

SHARE THE AIR



Luke AFB - MACA Program

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www.luke.af.mil/library/midaircollisionavoidance.asp



MidAir Collision Avoidance (MACA) Program

Luke Air Force Base, Arizona



JAN 2009

TRAINING AMERICA'S BEST FIGHTER PILOTS!



Dear Fellow Aviators,

Midair collisions are an area of vital concern to everyone who flies an airplane. The actual number of midairs between Air Force aircraft and general aviation aircraft is relatively low; however, 80 percent of reported Air Force near misses occur with general aviation aircraft. Because of increasing general aviation traffic and heavy concentrations of military aircraft involved in training, we want to inform you about the flying activity at Luke Air Force Base.

The purpose of this pamphlet is to alert you to the many areas of high midair collision potential in the skies over Arizona and to discuss ways to make them safer. This pamphlet will describe available radar services, the types of military aircraft you may encounter, arrival and departure routes, military operating areas, and low level routes. It also provides information regarding midair collisions and ways we can all help avoid them.

The pilots and controllers assigned to Luke Air Force Base are committed to maintaining a valid and active midair collision avoidance program. We hope this pamphlet will serve to increase your understanding of Luke's flying activities so we may continue to safely share the skies. If you desire any additional information or a briefing from the Luke Air Force Base MACA team members concerning our operations, please contact the **Luke Flight Safety Office at (623) 856-6942** or the **Airfield Operations Flight Commander at (623) 856-7341**.

Additional copies of this pamphlet can be obtained by calling the Luke Flight Safety Office. Additional information can be obtained via Luke's public MACA website:

<http://www.luke.af.mil/library/midaircollisionavoidance.asp>



Collision Avoidance and YOU

Ever landed and got out of your plane with your hands sweaty and body shaking because someone nearly took your wing off? If so, you're not alone. As aviation activity increases throughout the US, the possibility of having a near midair or actual collision increases. The FAA has instituted policies to alleviate the midair collision potential, but the ultimate responsibility lies with YOU! Below are several rules to live by... in order to make flying safer for all.

1. **PLAN AHEAD** - Thoroughly plan and review your intended route of flight before walking to your aircraft. If possible, plan to avoid alert areas, MTR's, and MOA's. Check NOTAM's and identify potential conflict areas. The following website depicts military airspace near you: (www.SeeAndAvoid.org)
2. **SEE AND AVOID** - Scan the airspace ahead of your flight path and to the side using a disciplined scan pattern. Also, periodically check behind you since the majority of midairs occur when one aircraft overtakes another.
3. **CLEAR** - Before executing a climb, turn, descent, or any other maneuver, ensure the area is clear!
4. **COMMUNICATE** - When flying into or out of uncontrolled airports, broadcast your position and intentions. Request and use all available RADAR services whenever possible. Finally, don't relax your visual scan even in a RADAR environment.
5. **SQUAWK** - If your aircraft is transponder equipped, turn it on and reply on both Mode 3/A and C.
6. **BE SEEN** - In order to enhance the see and avoid concept, you are encouraged to turn on your anti-collision lights and/or other appropriate lights whenever the engine is running. You're further encouraged to turn on your landing light (within POH recommendations) when operating below 10,000' MSL, day or night, but especially within 10 miles of an airport or in areas of reduced visibility.

PROFILE OF A MIDAIR

A three year study of midair collisions involving civilian aircraft by the NTSB determined the following:

1. The occupants of most midairs were on a pleasure flight with no filed flight plan.
2. Nearly all midair collisions occurred in VFR conditions during weekend daylight hours.
3. The majority of midairs were the result of a faster aircraft overtaking a slower aircraft.
4. NO ONE is immune. Experience levels ranged from initial solo to the 15,000 hour veteran.
5. The majority of midairs occurred at uncontrolled airports below 3000'.
6. Enroute midairs occurred below 8,000 and within 25 miles of the airport of intended landing.
7. Flight instructors were onboard one of the aircraft in 37% of the midairs.



