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MACA Brief

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UNCLASSIFIED

Warriors Delivering Freedom



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Mid Air Collision Avoidance (MACA)











Our Goal

- To Educate & Address the Concerns of Civilian Pilots in the Local Area to the Potential Conflicts and Hazards in vicinity of Whiteman AFB
- BL: PREVENT MID-AIRs thru CROSS-TALK



MACA CONCERNS- UCM

- Mid Air Stats
- Separation Requirements
- See and Avoid
- Local Area
- LL Routes: VR 1525
- Whiteman Approach Control Airspace
- Truman MOA
- UCM Training Areas
- Military Aircraft Review



U.S. Mid-Air Statistics

- 30 mid-air collisions (MACs) per year
 - Average 1978 to present
- Average 75 deaths per year
- Currently 100 near mid-air collisions (NMACs) reported per year
 - How many unreported?
 - <100 ft = Critical</p>
 - < < 500 ft = Potential



IFR VS VFR

RADAR APPROACH CONTROL AIRSPACE

IFR/IFR aircraft separation requirement:

1000' Vertically 3NM lateral

Controlled VFR/IFR aircraft separation requirement:

500' Vertically Lateral: Target Separation

VFR/VFR:

Lateral: Target Separation

IFR aircraft/Uncontrolled VFR aircraft:

No Separation Requirement





Traffic Advisories

VFR Flight Following Pilot should expect traffic advisories but they are based on priority.







• Requires that vigilance shall be maintained at all times, by each person operating an aircraft regardless of whether the operation is conducted under IFR or VFR.





Effective Visual Scan

Spend more time looking outside

Shift glances and refocus at intervals

- Similar to Instrument Cross Check
- Short, regularly-spaced eye mvmts.
- <10° per movement</p>
- Observe for at least 1 second
- Several Seconds to refocus between outside/inside

Peripheral vision detects motion

• If object stays in same spot on windscreen- you will eventually collide!

• 12 Seconds to Impact! (360 kts closure, 1.2 nm)

- 6 sec's to see, recognize & analyze,
- 6 sec's to decide & maneuver





LOCAL AREA





TRUMAN MOA A/B/C

- Truman A & B
 - •Active from 8000' MSL to 17999. (With ATCAA)
 - up to FL 230
 - •Aerobatic/Formation flight training
 - •Truman C
 - •Active from 500' AGL to 17999. (With ATCAA)
 - up to FL 230
 - •Aerobatic/Formation/Low Altitude training
 - •Services
 - •VFR both civilian and military may transit.
 - Use EXTREME caution. MOÅ control will warn controlled VFR traffic of MOA status and players, keep in mind, most of the time VFR aircraft still opt to go through.
 - •IFR will be vectored around, or altitudes will be capped/reduced. At no point will IFR aircraft be established in airspace blocks being used by military aircraft.



TRUMAN MOA A & B

8000' MSL - 23,000' MSL



TURN ON YOUR TRANSPONDER

SEE AND BE SEEN

> CALL WHITEMAN APPROACH 127.45





500' AGL - 23,000' MSL

TRUMAN 30 Δ 12214 2872 1270 RUMAN NOA 20 TRUMAN

TURN ON YOUR TRANSPONDER

SEE AND BE SEEN

CALL WHITEMAN APPROACH 127.45



Preferred MOA Entry Procedures

If you cannot avoid the active MOA

- Call and monitor MOA control on VHF Freq 124.475.
- Let MOA control know your route and planned altitude.
- Be predictable. Communicate with ATC.

Once in the MOA

- Keep your head out of the cockpit (Remember you are VFR)!
- Situational Awareness KNOW WHATS GOING ON AROUND YOU!
- The A-10 is traveling at 250 knots!



