

# Mid-Air Collision Avoidance



355th Wing  
Davis-Monthan Air Force Base, Arizona  
November 2022

# Introduction

## 355th Wing Safety Mission:

The goal of the 355th Fighter Wing Mid-Air Collision Avoidance (MACA) program is to promote the safe flying environment in Southern Arizona. The information presented is designed to provide a basic understanding of local military flight operations, define standard Davis-Monthan (DM) departure and arrival corridors, and highlight heavily used local military training airspace. The information provided does not encompass all DM or Southern Arizona military flight operations. Please contact the 355th Wing Flight Safety Office for additional information or if you would like to schedule a briefing tailored to your organization. If you have questions or would like to voice any airspace concerns, call us.

We need your input.

Please contact us at: (520) 228-4617 or email us at: [355grp79@us.af.mil](mailto:355grp79@us.af.mil).

Together we can enjoy the airspace over Arizona safely.







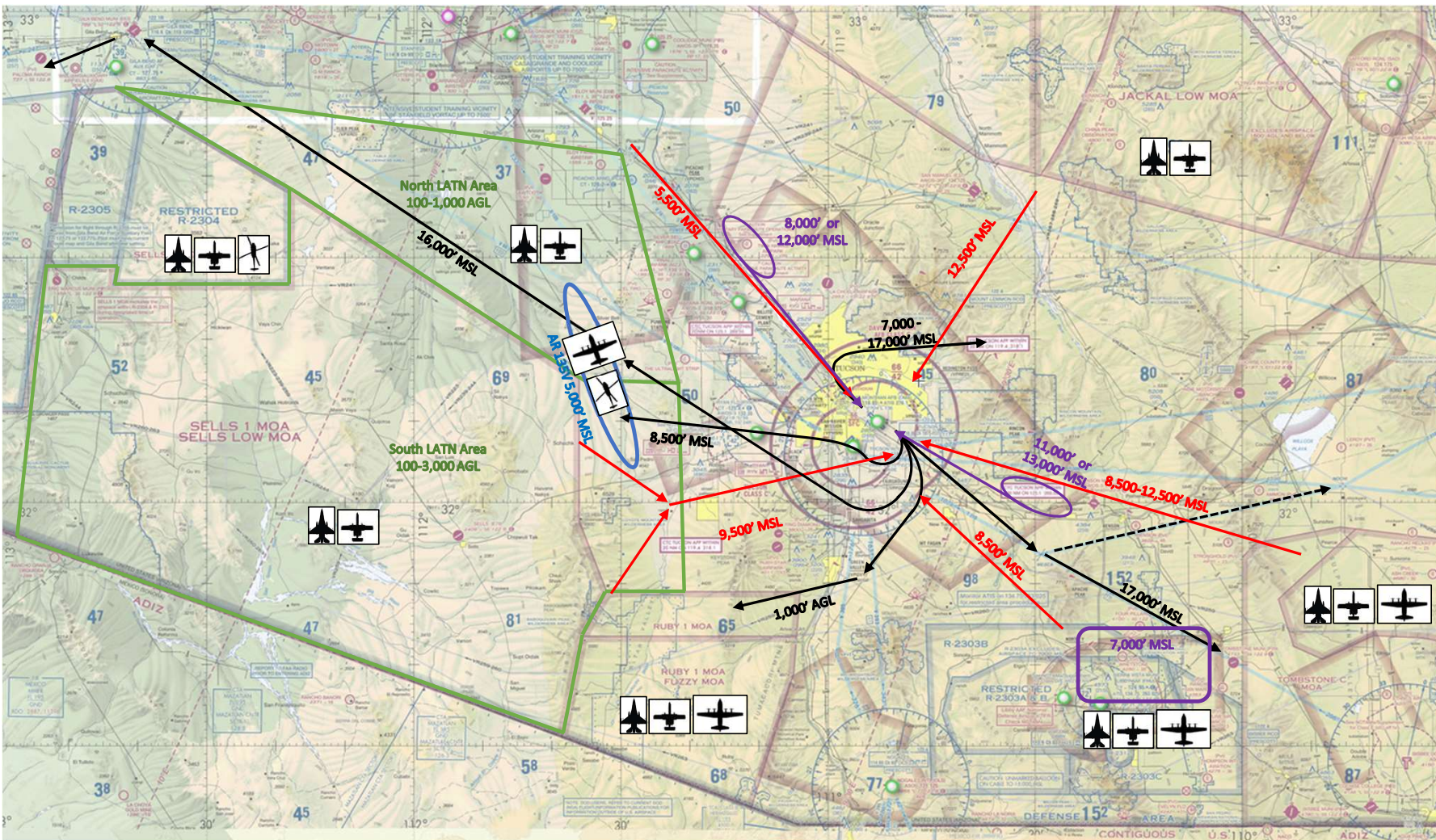


# DAVIS-MONTHAN LOCAL FLYING OPERATIONS

## LEGEND

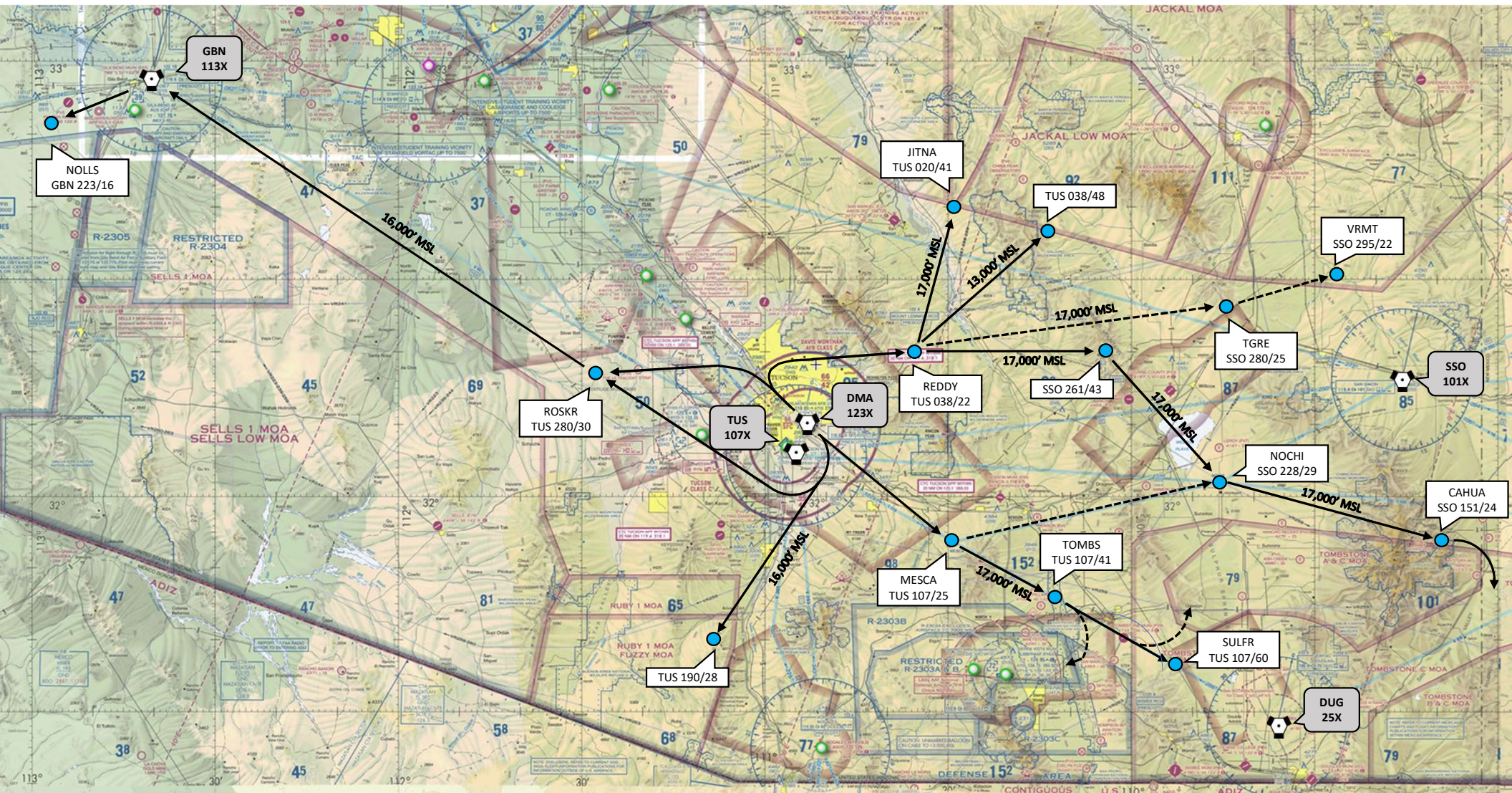
- DEPARTURES
- RECOVERIES
- AIR-TO-AIR
- REFUELING TRACK
- INSTRUMENT
- APPROACH
- LATN BORDER