Geometry of a Collision

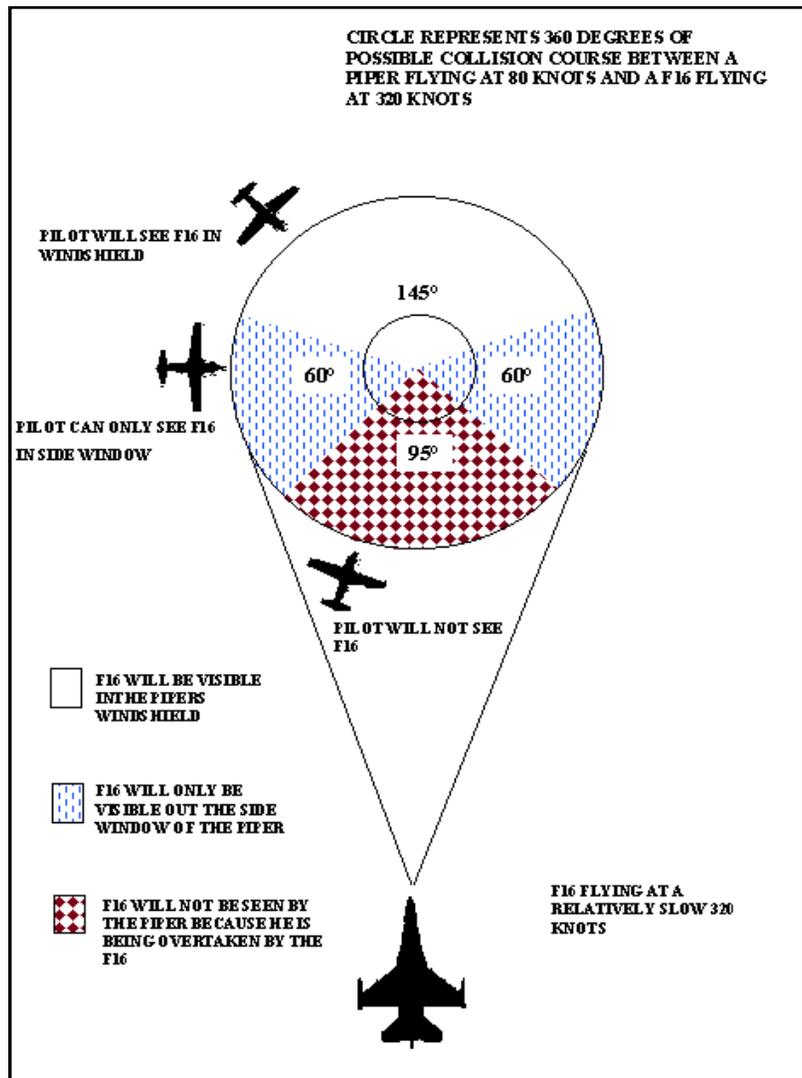


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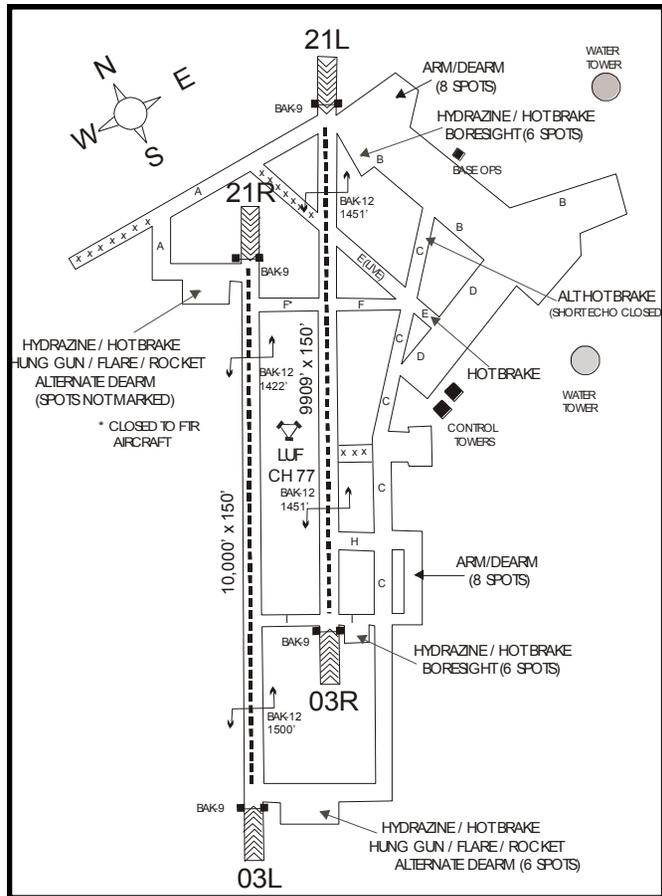


Luke AFB Location and Operation

Location: 19 miles West of Phoenix Sky Harbor
 Airfield Identifier: KLUF
 Coordinates: N 33 32.26 W 112 22.8
 Elevation: 1090'
 Frequencies: Approach - 125.45/ 118.15
 Tower - 119.1
 Ground - 133.175
 ATIS - 134.925
 Operating Hours: Sunrise - 2300(L) Mon - Thu
 Sunrise - 1800(L) Fri-Sun

Luke AFB is closed to all civil traffic. Extensive, high speed student jet training in progress.

Contact Luke Approach for traffic advisories.



Closure Rate

DISTANCE - SPEED - TIME			
SPEED →	600 MPH	360 MPH	
	SECONDS		
10 Miles	60	100	-
6 Miles	36	60	+
5 Miles	30	50	+
4 Miles	24	40	+
3 Miles	18	30	+
2 Miles	12	20	+
1 Mile	06	10	+
1/2 Mile	03	05	+
0 Mile	0	0	+

POW

**In this area; Relax!
Why die all tensed up!??**



Reaction Chart

Critical Seconds

Move away from the F-16 illustration about 3 feet. The F-16 silhouette represents the aircraft as it would appear from the distance indicated on that page. The time required to cover these distances is given in seconds for the combined speeds of 360 and 600 mph.

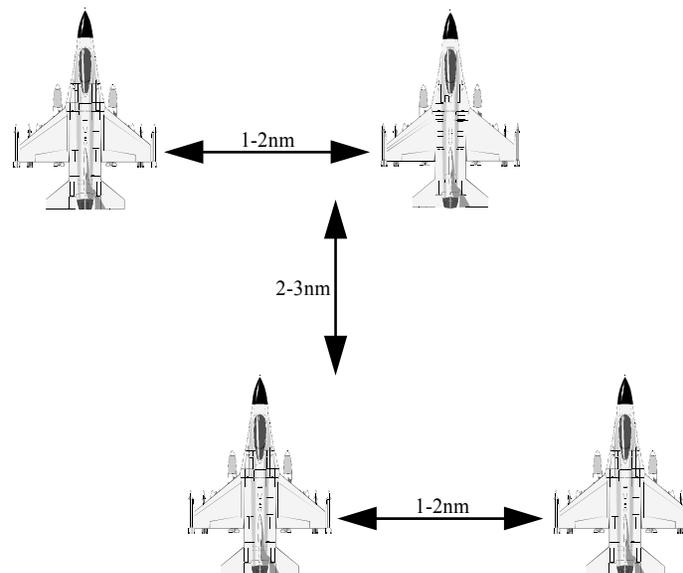
The blocks on the lower left corner of the previous page mark the danger area, based on the reaction times on the lower right of this page.

