MACA

Mid-Air Collision Avoidance

HILL AIR FORCE BASE, UTAH

MIDAIR COLLISION AVOIDANCE

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FAA Safety Team (FAAST)

FAAsafety.gov

FAASTeam MISSION STATEMENT

Improve the Nations aviation accident rate by conveying safety principles and practices through training, outreach, and education; while establishing partnerships and encouraging the continual growth of a positive safety culture within the aviation community.

JOIN THE TEAM!

FAASTeam Members can be anyone who makes a conscious effort to promote aviation safety and become part of the shift in safety culture.

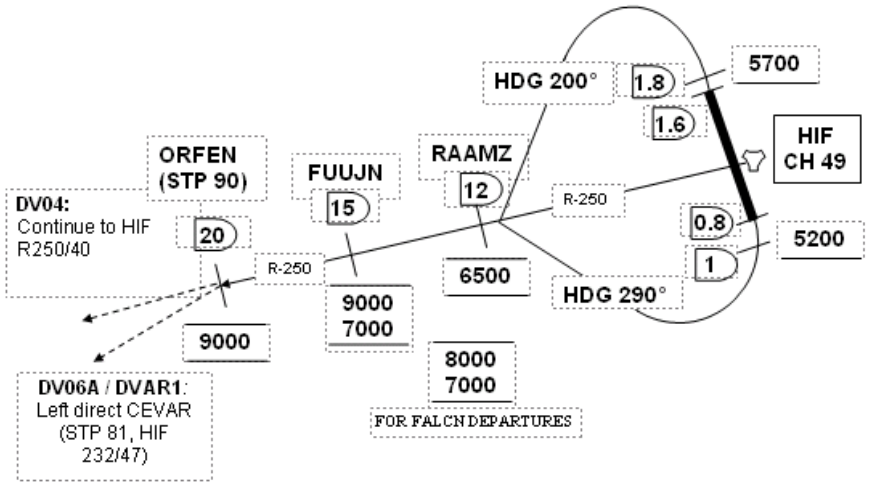
To become a member:

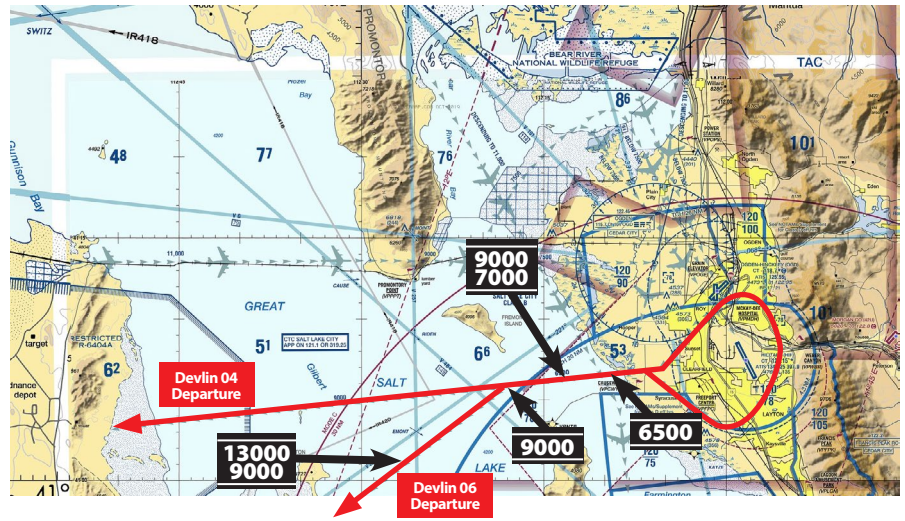
- Sign-up at FAASafety.gov and take part in all it has to offer
- Pilots: participate in our new **WINGS** —Pilot Proficiency Program
- Mechanics: participate in the new automated AMT Awards Program
- Attend live FAASTeam events in your area

