If present, ground observers—usually other pilots serving in a coaching or critiquing role—also look for traffic; they report conflicts to the pilot by radio.

APA traffic conflicts requiring a resolving action by one or both pilots are common; collisions are not. Deconfliction usually involves the APA user returning to straight-and-level flight, a radio conversation and either a course change by the non-participant or other avoidance maneuvering by one or both pilots. When an experienced ground observer is present, he or she can point out each aircraft to the other to facilitate resolution.

A missing link in the APA safety equation is the non-participating pilot. Though APA locations and altitudes are available to every NAS user, they're difficult to find, interpret and apply. Equipping non-participants with readily accessible APA locations and altitudes would increase awareness, vigilance and safety.

Finding APAs Today

Here's a synopsis of the means by which FAA disseminates APA information today.

Where they're not visible: APAs are not depicted on sectional or EFB charts. Due to their long-term duration, APAs don't qualify for issuance as Class I NOTAMs—meaning pilots checking NOTAMs with an electronic provider or FSS won't learn about them. APAs aren't mentioned in pilot training syllabi or on any FAA knowledge exam; it's reasonable to infer that most pilots are unaware of their existence.

Where they are: APAs do appear in the Special Notices section of Chart Supplements. Mentions of them also appear, irregularly, commingled with other data in nearby airports' Remarks sections. Here's an example from Marana, AZ (KAVQ):[5]

AIRPORT REMARKS: Attended 1400–0030Z. Fuel avbl after hrs call 520–730–4318. Call out fee applies. 100LL avbl 24 hrs. Self fuel with major credit card. Parachute Jumping. Occasional aerobatic activities 2 miles southeast of arpt surface–7000´ MSL. PPR fm arpt mgr for formation flight within 0.5 NM of arpt. Occasional parachute training high and low levels northwest quadrant of arpt. Hot air balloon ops not permitted. Helos are not authorized to land at the self fuel island and terminal ramp. All helos must land at the helipad at the SE side of the field. Rwy 12 calm wind rwy. FBO 520–682–2999. Preferr

5 All excerpts are sourced from FAA's Southwest Chart Supplement.

APA descriptions in Chart Supplements' Special Notices have no uniform template. Many appear in a list of the center point's fix, radial, distance, size and altitude limits. Shape is implied. An excerpt:

AEROBATIC OPERATIONS IN ARIZONA

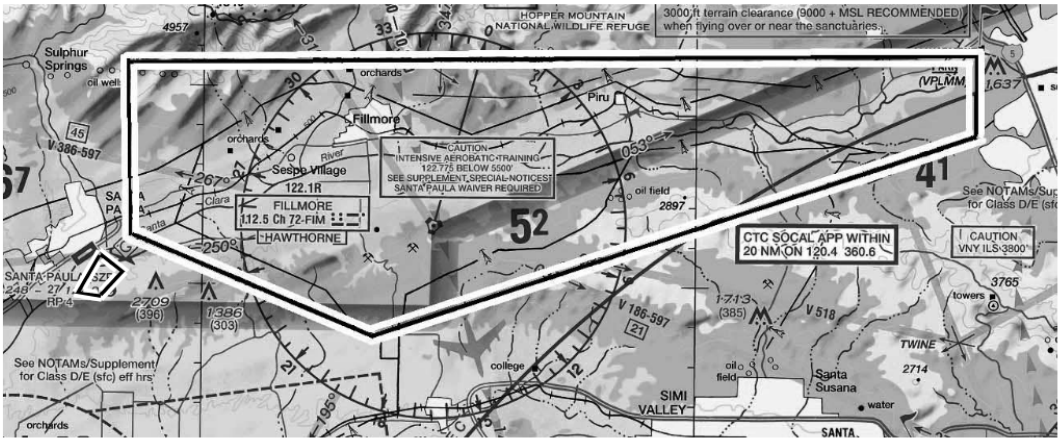
The following practice and competitive aerobatic areas are in use without notice SR–SS daily.

5 NMR DMA	17,500 and below
2 NMR INW195055/PAN	9,600 and below
1 NM N–S and 7 NM E–W of the PXR017022	6,500 and below
PXR019020	7,500 and below
PXR128013	5,500 and below
1 Square mile of the PXR194023	5,000 and below
1 NMR PXR129018	5,000 and below

This Special Notice for the two Aerobatic Practice Areas at Santa Paula models how best to present APAs in soft- or hard-copy print. The chart snippet together with a textual description provides the reader with instantly useful information:

AEROBATIC OPERATIONS NORTHEAST OF SANTA PAULA, CA

Practice and competitive aerobatic maneuvers are regularly scheduled in the vicinity of FIM VORTAC, SR–SS, 1,500´ AGL to 5,500´ MSL. The main Aerobatic Area is defined by FIM 220/004, to FIM 260/008, to FIM 285/009, to FIM 360/005, to FIM 055/014, to FIM 070/013. The practice area is for waiver holders only. A second Aerobatic Area is defined as FIM 253/008.3 to FIM 245/007.8 to FIM 242/008.9 to FIM 246/009.6 to point of origin 1,500' AGL to 3,500' AGL, SR–SS. Pilots should use caution in these areas. Frequency 122.775 is provided for air–to–air communications with other pilots using or transiting these areas.



Other Special Notices, such as this one for the Marana APA, leave the reader without an immediate sense of the APA's location relative to pertinent landmarks:

AEROBATIC OPERATIONS NORTHWEST OF TUCSON, AZ.

Practice and competitive aerobatic maneuvers are regularly scheduled on the Tucson VORTAC 295 radial at 25 miles and Tucson VORTAC 308 radial at 22 miles, sunrise to sunset, up to 5,000 MSL.

Such obscurity and inconsistency challenge pilots to learn if a flight may transit through or near an APA.

FAA has designated a distinct chart symbol to mark APAs on VFR Charts, Terminal Area Charts and VFR Flyway Charts:

At publication time, the symbol is not yet deployed on any visual charts spot-checked by the author.[6]

Improving APA Awareness for Non-Participating Pilots

An opportunity to improve APA safety exists right now, by making it easier for non-participating pilots to know about and identify APAs. The effect? Greater awareness yields greater vigilance, which yields fewer conflicts between participating and non-participating aircraft, which yields a safer environment for all.

To seed a conversation, here are a few means of exposing APAs that publishers, regulators and other stakeholders might consider, should the value of increasing APA safety resonate:

- Deploy the APA visual chart symbol at all APA locations within the NAS.
- Create map data for popular EFBs that show APA boundaries and altitude limits, similar to what some EFB providers publish for Parachute Jumping Areas.
- Establish and apply a uniform template—including a chart snippet—to describe APAs in Chart Supplements.
- Tweak teaching and recurrency curricula to include an equivalent level of content for APAs as is done for other types of Miscellaneous Activity Areas.

Each item relies on existing methods and tools; no wheel reinvention is required.

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[6] The author checked several APAs situated in New Hampshire, Arizona and southern California. None were charted.