-  A-10
-  F-16
-  HH-60
-  HC-130/EC-130



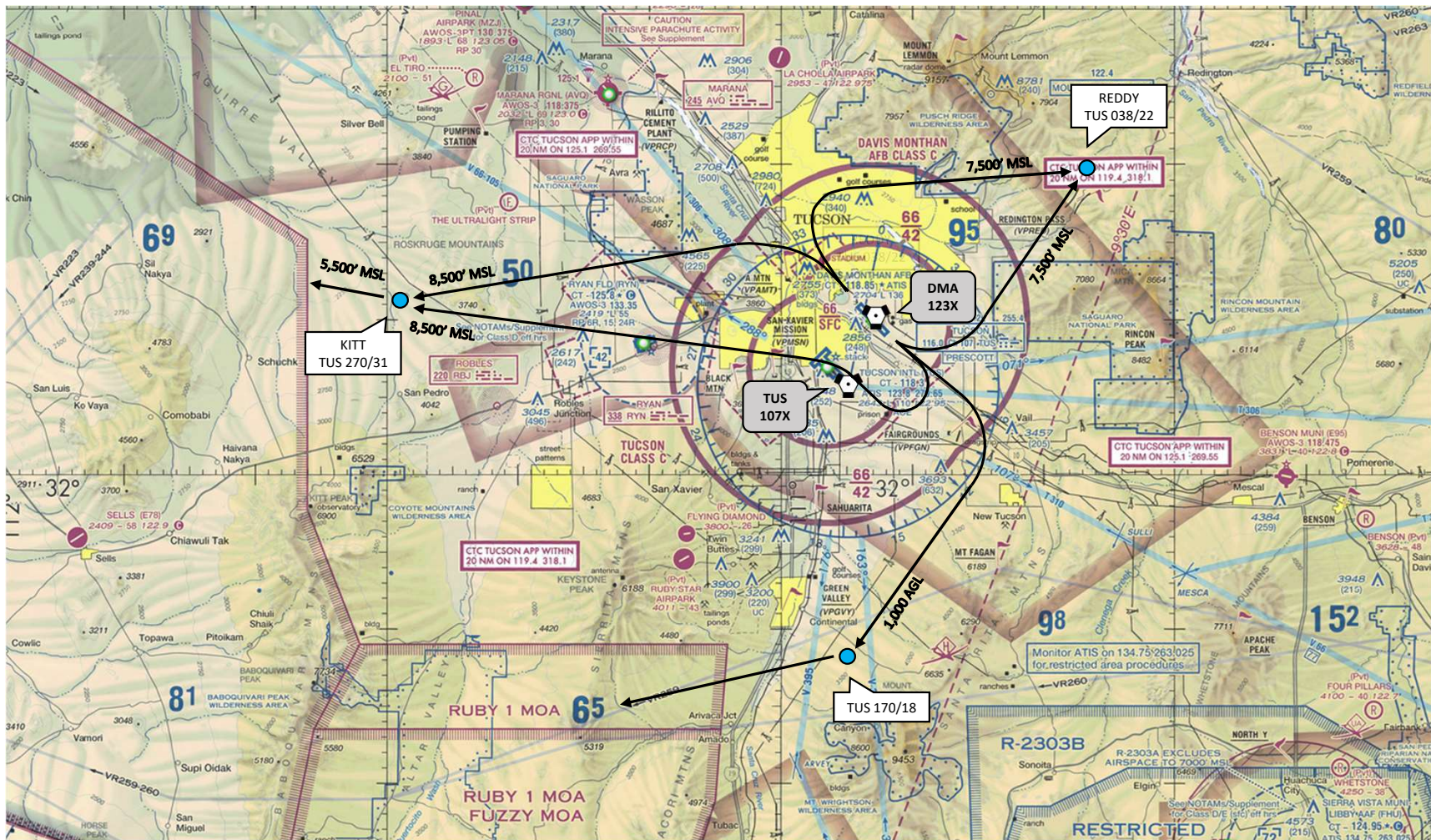


# IFR DEPARTURES



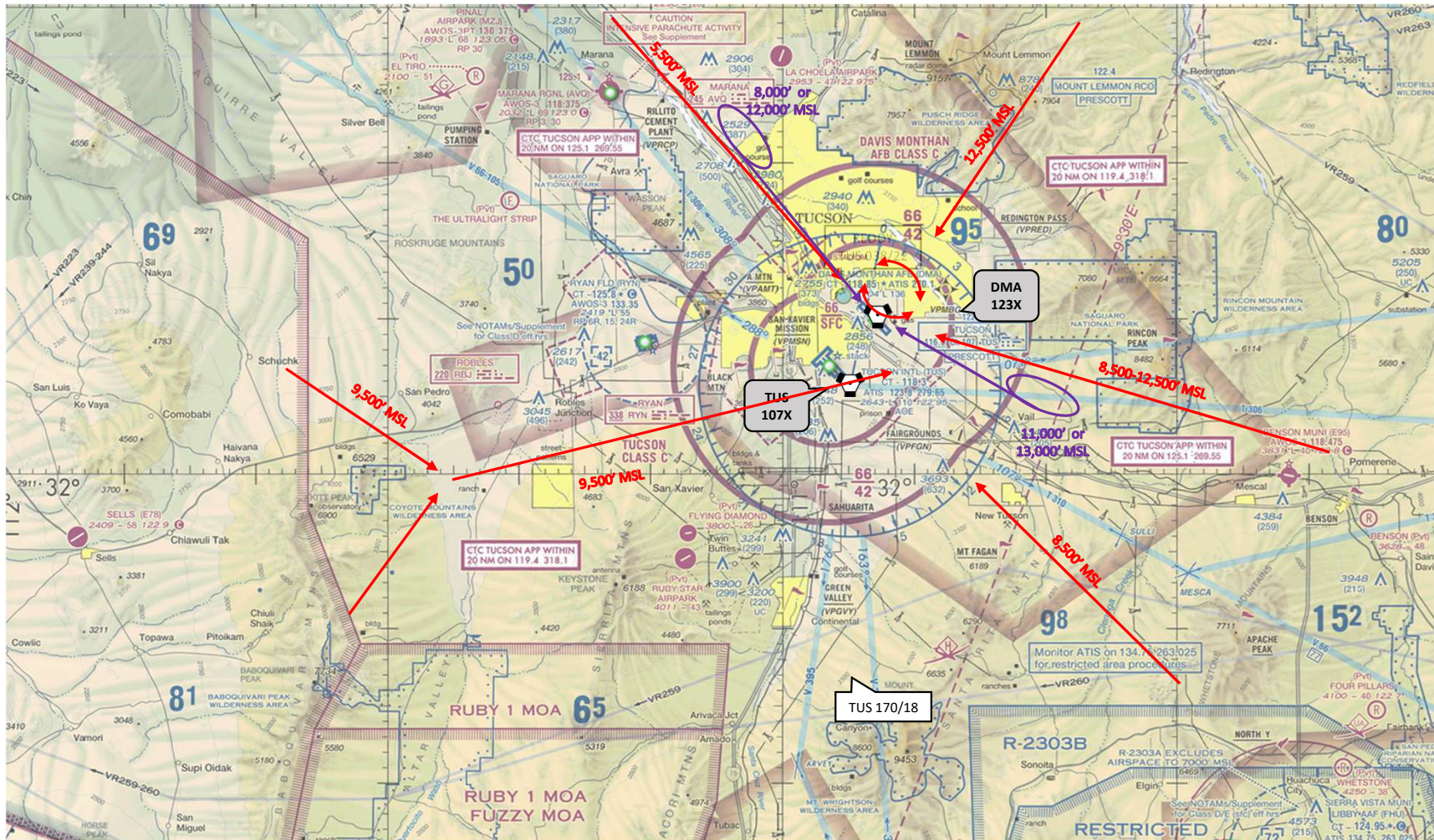


# VFR DEPARTURES



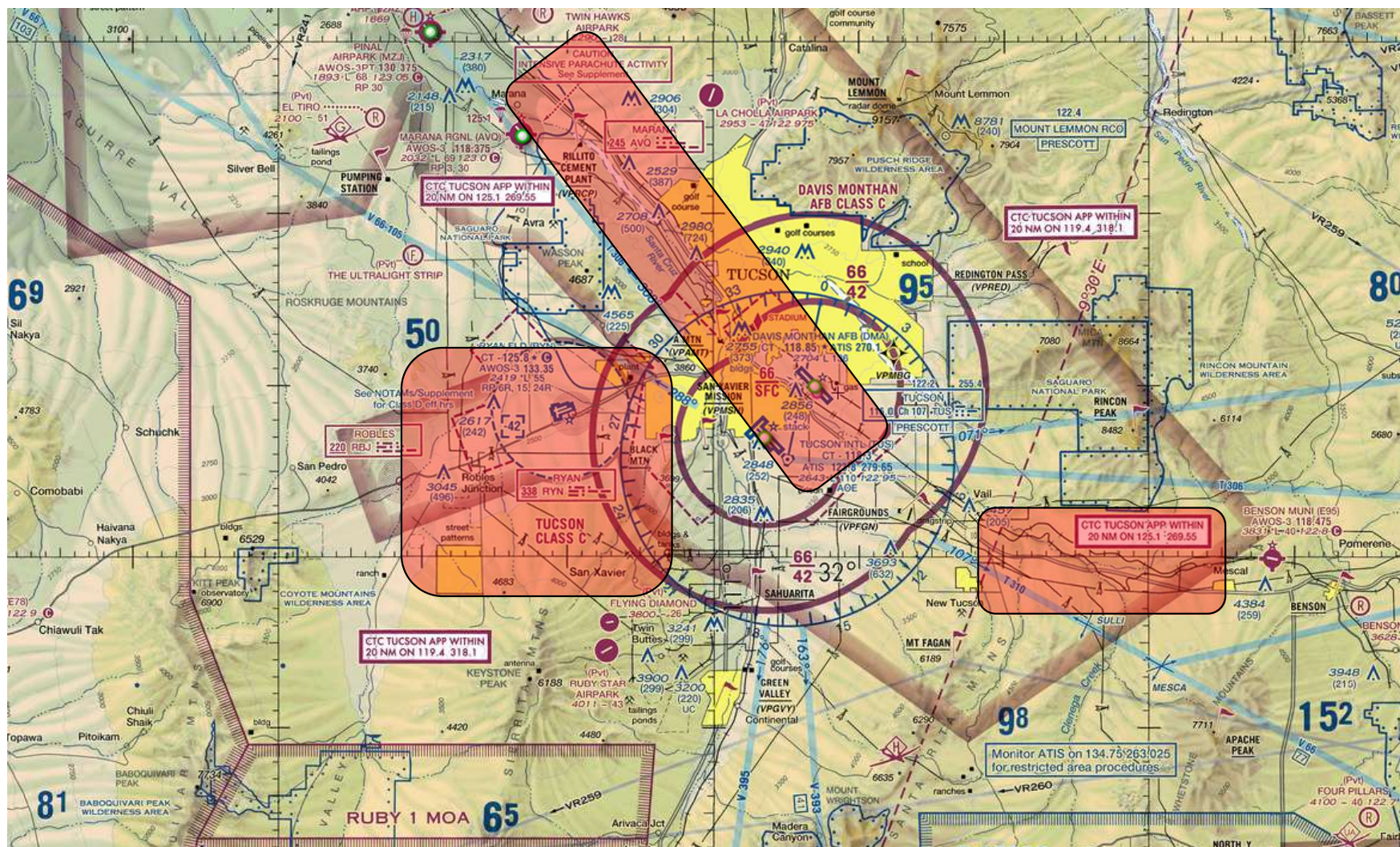


# RECOVERIES





## POTENTIAL HIGH CONFLICT AREAS



## HOW TO AVOID MID-AIR COLLISIONS

- Do not skim airport boundaries – talk with controlling agencies
  - Majority of mid-air collisions occur within 25 miles of an airport