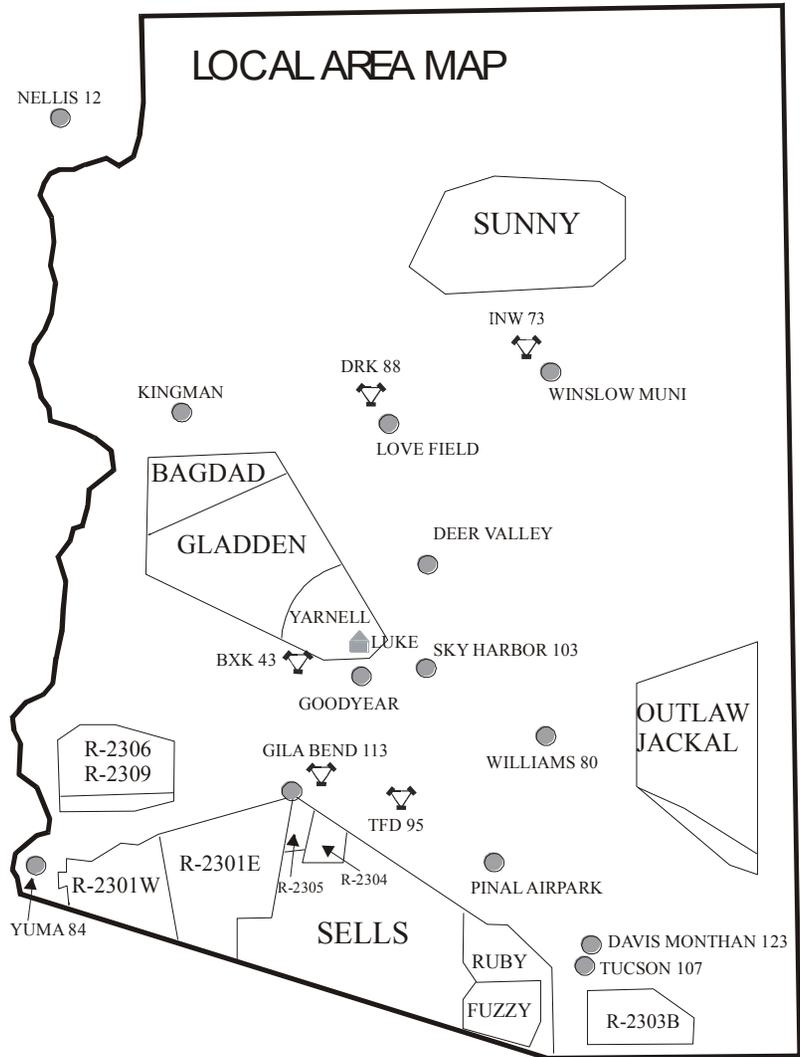
see object	0.1
recognize aircraft	1.0
became aware of a collision course	5.0
decision to turn left or right	4.0
muscular reaction	0.4
aircraft lag time	2.0
TOTAL	12.5



F-16 Operating Information

The F-16 is a multi-role fighter. It can do everything from dropping bombs to providing air superiority. Luke is the only active duty F-16 training base for the USAF and the largest single F-16 base worldwide. There are over two hundred F-16s assigned at Luke. All phases of F-16 training for all USAF F-16 pilots and some foreign countries is conducted here. Most F-16s travel in even numbers, either 2 or 4 together, except in the local pattern where they'll fly as singles. F-16s routinely fly 350 kts on departure and 300 kts on recovery and in the traffic pattern. In the Military Operations Areas (MOAs), airspeeds range from 150 kts to supersonic. On Military Training Routes (MTRs), F-16s fly 500 kts at 500' AGL. While in the MOAs or on MTRs, F-16s generally fly 1-2 nm line abreast with another pair line abreast 2-3 nm in trail. So, if you see one F-16, look for others... chances are good there will be another F-16 close by.

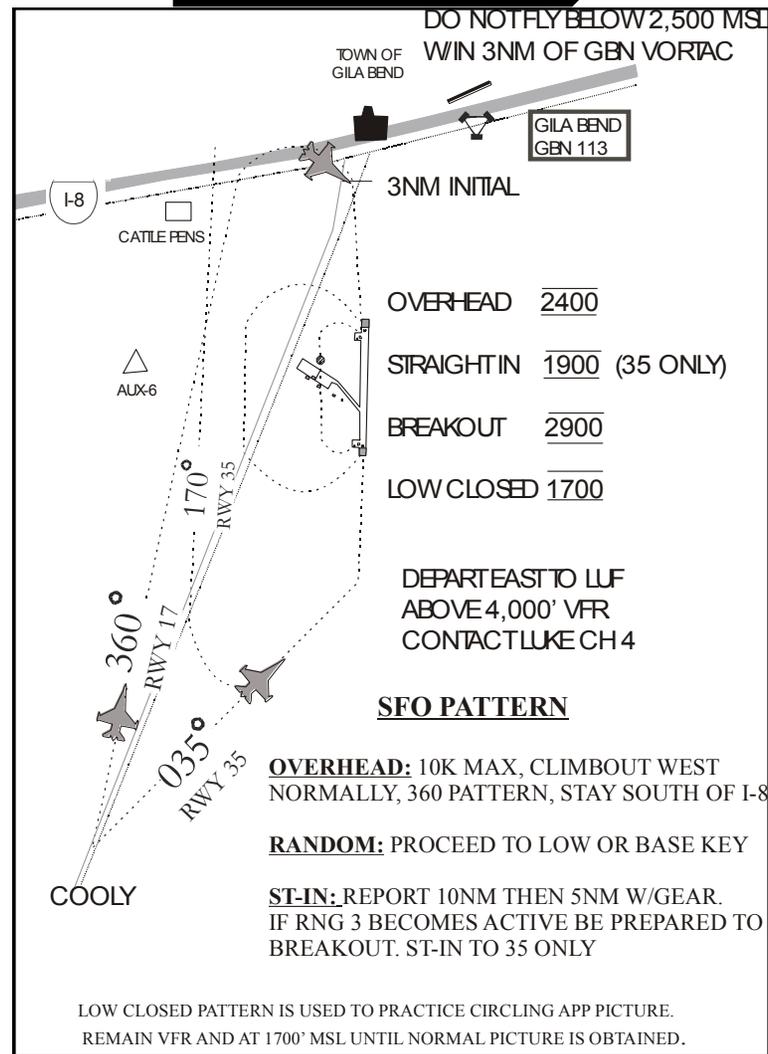




In addition to Restricted airspace, the Gladden, Bagdad and Sells MOA's are the most highly used areas for Luke F-16's. Operations are conducted sunrise to 2300(L), Mon-Fri and sometimes Sat. Operations in the Sunny MOA & ATCAA are conducted from 12,000 MSL - FL290. Numerous MTRs transit in and around Luke and the Phoenix area. For additional information on special use airspace please refer to Sectional Charts, local NOTAMs, etc.