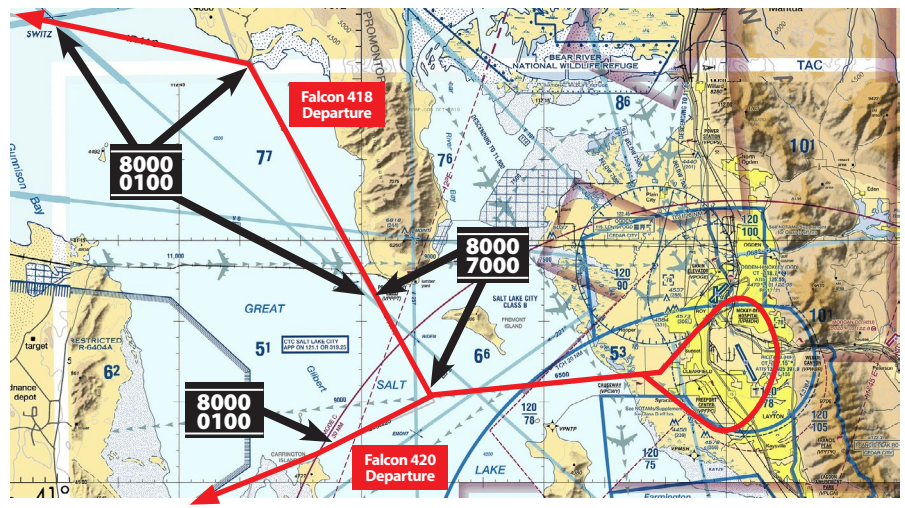
HILL AFB DEPARTURE AND ARRIVAL ROUTES

DEPARTURES:

The majority of the departures off of Hill follow an immediate turn to the west and a climb to 6,500'-7,000' MSL. General Aviation following the I-15 corridor need to remain below 5,800' MSL to avoid military traffic. General Aviation following the Great Salt Lake shore line need to remain below 6,000' MSL. See Jeppeson or Department of Defense Flight Information Publications for published routes and altitudes. Hill AFB also uses special procedures to facilitate Functional Check Flights, Flight Tests, DEMO, and local training which are included in this publication.



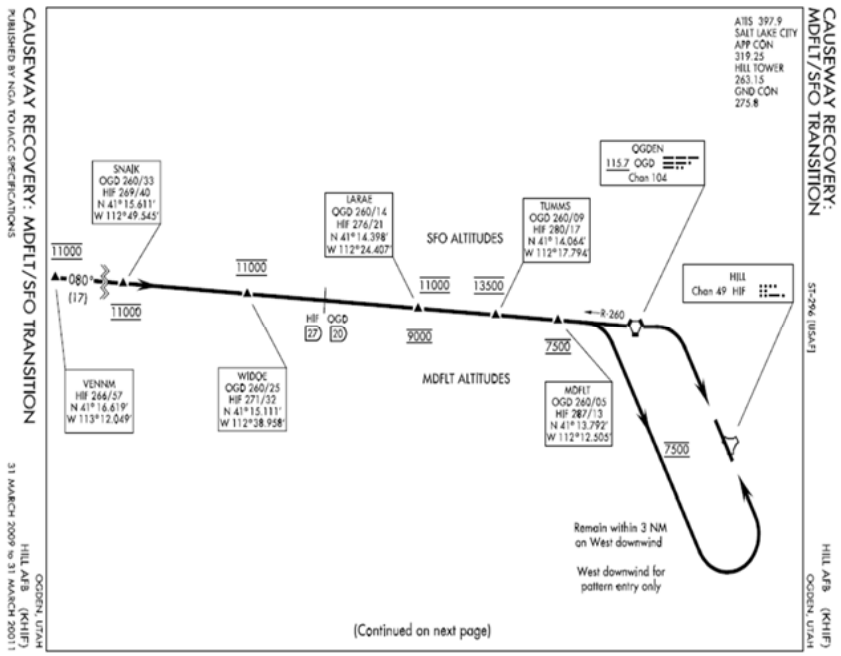




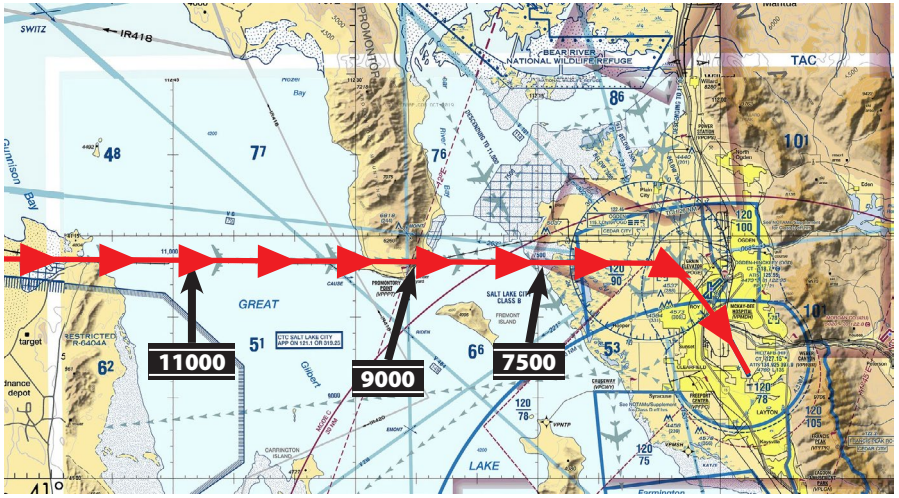
HILL AFB DEPARTURE AND ARRIVAL ROUTES

ARRIVALS:

Hill AFB utilizes several recoveries for IMC or VMC conditions which are included in this publication as well as published IFR recoveries. The primary VFR route is for fighters returning from the Utah Test & Training Range to the west. Aircraft will follow the railroad causeway descending out of 11,000' as they pass the Promontory Mountains in a gradual descent to 7,500' MSL approaching the Ogden Tacan. If operating on Runway 32, aircraft will fly southbound to the west of the base between 7,500' and 6,800'. If landing on Runway 14, flights will overfly the Ogden Tacan and descend to 6,800' en-route to the overhead or straight in pattern. Military traffic can be as low as 5,700' MSL over Ogden Airport.



CAUSEWAY 4 RECOVERY



HILL AFB PROCEDURES

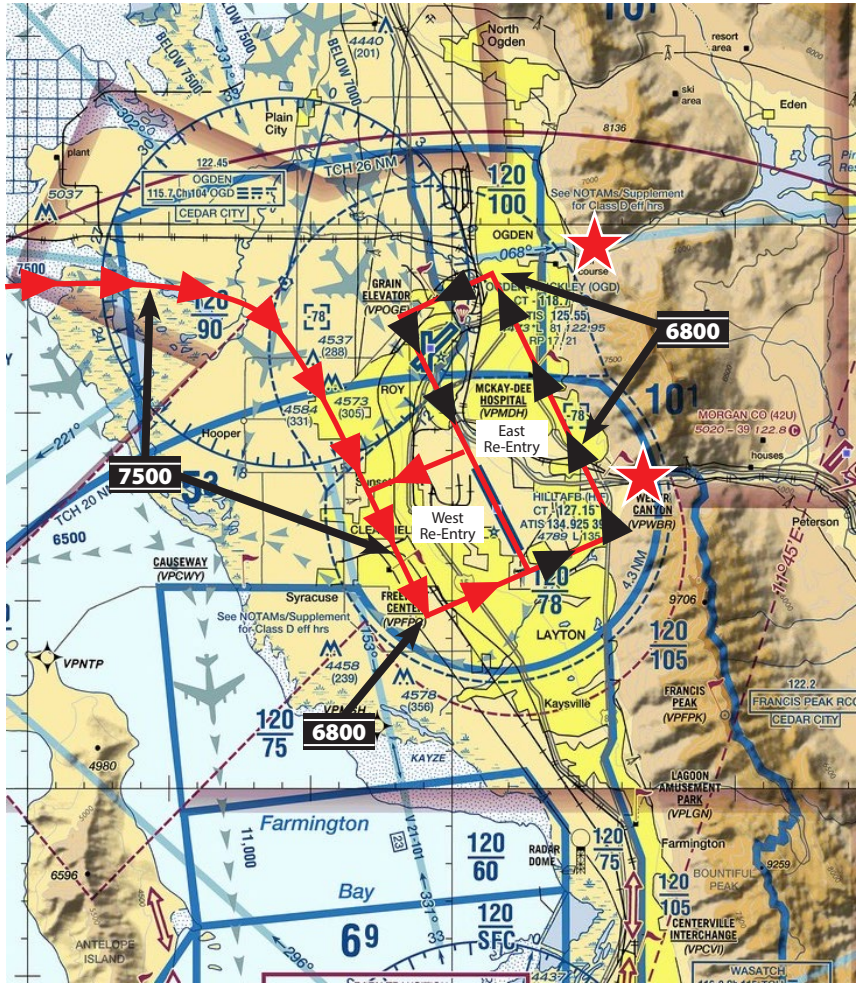
Hill AFB uses a VFR OVERHEAD PATTERN during VMC to expedite recovery and landing of fighter type aircraft. The pattern consists of two 180 degree turns and resembles a race track. It begins at approximately 3 to 5 NM from the approach end of the runway at an altitude of 6800' MSL. Normal airspeed for flying initial is 300 KIAS with speed decreasing through the turns. Over the approach end of the runway the pilot makes a 180 degree turn to downwind, then makes another 180 degree turn to complete the base to final portion of the pattern. The pattern is concluded either by a full stop or missed approach.