- Use provided services – Albuquerque Ctr, Tucson Dep/App, etc.
  - Mil Aircraft typically tracked through them and can provide decon/callouts
    - Formations of 1-4 aircraft
    - IF YOU SEE ONE, LOOK FOR MORE
- Request Flight Following
- Check status of Special Use Airspace before entering
  - Avoid active MOAs
  - Actively scanning for other aircraft in Low Altitude Tactical Navigation (LATN) areas – Look for aircraft <1000' AGL and travelling 200-300 kts
  - Be aware of Military Training Routes (MTRs)
    - MTRs depicted on sectionals, but width is not





A-10 Departure: 1,500 fpm at 180-200 kts  
Cruise: 240-300 kts  
Approach: 134-150 kts  
TCAS: None  
Formation: 2-4



C-130 Departure: 1,500 fpm at 160-180 kts  
Cruise: 240-300 kts  
Approach: 120-140 kts  
TCAS: Yes



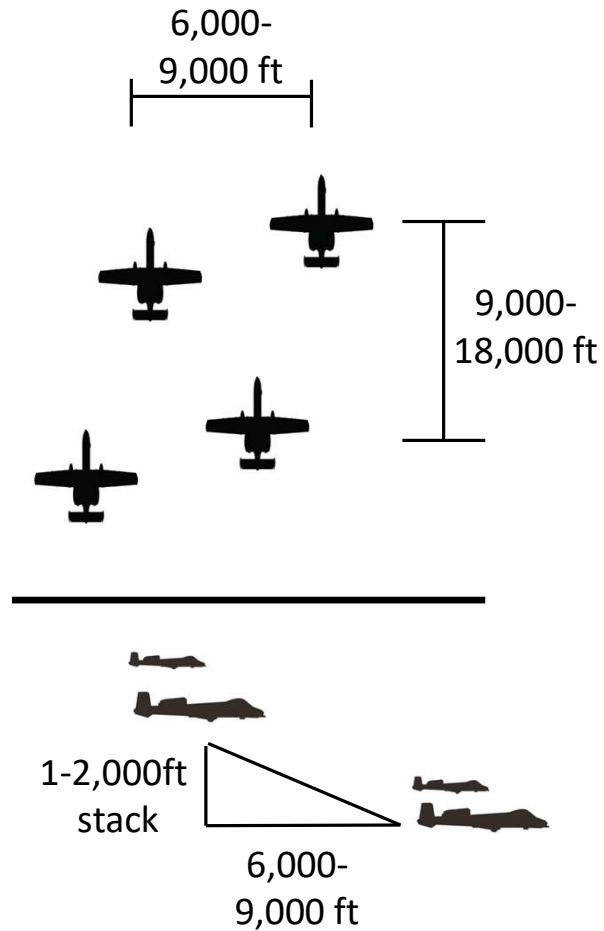
HH-60 Departure: 1,000 fpm at 90-120 kts  
Cruise: 120-150 kts  
Approach: 90-120 kts  
TCAS: None  
Formation: 2