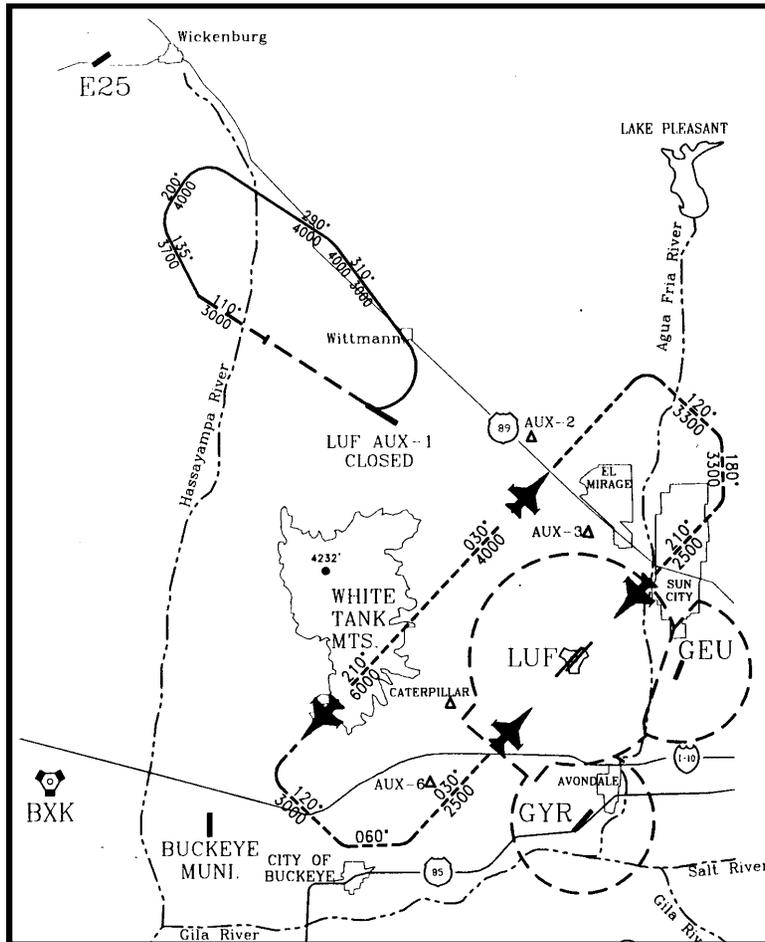
Gila Bend AFAF Traffic Pattern



The procedures above are used by Luke assigned F-16's. Gila Bend AFAF is utilized for practice touch-and-go landings, simulated flameout patterns, and as an emergency divert field. Of note, F-16 traffic should remain South of I-8. Upon recovery, F-16's should climb above 4000' before turning North toward Luke AFB.



Luke AFB and AUX-1 Radar Pattern

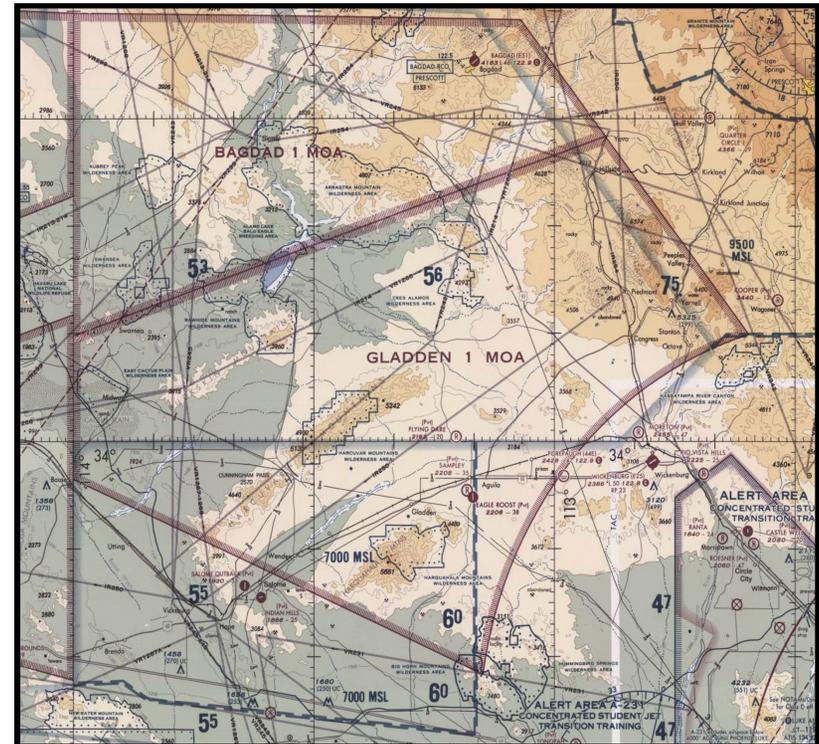


While on radar vectors for instrument training, the greatest conflicts with civil traffic is in the vicinity of the Arrowhead housing area and inside 10NM final. Please squawk, talk and LOOK for other aircraft in this busy airspace.

If transiting the airspace depicted above, it is recommended you contact Luke Approach on 118.15 or 125.45 for traffic information.