SZL TWR & Approach Control Airspace

- TOWER
 - SFC- 3400 MSL
 - 6.5 NM out
 - Only for aircraft intending on landing, departing KSZL
- RAPCON / Approach & Departure
 - SFC 9,000ft
 - ~<mark>60 nm</mark>
 - VFR flight following can be accomplished workload permitting
 - Controls VFR/IFR traffic into multiple satellite airports.
 - Skyhaven UCM International
 - Sedalia
 - Clinton
 - Warsaw
 - Multiple other smaller airfields



Whiteman Approach Control

- Services Provided
 - VFR traffic advisories workload permitting
 - Full IFR services
 - Cancel, change or file IFR flight plans.
 - Approach control functions to: Skyhaven (RCM), Clinton (GLY), Sedalia (DMO), Marshall (MHL), and Higginsville(HIG) Warsaw (RAW) and others
- Appr Cntl 127.45, Dep Cntl 125.925
- Typical T-38 Sched:
 - 0900-1015, 1200-1315, 1500-1615



MCI Approach Control Airspace

- SFC-15,000 MSL
- VFR handoffs can be accomplished workload permitting
- Busy Airfields (Other than MCI)
 - Downtown (MKC)
 - Johnson county (OJC)
 - New Century (IXD)



Mizzou Approach Control

- Actual location: Springfield, MO
- SFC-7000' MSL
- Poor Radar Coverage to the south
- Frequency problems to north and south
 - 124.37 to the north
 - 124.1 to the south
- Truman MOA Airspace



Springfield Approach Airspace

- Surface to 15,000 MSL
- Proximity to Truman MOA area "C"
- IFR flights to or from SGF may experience delays or deviations, when the MOA is active



St. Joseph Airspace

- Poor radar coverage low level
- Military Traffic is continually using the area
- PAR approach



MOA BAS

- Is most of Whiteman's traffic in the MOA or above 18k?
- No
- Any aircraft allowed below 10k >250 knots?
- Yes
- Are their military aircraft that can go near your airport less than 5k?
- Yes



IR-504





•509 BW, WHITEMAN AFB, MO

•LOW LEVEL FIGHTER/BOMBER TRAINING ROUTE •TERRAIN FOLLOWING OPERATIONS

•B-1/A-10/T-38s

•SPEEDS IN EXCESS OF 400KTS

•PRIMARILY 4000 MSL AND BELOW

•ALTERNATE EXIT BY TOPEKA/FORBES FLD (BY FALL 08)

*REFERENCE AP1/B FOR MORE INFORMATION



VR1525





Entry into VR-1525





VR 1525

- 509 BW, WHITEMAN AFB, MO
- T-38s PRIMARY USERS
- FREQUENTLY USED
- SPEEDS IN EXCESS OF 350KTS
- LOW LEVEL TRAINING ROUTE
 - TERRAIN FOLLOWING OPERATIONS
- OPERATING PROCEDURES
 - VMC ONLY, 3000' / 5 MILES VISIBILITY



VR 1525 cont.

- DUE TO LOW LEVEL, RADAR ADVISORIES MAY BE IMPOSSIBLE Expect to be cancelled Prior to reaching point A
- ROUTE MAY USED FOR NAVIGATION TO CANNON RANGE OR R-4501 BUT DOES

<u>NOT</u> TERMINATE IN

EITHER

***REFERENCE AP1/B FOR MORE INFORMATION**





R-4501

• Used by Whiteman A-10s for live firing









UCM Training Areas

- LOW: Up to 4000' MSL
- <u>HIGH</u>: 4000-8000' MSL
- Areas 3/6: Not available for student pilots
- Areas 4/5 Low: Priority areas for solos
- Area 4/5 High: Multi-engine
- At or Above 4500'MSL aircraft will request VFR flight following with RAPCON
- Max of 4 aircraft in an area
- No flight over Wsbg below 3000'AGL (3900'MSL)





Whiteman Pattern





Whiteman Pattern

- Radar pattern 3,000 to 4,000 MSL
- Rectangular– 1,900 to 2,400 MSL VFR breakout is 2,900 MSL
 - VFR Entry points 2,400 MSL
 - La Monte, Montserrat, Sexton Lake, Green Ridge
- Overhead pattern 1,900 or 2,400 MSL







