

Mid-Air Collision Avoidance (MACA) JBSA-Randolph JBSA-Kelly Field

OPRs

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Overview

- Purpose
- Mid-Air Facts
- Local Aircraft
- Military Operations Areas
- Military Training Routes and Slow Routes

•	JBSA-Kelly Field	 JBSA-Randolph/Seguin
	 Airfield Diagram 	 Airfield Diagram
	 Local Patterns at Kelly 	 Local Patterns at Randolph
	– C-5 Patterns	 Local Patterns at Randolph
	– F-16 Patterns and SFOs	Aux (Seguin)



Purpose

 Reduce the potential for a mid-air collision by increasing all users' awareness and understanding of all other users' flight operations in the San Antonio area



Don't let this be you!





Mid-Air Facts

- Most occur...
 - Daylight, VMC , <u>10 a.m. to 5 p.m.</u>
 - Weekends of warmer months
 - Within <u>5 NM</u> of an <u>airport</u>
 - Listen and look, sterile cockpit
 - 10% During takeoff and climb
 - Shallow S-turns, lower nose occasionally
 - 25% During cruise flight
 - Phase offers more time to look, yet many lapse into complacency; stay vigilant
 - 50% In the traffic pattern
 - 80% of traffic pattern collisions on final approach and landing
 - Check ahead, above, below, and behind; move for blind spots

Source: AOPA ASI Safety Advisor, Collision Avoidance





Mid-Air Facts (Cont'd)

- In a Three-year NTSB study, <u>most</u> MACs:
 - Were on <u>Pleasure Flights</u>
 - <u>No</u>Flight Plan Filed
 - <u>VMC Conditions</u> (Nearly All)
 - Weekend Daylight Hours
 - <u>Faster Aircraft</u> Overtaking/Hitting Slower Aircraft
 - Experience Level Ranged Initial-Solo to 15,000 Hrs
 - Uncontrolled Airports Below 3,000 ft AGL.
 - Enroute MACs below 8,000 feet, within 25 NM of Airport
 - CFIs Onboard One or Both aircraft 37% of time

Source: National Transportation Safety Board



Mid-Air Strategies



- Fly proper altitude
 IFR/VFR, Direction of flight
- Avoid congested airspace
 - Approach fixes, NAVAIDs, SUA
- Turn on lights to be more visible
- VFR Flight following
- Sterile cockpit limit conversations



Is the conflict aircraft flying toward or away from your aircraft?

- Prepare for arrival before pattern/approach
- Monitor CTAF/Tower in vicinity of non-towered airports
- CFIs at High Risk
 - 10% of pilot population involved in 35.5% of MACs

Source: AOPA ASI Safety Advisor, Collision Avoidance



Mid-Air/ATC Resources

FAA:

http://www.fly.faa.gov/Products/products.jsp https://sua.faa.gov/sua/siteFrame.app https://www.faasafety.gov/gslac/alc/libview_normal.aspx?id=6851 https://www.faa.gov/uas

AOPA:

https://www.aopa.org/training-and-safety/online-learning/safetyadvisors-and-safety-briefs/collision-avoidance

SKYbrary:

https://www.skybrary.aero/index.php/Mid-Air_Collision



San Antonio Area Military Aircraft





T-6 TEXAN II

Average cruising airspeed: 200-230 KIAS





T-38 TALON

Average cruising airspeed: 300 KIAS





T-1 JAYHAWK

Average cruising airspeed: 210-250 KIAS





F-16 FIGHTING FALCON

Average cruising airspeed: 300 KIAS





C-5 GALAXY





Military Operations Areas (MOAs)



- The purpose of a MOA is to separate military flight training activities from other (incompatible) traffic
 - Airspace of defined vertical & lateral limits for military flight training
 - Depicted on Sectional Charts, Enroute Low Altitude charts and VFR Terminal Area Charts
 - Typical Missions: aerobatic maneuvers including spins, aircraft handling/stall training, formation flying, air combat maneuvering, instrument training
- <u>Bottom Line</u>: AGGRESSIVE EDGE-OF-ENVELOPE MANEUVERING, EXTREME AIRSPEED and ALTITUDE CHANGES occur in a training/learning environment