Gladden / Bagdad MOA



GLADDEN MOA & ATCAA

ACTIVE: SUNRISE - 2300(L) MON - FRI (SOMETIMES SAT)
ALTITUDES: 7000' MSL (5000' AGL) - FL330

BAGDAD MOA & ATCAA

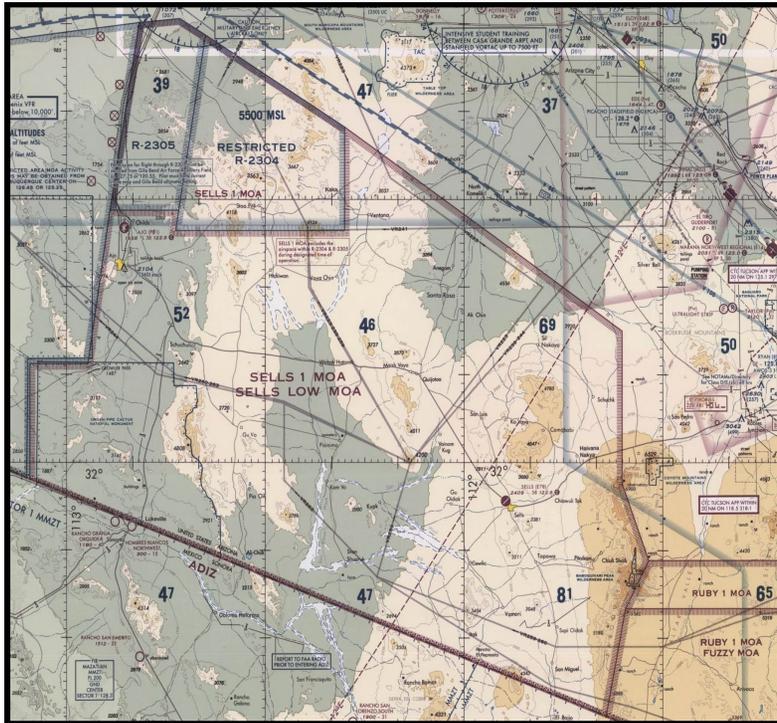
ACTIVE: SUNRISE - 2300(L) MON - FRI (SOMETIMES SAT)
ALTITUDES: 7000' MSL (5000' AGL) - FL280

These are Luke's most highly utilized MOA's. Operations are generally conducted above 10,000 MSL, but certain missions require transitions to the 7,000 MSL floor. Also, when ABQ Center "caps" the top of the airspace or when weather is a factor, missions will be conducted in the lower altitudes of the Gladden and Bagdad MOA's.

PLEASE CONTACT LUKE APPROACH ON 118.15 OR 125.45 FOR ADVISORIES



Sells MOA



SELLS MOA & ATCAA

ACTIVE: SUNRISE - 2300(L) MON - FRI (SOMETIMES SAT)

ALTITUDES: 3000' AGL - FL510

(This airspace is also used by military aircraft from Tucson and Davis-Monthan AFB.)

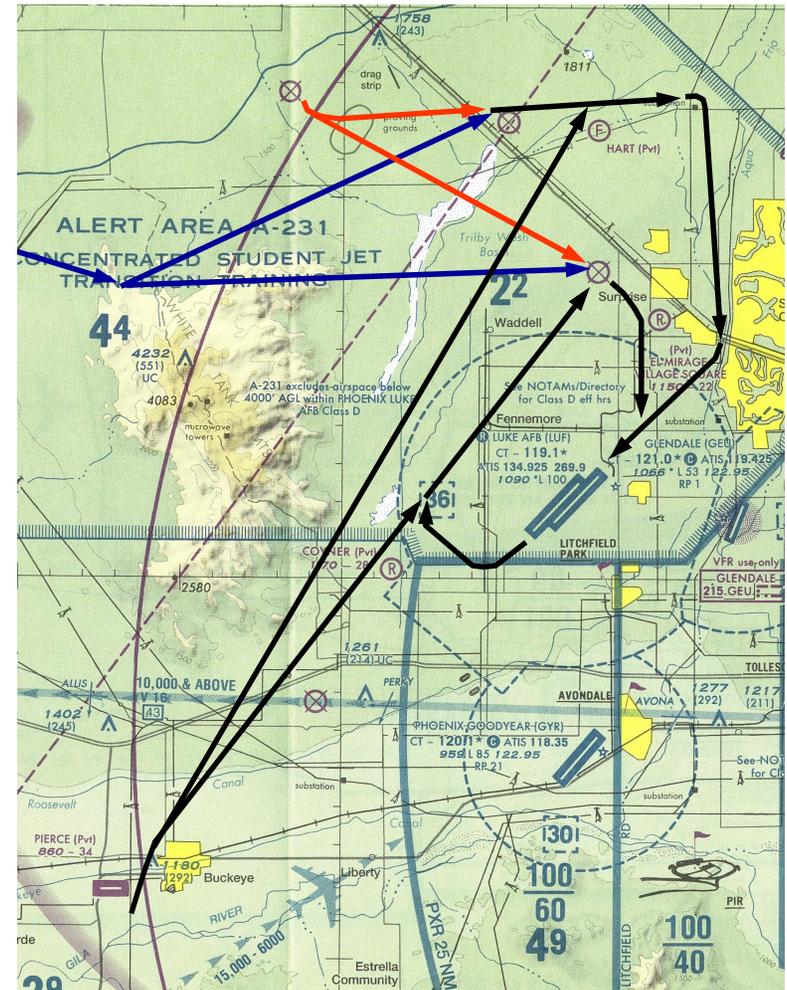
USE CAUTION WHEN TRANSITING SELLS MOA - NUMEROUS MILITARY TRAINING ROUTES (MTRs) TRANSIT THE AIRSPACE