Hill AFB also utilizes a SIMULATED FLAMEOUT APPROACH (SFO) to simulate a loss of engine thrust on fighter-type aircraft. The approach begins above the airfield at 13,500' MSL (High Key). When the approach is started, the aircraft is in a steep turn, east of the field, with the pilot looking for his landing point on the runway. This pattern does not allow the pilot time to search for other aircraft once he begins. The pilot will call Low Key approximately 7,000/10,000'MSL almost even with the approach end of the runway at which time he will be cleared for a low approach.

To RE-ENTER the Hill traffic pattern from a MISSED APPROACH, the aircraft will fly runway heading to the Hill TACAN 2 DME, then make a right turn crossing 1-15 above 6300'MSL. The fighter will then turn north around the Freeport Center and continue so his base turn places him I NM south of the Ogden Airport. Altitude and air-speed will be 6800'MSL and 300 KIAS respectively.

To remain in a CLOSED PATTERN, after a low/missed approach, the pilot will continue to the end of the runway and make a climbing left turn (towards the mountains) to an altitude of 6800' MSL. This will place him in the pattern on a left downwind. Aircraft departing Weber Canyon should be aware of aircraft in this traffic pattern due to the aircraft being belly up to the mountains.

HILL TRAFFIC PATTERNS



★ = POTENTIAL CONFLICT AREAS

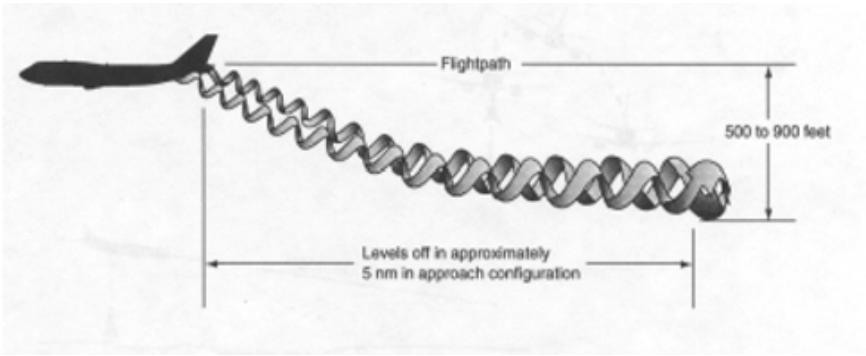
WAKE TURBULENCE

JUST WHEN YOU THOUGHT IT WAS SAFE!

You may be able to see and avoid the big airplanes, but one thing you can't see is their wake turbulence! There is an area of potential disaster behind and below every commercial and military aircraft. Wake turbulence can be deadly, especially when it is encountered close to the ground. All pilots flying in the vicinity of large aircraft should exercise extreme caution and ensure up to 6 mile separation on landing and 2 minutes or 4-5 mile radar separation for takeoff, depending on the type of aircraft. Remember that wake turbulence can be so severe as to cause loss of aircraft control and/or catastrophic structural failure.

Please keep in mind that virtually all types of aircraft in the U.S. and NATO inventories can and do operate out of Hill AFB, the Utah Test and Training Range (UTTR), and Salt Lake International Airport (SLIAP) frequently. All possess varying degrees of performance, speed, gross weight, wake turbulence, visibility restrictions, maneuverability, and camouflage. All these factors can increase the potential for mid-air collision.

Additionally, remember that military aviators often train in formation flying. Even the heavy KC-135 flies formation missions with up to several aircraft launching 30 seconds apart and flying en-route with one-mile horizontal and 500 foot vertical separation. The fighter aircraft frequently fly in two or four-ship formations at high rates of speed. If you see one aircraft, look for others!

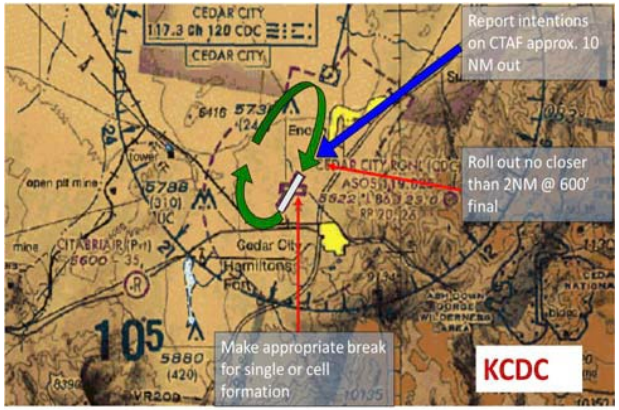


KC-135 @ KCDC

VFR Overhead Pattern

Started from an initial altitude of 1500ft or 2000ft AGL.