Randolph MOAs





Randolph MOAs





149 FW MOAs





- Operating times and altitudes published in FLIP unless changed by NOTAM (e.g. VFR Sectionals & Low Altitude Charts)
 - During flight, information can be obtained through FSS or ATC
- **IFR traffic** can be cleared through a MOA provided separation can be provided by ATC
- VFR traffic can transit a MOA with no clearance or communication with ATC—but it's not safe!
- Many <u>MOAs are subdivided</u> with multiple sectors or training areas both horizontally and vertically—i.e. SEVERAL times more aircraft than you might have expected!
- If you must transit an active MOA while operating VFR, <u>PLEASE contact ATC and get FLIGHT FOLLOWING</u>



Military Training Routes (MTRs) And

Slow Speed Low Altitude Training Routes (SRs)

Commonly referred to as "low-levels"



FLIP AP/1B Chart – MTRs and SRs



For informational purposes only. Not intended for navigational use.



FAA Special Use Airspace (SUA)





MTRs and SRs

- Chart depiction:
 - IFR Low Altitude Enroute Charts depict all IRs, but only depict VRs with route segments above 1500 feet AGL.
 - Sectional Charts depict all IRs and VRs.
 - <u>SRs are not depicted on IFR or VFR charts</u>. The difference is that SRs are flown at 250 knots or less and are always at or below 1500 feet AGL.
 - Be advised that depicted routes only indicate route corridor <u>centerline</u>. The <u>width of each route can extend several miles</u> on either side of route centerline. Aircraft will travel in the direction of the route, but are typically off centerline, navigating through visual checkpoints located anyplace within the corridor!
- Many routes are flown in formation, so watch for more than one aircraft!



MTRs and SRs

- Best Practices/Techniques:
 - Preflight planning and situational awareness with <u>https://sua.faa.gov</u>
 - Will show selected scheduled activity; to see all, select "not scheduled"
 - Mark your charts for situational awareness and/or print the map
 - Plan to cross routes above 2000 feet AGL
 - Plan to cross routes near 90 degrees if practical
 - Use Flight Following
 - Contact FSS for MTR status/activity in your area
 - Squawk appropriately
 - Use all available aircraft/anti-collision lights and strobes
 - Clear vigilantly look especially in the direction of traffic, but look both ways on those routes which can be travelled in both directions
 - Don't forget to look for multiple (formation) aircraft



MTRs and SRs

Big Sky Theory?







Legend

MILITARY

TRAINING

23

NACACH

ROUTES (MTR)

UGHLIN 2 MOA

405 1403

CHAPARROSA RANCH

Military Training Routes (MTRs)

IFR Enroute LA

385 CPZ -----

GHLIN 2 MO

Ranch Pvt - 60

-Ó-

- A Military Training Route is a low altitude route of flight defined by vertical and lateral dimensions established for the conduct of military flight training in excess of 250 knots below 10,000 ft MSL
 - Depicted on Sectional Charts (light grey lines) and US **IFR Enroute Low Altitude Charts** (light brown lines

281 UVA

693

Sectional

28 R

VR269

29°



Legend





- Typically flown **500-1500 ft AGL** and **300-420 Knots**, **possibly faster**
- 2 types of MTRs IR & VR (IFR/ VFR)
- IR/VR MTRs that include one or more segments above 1500 feet AGL are identified by three number characters, (for example IR-XXX or VR-XXX). IR/VR MTRs with no segment above 1500 feet AGL shall be identified by four number characters, (for example IR-XXX or VR-XXX).
- All IR operations are conducted on IFR flight plans or an approved altitude reservation (ALTRV) regardless of weather conditions. Pilots must have an IFR or VFR flight plan to fly a VR or SR.



MTR Locations

Visual Route (VR) 500-1500'AGL, 300-450 knots.

Instrument Route (IR)

Same altitude and airspeeds as VR, but require an altitude reservation (ALTRV) and may be flown in IFR.