MILITARY AIRCRAFT ON MTRs ROUTINELY OPERATE AT SPEEDS IN EXCESS OF 500KTS DOWN TO 500' AGL

CONTACT ABQ CTR OR GILA BEND AF AUXILIARY FIELD FOR ADVISORIES



RWY 21 Traffic Pattern

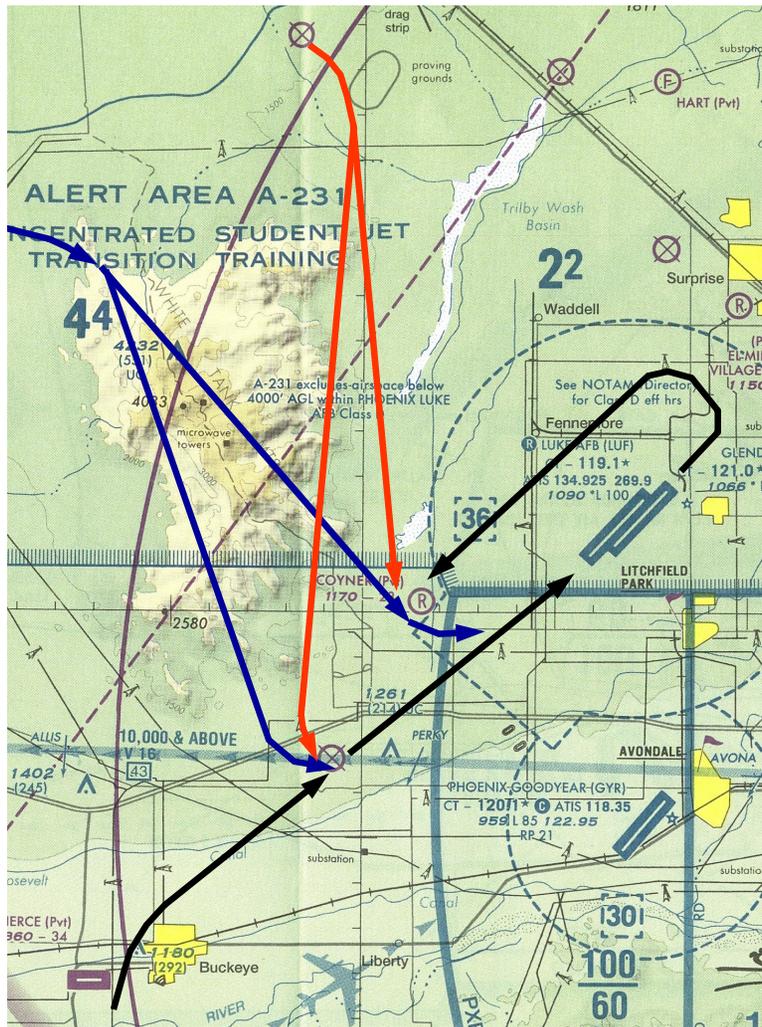


EXERCISE EXTREME CAUTION WHEN FLYING IN THE VICINITY OF THE SUBSTATION (NW OF SUN CITY) THE DESERTED CATERPILLAR TRACTOR GROUNDS (SW OF LUKE), AND THE ABANDONED AIRFIELDS (NORTH & SOUTH OF LUKE). THESE AREAS ARE USED AS REPORTING AND ENTRY POINTS INTO LUKE'S TRAFFIC PATTERN FOR BASE ASSIGNED F-16's.

PLEASE CONTACT LUKE APPROACH ON 118.15 OR 125.45 FOR ADVISORIES



RWY 03 Traffic Pattern

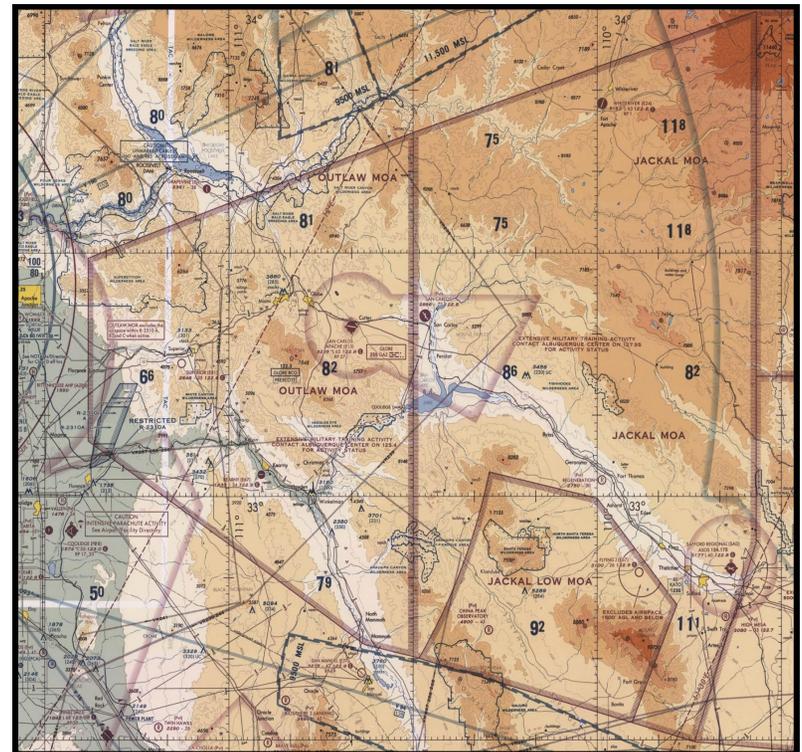


- BLACK - PATTERN ENTRY FROM SOUTH (i.e. VALLEY RECOVERY)
- BLUE - PATTERN ENTRY FROM TANKZ RECOVERY
- RED - PATTERN ENTRY FROM AUX I (INSTM PRACTICE AIRFIELD)

USE CAUTION IN THE VICINITY OF BUCKEYE AND THE WHITE TANKS



Outlaw / Jackal MOA



OUTLAW MOA & ATCAA

ACTIVE: SUNRISE - 2300(L) MON - FRI (SOMETIMES SAT)
 ALTITUDES: 8000' MSL (3000' AGL) - FL510 (NORMALLY CAPPED AT FL300)