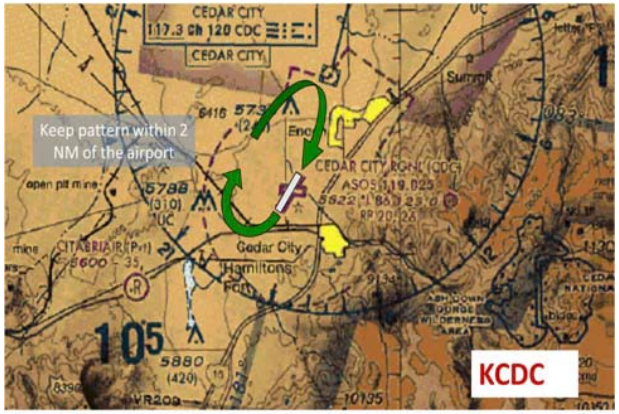
Patterns may be to the left or the right staying clear of the city.



Visual Pattern

Pattern altitude normally 1,500 ft AGL

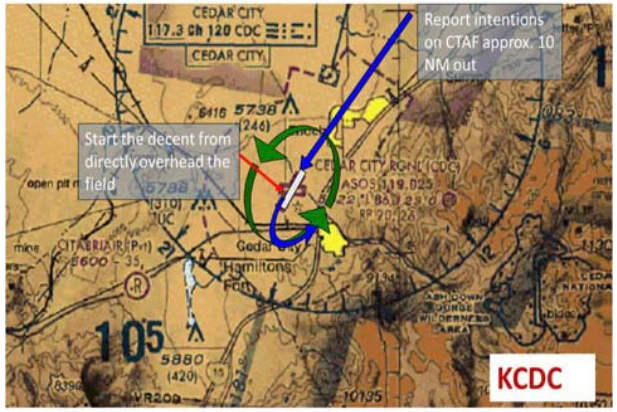
Pattern may be made to the left or the right staying clear of the city.



Spiral Arrival

Turns may be made to the left or right staying over the field.

Maintain 6,000ft to 10,000ft AGL until within 4 NM of the airfield.

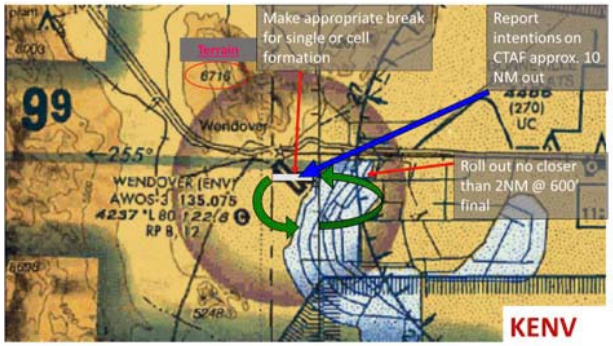


KC-135 @ KENV

VFR Overhead Pattern

Started from an initial altitude of 1500ft or 2000ft AGL.

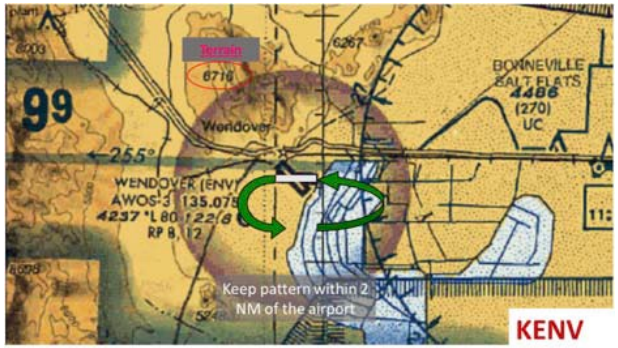
Patterns may be to the left or the right staying south of the runway.



Visual Pattern

Pattern altitude normally 1,500 ft AGL

Pattern may be made to the left or the right staying south of the runway.



Spiral Arrival

Turns may be made to the left or right staying over the field.

Maintain 6,000ft to 10,000ft AGL until within 4 NM of the airfield.

KC-135 @ KTWF

VFR Overhead Pattern

Started from an initial altitude of 1500ft or 2000ft AGL.

Patterns may be to the left or the right staying south of the runway.

Visual Pattern

Pattern altitude normally 1,500 ft AGL

Pattern may be made to the left or the right staying clear of the city.

Spiral Arrival

Turns may be made to the left or right staying over the field.

Maintain 6,000ft to 10,000ft AGL until within 4 NM of the airfield.

KC-135 @ KHIF

VFR Overhead Pattern

Started from an initial altitude of 1500ft or 2000ft AGL.