***Look-out is  
Paramount!***

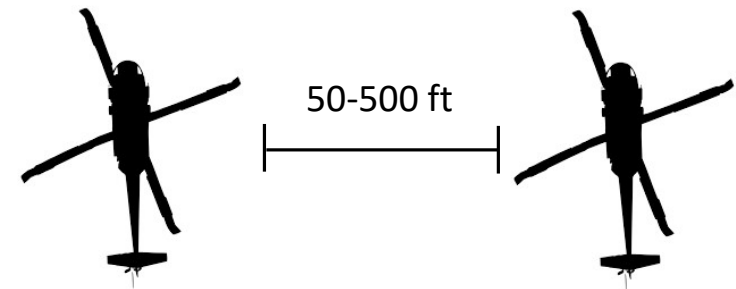


# IF YOU SEE ONE, KEEP LOOKING FOR MORE

## A-10s:



## HH-60s:





# SPECIAL USE AIRSPACE

- **MILITARY OPERATING AREA (MOA):** Block of airspace with defined vertical and lateral dimensions established to separate certain military activities from IFR traffic and to identify VFR aircraft where these activities are conducted.
  - Military pilots conducting flight in DOD aircraft within a designated MOA are exempt from the provisions of FAR part 91.303 (c) and (d), which prohibit acrobatic flight within Federal airways and Class B, C, D and E surface areas.
  - MOA's are depicted on sectional, VFR Terminal and Enroute Low Altitude charts.
  - VFR flight through MOA is not prohibited, but strong consideration should be made to avoid whenever able. Closure rates can quickly equal 1,000 feet per second.
- **RESTRICTED AIRSPACE:** Airspace where flight is not wholly prohibited but is subject to restrictions.
  - Denote the existence of unusual, often invisible, hazards to aircraft such as artillery fire, aerial gunnery, or guided missiles. Where other operations are authorized the name of the ATC controlling facility is published in low altitude charts.



# SPECIAL USE AIRSPACE

- AIR REFUELING TRACKS: Predetermined area where air-to-air refueling occurs between tanker and receiver aircraft.
  - Flight through tracks not prohibited, but every effort should be made to avoid while active.
- MILITARY TRAINING ROUTES: Corridors in which military aircraft can operate faster than the maximum safe speed of 250 knots below 10,000 feet MSL.
  - MTR's with no segment above 1,500 feet AGL are identified by four number characters (i.e., IR1206, VR1207)
  - MTR's that include one or more segments above 1,500 AGL are identified by three number characters (i.e., IR206, VR207)
  - Non-participating aircraft are not prohibited from flying within a MTR. However, **EXTREME VIGILANCE** should be exercised when conducting flight through or near these routes.
  - The FSS has information about route usage.

# Military Training Routes (MTRs)

## Myths and Truths

Myth: MTRs are shown on sectional charts.

Truth: Only the route centerline is shown on Sectional charts. The actual route width varies on each leg. Local MTRs are predominately 5-10 NM wide but may be up to 20 NM either side of the route centerline. Route widths are available on request from the nearest FSS.

Myth: MTRs are always flown below 1500' AGL

Truth: MTR altitudes differ and most contain segments above 1500' AGL. While MTRs are predominately flown below 1500' AGL, some routes have segments that require aircraft to climb above 1500' AGL. Only routes designated with 4 digits (i.e. VR 1233) guarantee all route segments are at or below 1500' AGL. Routes designated with 3 digits (i.e. VR 269) contain route segments that allow or mandate flight above 1500' AGL on portions of the route.

Myth: All aircraft below 10,000' MSL must operate at 250 KIAS or less.

Truth: Military aircraft are authorized to exceed 250 KIAS but not to exceed Super Sonic below 10,000' MSL.

Bottom Line = expect military aircraft at 500 kts in MTR.



# Military Training Routes (MTRs)

## Myths and Truths

*Myth:* MTR information is not a part of the standard FSS brief so it must not be important.

Truth: The first sentence of FAR9 1.303 reads “Each pilot in commands hall, before beginning a flight, become familiar with all available information concerning that flight.”

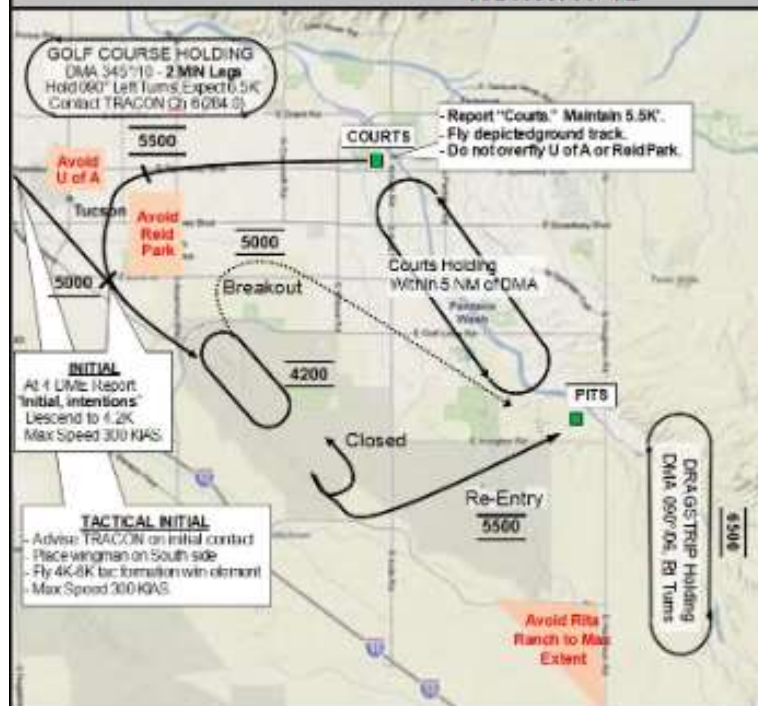
*Myth:* Military aircraft are always under ATC control.