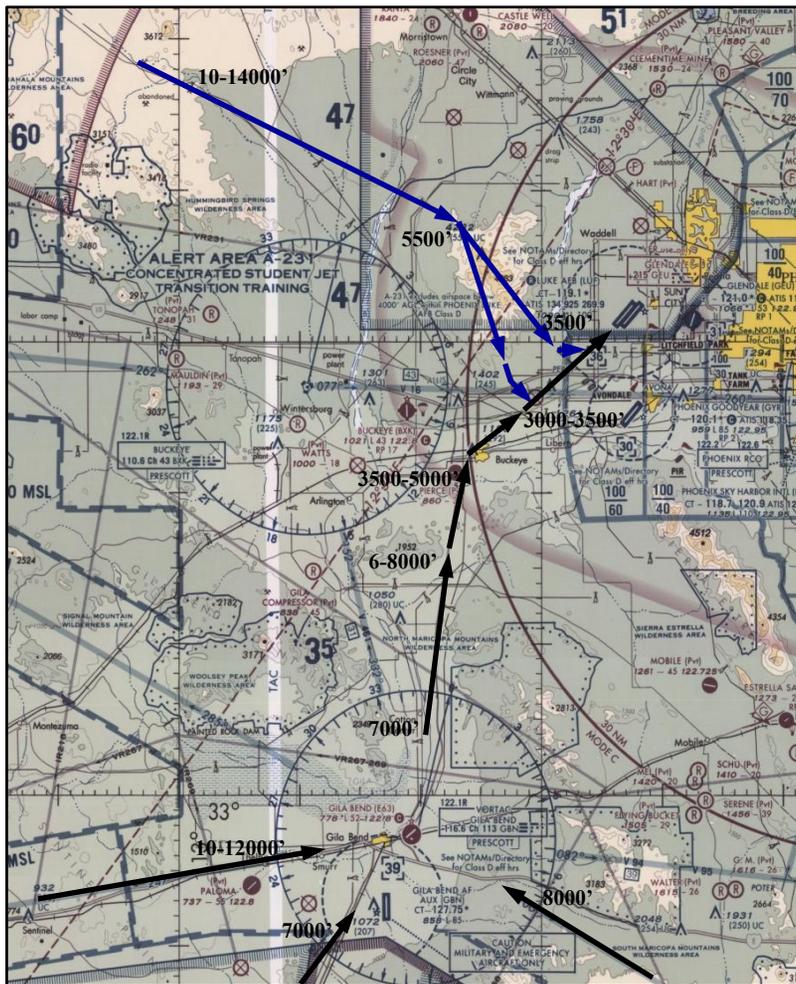
JACKAL MOA & ATCAA

ACTIVE: SUNRISE - 2300(L) MON - FRI (SOMETIMES SAT)
 ALTITUDES: 11000' MSL (3000' AGL) - FL510 (NORMALLY CAPPED AT FL300)