Lights Out Training

- Purpose Realistic NVG training
- Location Truman MOA A/B/C
- Conducted IAW FAA Letter of Agreement
 - NOTAM published at least 48 hours in advance
 - NVG ops continuously monitored by radar
 - Operations restricted to 1,500' above radar limits
 - 4,000' MSL in Truman C / 8,000' MSI in A/B
 - Pilots must monitor radar frequency
- Contact RAPCON 127.45



B-2 Spirit Stealth Bomber

- Length: 69 ft
- Width: 172 ft
- Height: 18 ft
- Color: Dark grey
- Max TO Weight: 335,600 lbs
- Normal approach speed: 140-165 Kts





B-2 SPIRIT





T-38 TALON

- LENGTH: 46.3 FT
- WIDTH: 23.5
- HEIGHT: 13.0FT
- WEIGHT: 12,000+
- COLOR: CHARCOAL GRAY
- NORMAL CRUISE SPEED: 300 KTS





A-10 THUNDERBOLT

- LENGTH: 53 FT
- WIDTH: 58 FT
- HEIGHT: 15 FT
- WEIGHT: 50,000 LBS
- COLOR: LIGHT GREY





H-60 Blackhawk

- NORMAL CRUISE ALT: 2000'
- NORMAL CRUISEAIRSPEED: 120 KTS
- COLOR: DARK GREEN



Separation	Time to Impact		
Closure:	600 MPH	360 MPH	
5 Miles	30	50	
4 Miles	24	40	
3 Miles	18	30	
2 Miles	12	20	
1 Mile	6	10	
.5 Mile	3	5	

Critical Seconds

Step Back 12 Feet!

From that distance, the silhouettes represent the EAGLE as it might appear to you from the distances indicated on the table to the left. The time required to cover these distances is given in seconds for combined speeds of 360 and 600 miles per hour.

The red blocks on the lower left mark the danger area for the speed quoted (when on a direct collision course). This danger area is based on the recognition and reaction times shown in the table below.

	Obtain	0.1
	Visual	-12
	Aircraft	1.0
	Recognition	
	Collision Course	5.0
	Awareness	
	Decision to React	4.0
	With Control Input	
	Muscular	0.4
	Reaction	
_	A/C Lag Time	2.0
	Total (seconds)	12.5



Closure Speeds



Conflict aircraft speed is 250 knots, your speed is 110 knots, closure rate is 360 knots; 6 nm per minute

6 Seconds to see, recognize and analyze ...4 Seconds to decide and start evasive maneuver ...2 Seconds to gain enough space to clear ...



Did You See That?







Did You See That?







A-10 Close-Call with Glider







Mishap – F-16 v Cessna



WHEN YOU SEE IT...



Mishap – F-16 v Cessna





Mishap – F-16 v Cessna





Mishaps – F-16 v Cessna



"Death 41, traffic twelve o'clock, two miles, opposite direction, one thousand two hundred indicated. Type unknown....

....turn left heading 180 if you don't have that traffic in sight,"



Dist = 5978.6 ft

less than 200 feet away (less than 0.5 seconds) and it was too late to deconflict flight-paths.





10 o'clock position, slightly above the horizon. The F-16 was nearly nose-on the entire time, resulting in the smallest visual profile possible of an F-16.



$Dist = 6045.1 \, ft$

The F-16 may have been obscured behind the Cessna's left wing strut







Mishaps – F-16 v Cessna

- In class E airspace, F-16 instrument sortie, IFR clearance // Cessna VFR sq1200
- F-16 on vector // Cessna climbing wings level, not talking to ATC
- Late traffic call from ATC at 3nm and 500', directed turn in wrong direction.





Summary

- Mid Air Stats
- Separation Requirements
- See and Avoid
- Local Area
- LL Routes
- Whiteman Approach Control Airspace
- Truman MOA
- Military Aircraft Review



Contact Information

- Flight Safety Office
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