Truth: Most MTR's are VR routes, which operate under VFR and rely upon “see and avoid.” Only a few MTRs are IR routes, which are cleared by ATC and separated from other IFR (only) traffic. ATC is not usually aware that a VR is being used and due to RADAR limitations may not be able to “see” aircraft operating along a particular MTR. However, MTR activity is available from the nearest FSS.

**Let's use our resources!**

# DAVIS-MONTHAN AFB VFR PATTERN

## RUNWAY 12



**PATTERN A/S: 250 KIAS**  
(300 KIAS Max at Initial)

**Standard IFR Climbout:**  
Heading 105° to 7K'

### RE-RUN

**Departure End:** Left 060°,  
Climb to 6.5K'

**4 DME - Turn Left 295°**

**Contact TRACON 284.0 (CH 6)**

### BREAKOUT

**Climbing Right turn to 5K',**  
direct PITS

### STRAIGHT-IN

**NOT Authorized from**  
**COURTS - Request RE-RUN**

### DEPARTURES

**Remain below 3.7K' until clear**  
of the overhead pattern

## RUNWAY 30

**PATTERN A/S: 250 KIAS**  
(300 KIAS Max at Initial)

**Standard IFR Climbout:**  
Heading 315° to 7K'

### RE-RUN

**Departure End:** Right 060°,  
Climb to 6.5K'

**4 DME - Turn Right 125°**

**Contact TRACON 284.0 (CH 6)**

### BREAKOUT

**Climbing Left turn to 5K', direct**  
**COURTS**

### STRAIGHT-IN

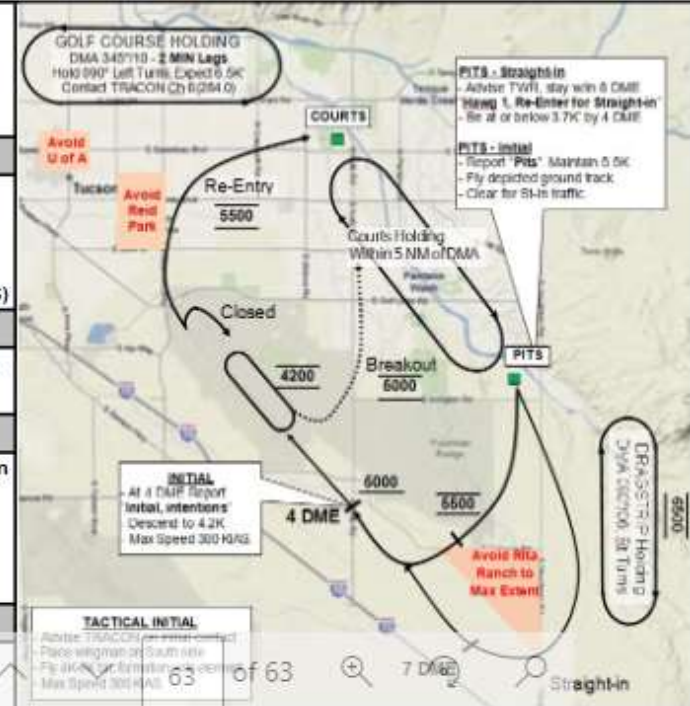
**Advise Tower of intentions on**  
**the go**