Patterns may be to the left or the right. Caution for terrain to the east.

Visual Pattern

Pattern altitude normally 1,500 ft AGL

Pattern may be made to the left or the right while staying clear of the terrain to the east.

Other Fields frequented by 151 ARW KC-135's include:

- KGJT Grand Junction, CO
- KRKS Rock Springs, WY
- KPIH Pocatello, ID
- KIDA Idaho Falls, ID
- KSGU Saint George, UT

AIRSPACE AND RULES OF THUMB

CLASS B AIRSPACE:

Salt Lake Center Airspace provided to give relational reference.

RECOMMENDED VFR ALTITUDES FOR GENERAL AVIATION

To best avoid conflict with military aircraft departing and returning to Hill AFB, we recommend you fly 8500' MSL when west bound and 9500'MSL when east bound along the Southern Pacific Causeway or the Western Pacific Railroad and 1-80). Stay above 7800'MSL or below 5800'MSL while flying along US 89 (The Mountain Hwy) east of Hill AFB.

RADAR SERVICES: Salt Lake Approach Control provides radar traffic advisory service to aircraft within 40 miles of the Salt Lake International Airport. Within this area Class B service is provided for aircraft operating to and from Ogden Airport. This service consists of traffic advisories and traffic sequencing.

Class B service is available to aircraft flying in the vicinity of SLIAP. This service provides separation, traffic advisories, and sequencing between the participating VFR aircraft and all IFR aircraft within the terminal radar service area.

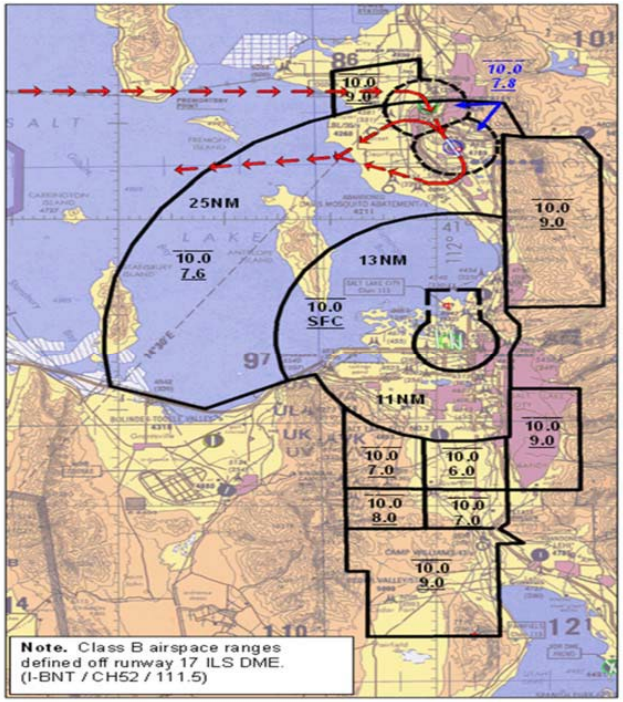
CLASS D AIRSPACE:

The Ogden Class D airspace is located northwest of the Hill AFB Class D airspace and the two overlap. This overlap requires special consideration and the following items should be kept in mind:

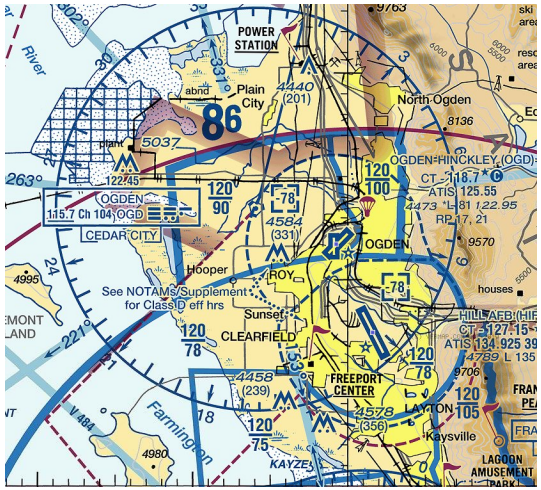
Ogden and Hill AFB Class D airspace extends from the surface to 7800' MSL. VFR and Non-precision IFR approaches to Runway 14 at Hill AFB pass through the Ogden Class D airspace, but keeps military traffic at or above 5700' MSL until past the Ogden Airport.

Ogden Airport Tower hours of operation are 0700-2000L. When Ogden is closed, the northwest portion of the Hill Class D airspace becomes active. Aircraft entering this area while Ogden Tower is closed should contact Hill AFB Tower on 127.15 MHz for advisories.