Slow Route (SR) Unlike IR/VR routes, FSS *will not* know if SRs are active.

** Military aircraft can choose a route anywhere within the published boundary width -- not just the route centerline depicted on the charts. Watch out for formations!





MTRs – Visual Routes (VR)





MTRs – Instrument Routes (IR)





- Typically flown 500-1500 ft AGL and 250 knots or less
- Unlike MTRs, the number of characters has no bearing on route altitudes, i.e. SR-XXX or SR-XXXX.
- All SR operations are conducted VFR, but navigation to/from may be conducted IFR. Pilots must have an IFR or VFR flight plan to fly an SR.
- In many cases, FSS is not notified of a scheduled SR



Slow Speed Low Altitude Training Routes – SR





Military, MOAs, SUAs, MTRs

Is it active? Contact FSS/ATC for enroute updates.





JBSA-Kelly Field



Airfield Diagram – Kelly Field





Airfield Environment





Local Patterns





433 Airlift Wing (AFRC)







C-5 Operations at Kelly Field







- C-5 School house (356 AS) and operational squadron (68 AS)
 - Up to three local flights daily, 3.5 to 4 hours in duration
- Profiles at KSKF
 - Normally Radar pattern west of field @ 3000' MSL
 - VFR Pattern flown @ 2200' MSL
 - Opposite direction circling approaches
 - Tactical Approaches





433 Airlift Wing (AFRC)

- Tactical Training
 - Required by Real World Events
 - Primary Training Group Pilots (Approximately 75)
 - Aircrew Currency
 - 2 events every calendar quarter
 - Flown VFR
 - Duration: 5-10 minutes / maneuver
 - Altitude: Low @ 2500'MSL High @ 5500'MSL

High @ 5500'MSL High @ 250 KIAS







433 Airlift Wing (AFRC)





F-16 Pattern Procedures

- High Key
 - Straight-In: 7-10 NM from runway, 7500-8000' MSL
 - Overhead: Above runway 8000' MSL
- Low Key
 - Straight-In: 5 NM from runway, 6000' MSL
 - Overhead: On downwind 3000-5000' MSL
- Local use only by 149 FW, day VFR only



F-16 Pattern Procedures





F-16 Pattern Procedures





JBSA-Randolph / Seguin Aux Field / S TX Regional Airport at Hondo



Airfield Diagram - Randolph





Randolph Patterns



For informational purposes only. Not intended for navigational use.



T-38 Patterns – Randolph Aux Seguin



For informational purposes only. Not intended for navigational use.



T-6 Patterns – Randolph Aux Seguin

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T-6 Patterns – Hondo



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JBSA MACA Information

https://www.jbsa.mil/Resources/Safety/





JBSA-Fort Sam Houston/SAMMC





JBSA-Camp Bullis

Parts of JBSA-Camp Bullis are coordinated with the FAA to be Controlled Firing Areas. A CFA is airspace designated to contain activities that if not conducted in a controlled environment would be hazardous to nonparticipating aircraft.



CFAs provide a means to accommodate, without impact to aviation, certain hazardous activities that can be immediately suspended if a nonparticipating aircraft approaches the area. <u>SEE</u> FAA JO 7400.2 current version, Chapter 27.



JBSA-Camp Bullis Helipad JBSA-Camp Bullis Combat Assault Landing Strip





SUAS Awareness



<u>Clubs with FAA Recognized</u> Identification Areas (FRIA) Sites

- 1. Alamo Radio Control Society, Atoscosa
- 2. Boerne Area Model Society, Comfort
- 3. Bulverde Aero Modelers, San Antonio
- 4. Heart of TX Soaring Society, St Hedwig
- 5. Kerrville RC Flyers, Kerrville
- 6. San Antonio RC Club, Elmendorf
- 7. Shoreline Aeronauts, Spring Branch
- 8. Tri City Flyers, Kingsbury

Recreational Flyer Fixed Sites

9. River City Radio Control, Schertz

Other RC Clubs

10. San Antonio Prop Busters, San Antonio



Questions/Comments