**PITS - Fly South around Rita**  
**Ranch**

**Remain within 8 DME**

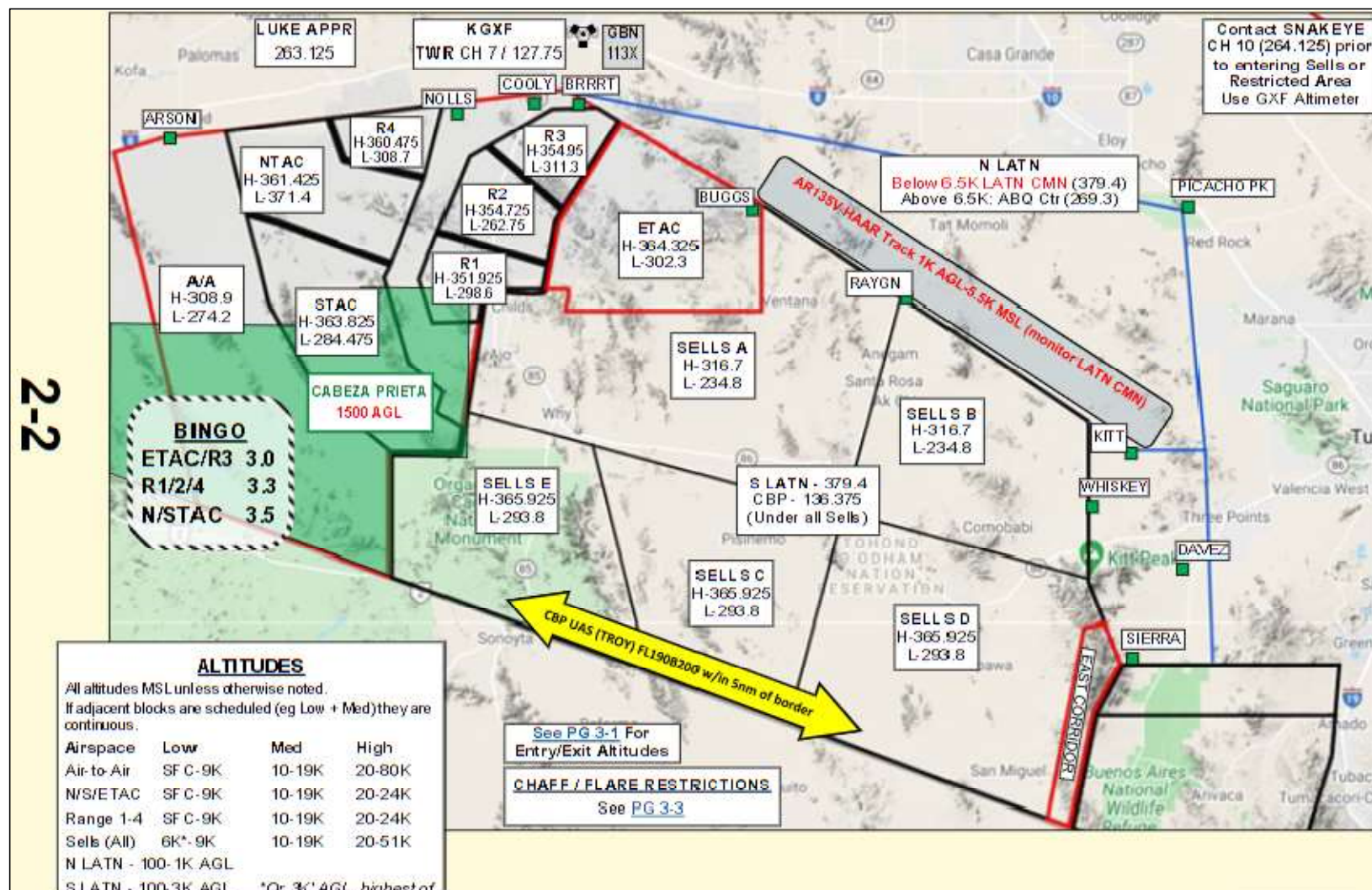
### DEPARTURES

**Remain below 3.7K' until clear**  
of the overhead pattern





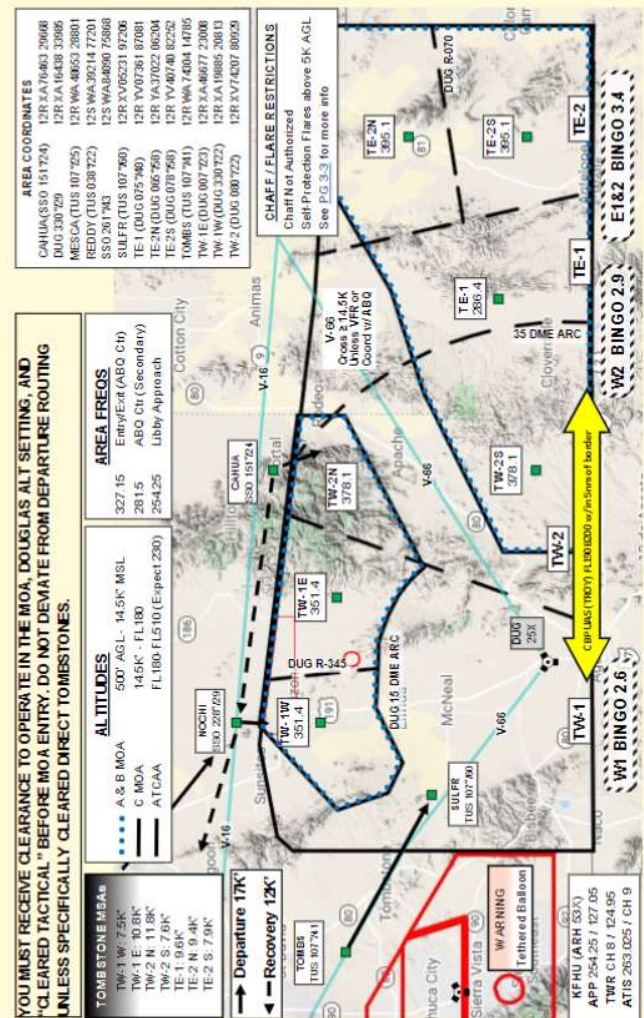
# BARRY M. GOLDWATER RANGE COMPLEX





# COMMONLY USED MOA AIRSPACE

## TOMBSTONE MOA





Remember ...  
Safety Always!



LET'S NOT MEET BY ACCIDENT!