SALT LAKE CENTER CLASS B AIRSPACE



HILL AFB AND OGDEN CLASS D AIRSPACE



VFR frequencies for contacting Salt Lake Approach Control vary according to location. Contact Approach Control as follows:	121.1	North of Ogden Airport
	120.9	Between Ogden and SLIAP
	120.9	West of SLIAP
	120.9	South of SLIAP

Every Pilot's Role In Collision Avoidance

Request Flight Following

Ensure transponder is on and reporting Mode 3 and C at all times

Broadcast intentions via CTAF at uncontrolled airports

Ensure proper exterior lighting; it is recommended to turn landing/taxi lights on when operating within 10nm of any airport.

If operating IFR, don't count on ATC to keep a mid-air from happening–remain vigilant and SEE and AVOID.

Use all available resources to plan for a safe and enjoyable flight.

Profile of a Mid-Air

A three year study by the NTSB determined that:

- Most midair collisions occurred during a pleasure flight with no flight plan.
- Nearly all occurred in VFR conditions during weekend, daylight hours.
- The majority were the result of faster aircraft overtaking and hitting a slower aircraft.
- No pilot is immune. Experience levels ranged from initial solo to the 15,000 hour veteran.
- The vast majority occurred at uncontrolled airports below 3,000 feet.
- En-route mid-airs occurred below 8,000' and within 25nm of an air-port.
- Flight instructors were on-board one of the aircraft in 37% of the mid-airs.

SPECIAL USE AIRSPACE

UTAH TEST AND TRAINING RANGE (UTTR)

The airspace comprising the UTTR is a combination of restricted airspace and Military Operations Areas (MOA's) intersected by V32-200 (basically I-80 west of Salt Lake to Wendover). The UTTR is divided into a north (118.45) and south (134.1) range. The north range complex includes restricted areas R6404 A, B, C, and D and the Lucin MOA's, which are north of 1-80/V32. The south range complex includes the restricted areas R6406 A and R6407, R6402 A and B, and R 6405 and the Sevier and Gandy MOAs which are south of I-80. The restricted area altitudes extend upward to 58,000' MSL. The MOA altitudes are published below 18,000' MSL. UTTR activity and hours of operation are NOTAM'd through Salt Lake Center. Clover Control (134.1 or 118.45) is the agency to contact for traffic advisories and clearance through the UTTR when the restricted airspace is in use. Also, the hours of activity can be obtained through Clover Control (801-777-7575) or the nearest Flight Service Station. If Clover Control is not operational the pilot can contact Salt Lake Center on 128.55 for transition through the UTTR VFR at and above 10,500' MSL. **Due to safety restrictions, general aviation cannot transition through the UTTR below 10, 000' without Clover Controller being operational.**

RESTRICTED AREAS: Restricted areas denote the existence of unusual, often invisible hazards to aircraft such as artillery firing, aerial gunnery, or guided missiles. Penetration of Restricted Areas without authorization from the using agency may be extremely hazardous to the aircraft and its occupants. Violations will be processed against intruders and forwarded to the Flight Standards District Office for investigation and possible prosecution.

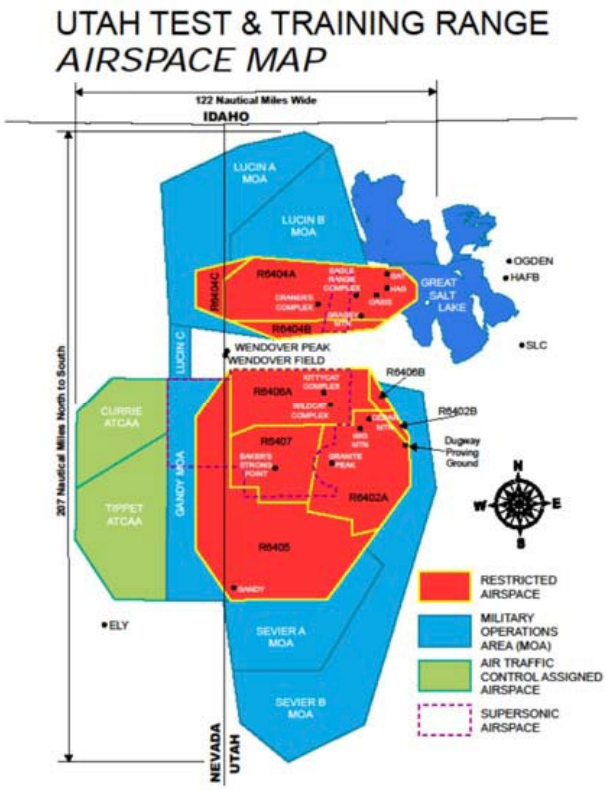
MILITARY OPERATIONS AREAS (MOAs): Most training activities necessitate acrobatic or abrupt flight maneuvers. Military pilots conducting flight in Department of Defense aircraft within a designated and active Military Operating Area (MOA) are exempted from the provisions of FAR 91.303 (c) and (d) which prohibit acrobatic flight within Federal Airways and Control Zones.