CONTACT ABQ CTR FOR ADVISORIES



RWY 03 Arrivals

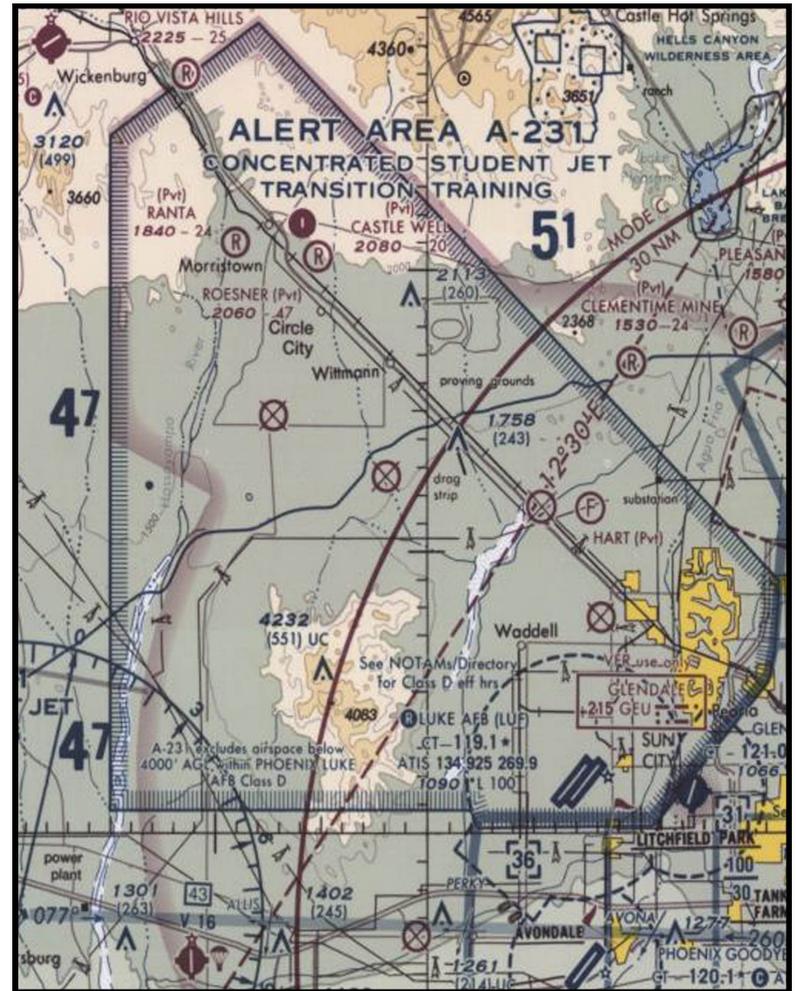


ARRIVALS FROM THE SOUTH FUNNEL TO GBN VORTAC ENROUTE TO LUKE

ARRIVALS FROM THE NORTH ENTER THE LUKE TRAFFIC PATTERN FROM NORTHWEST OF THE WHITE TANKS



Alert Area A-231



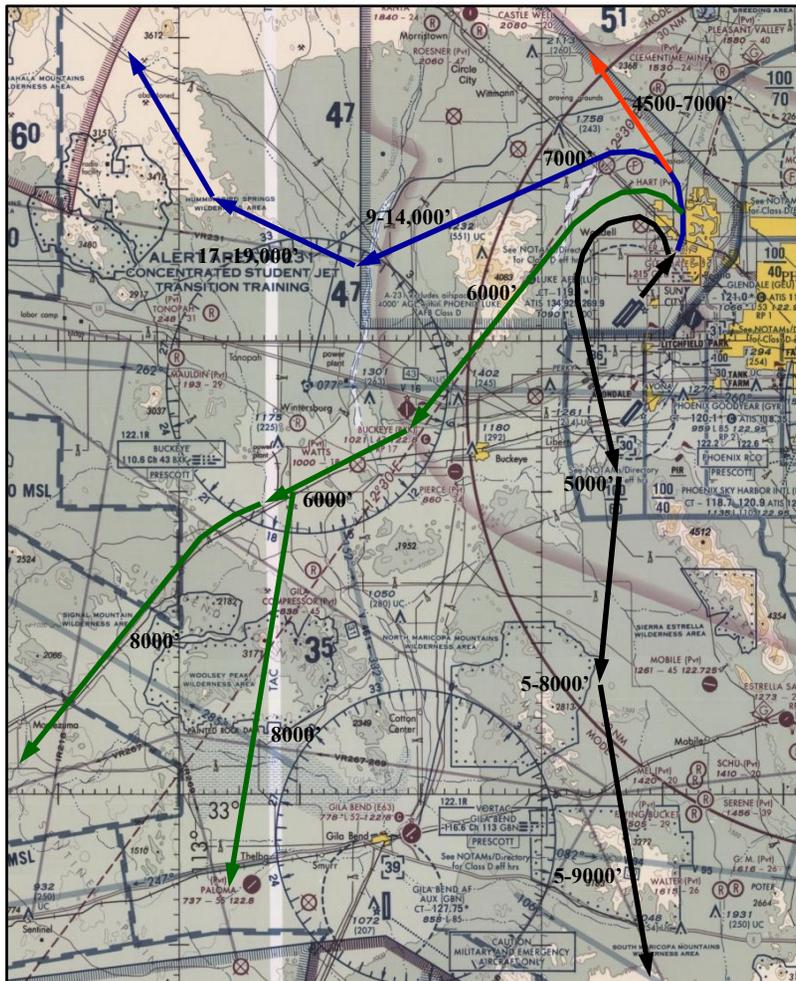
ACTIVE: CONTINUOUS
 ALTITUDES: 500' AGL - 6500' MSL

EXERCISE EXTREME CAUTION FOR HIGH SPEED JET TRAFFIC IN A-231

PLEASE CONTACT LUKE APCH ON 118.15 / 125.45 FOR TRAFFIC ADVISORIES



Rwy 03 Departures

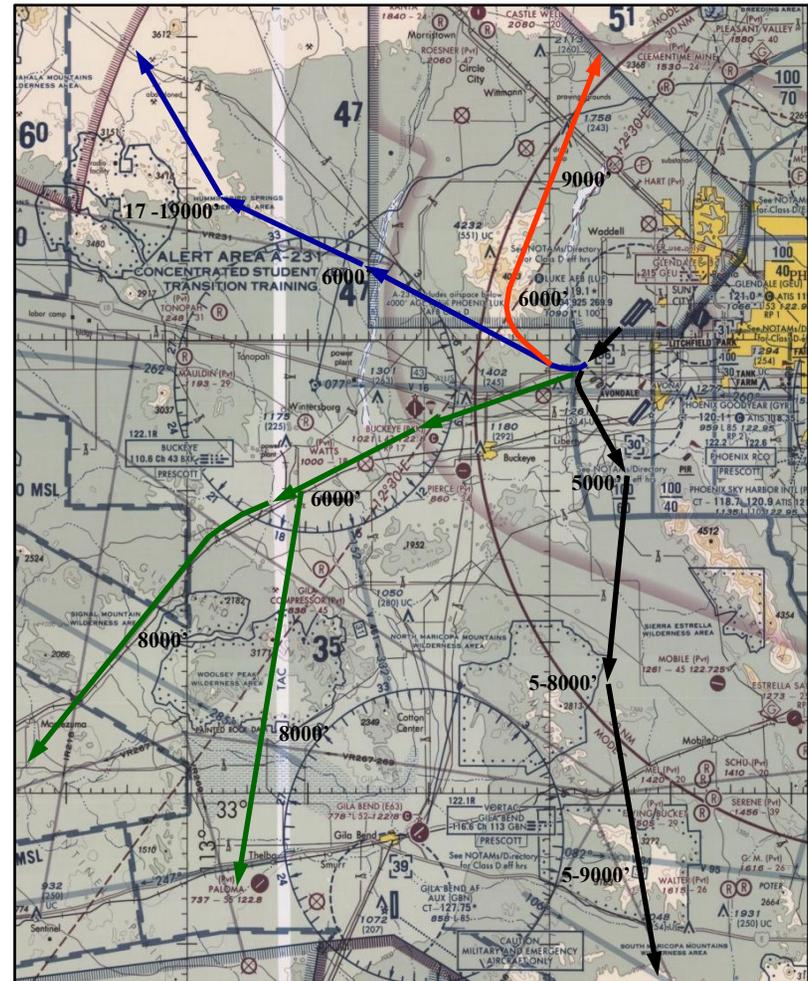


- BLACK - VFR SOUTH & BUSCO DEPARTURES GROUND TRACKS
- BLUE - TIRON-GLADDEN DEPARTURE
- RED - VFR NORTH & LAKE DEPARTURES
- GREEN - NORDY DEPARTURE

PLEASE CONTACT LUKE APPROACH ON 118.15 OR 125.45 FOR ADVISORIES



Rwy 21 Departures



THE HIGHEST POTENTIAL CONFLICT AREAS CONTINUE TO BE ON LUKE'S SOUTHERN DEPARTURES (SOUTH OF GOODYEAR AIRPORT) AND IN THE VICINITY OF LAKE PLEASANT. PRACTICE DISCIPLINED SEARCH PATTERNS AND IT IS RECOMMENDED YOU CONTACT LUKE APPROACH FOR TRAFFIC ADVISORIES.

PLEASE CONTACT LUKE APPROACH ON 118.15 OR 125.45 FOR ADVISORIES