Pilots operating under VFR should exercise extreme caution while flying within a MOA when the military activity is being conducted. Therefore pilots should contact any FSS within 100 NM of the area to obtain accurate real-time information regarding the MOA hours of operation. Prior to entering an active MOA adjacent to the UTTR, pilots should contact Clover Control on VHF 134.1 or 118.45 (as depicted) for traffic advisories.

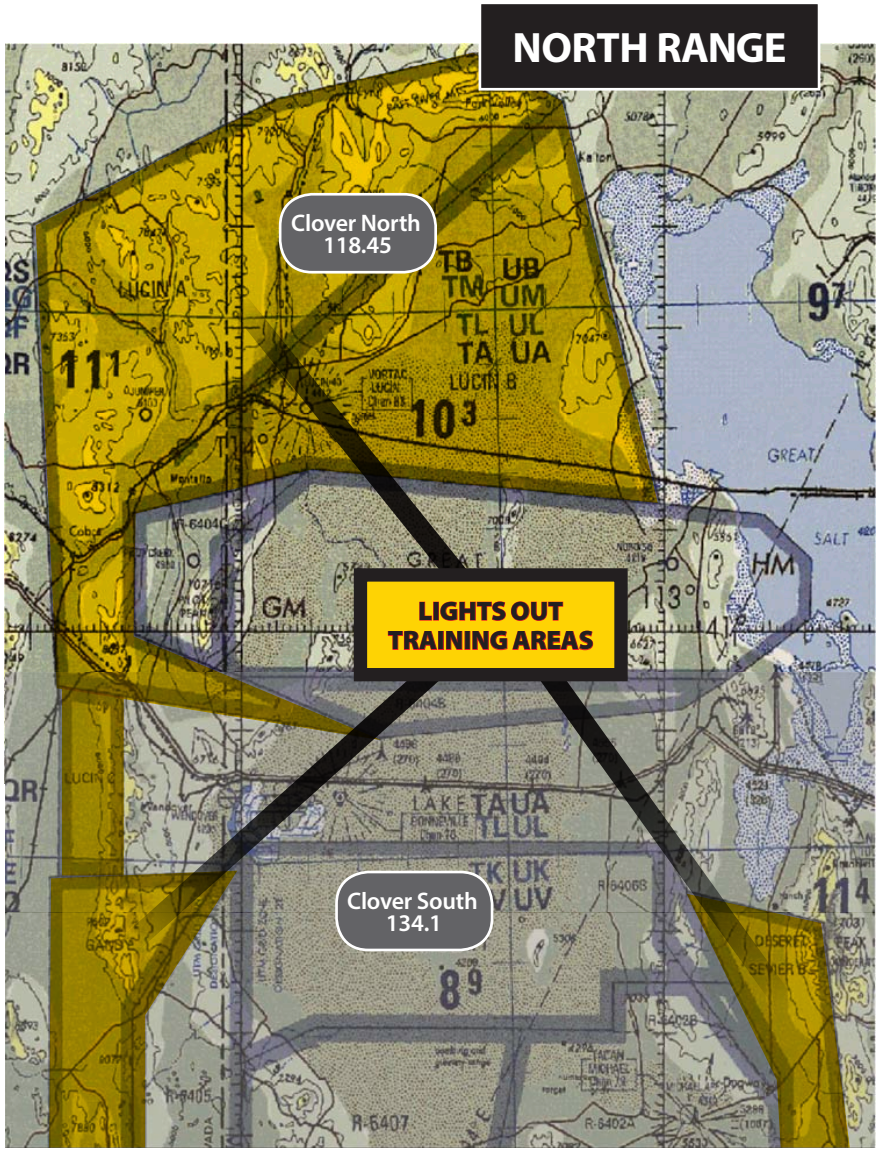
MILITARY TRAINING ROUTES (MTRs): Seven MTRs are located near the UTTR. Generally, MTRs are established below 10,000' MSL for operations at speeds in excess of 250 KIAS. However, some segments may extend to higher altitudes due to terrain or climb or descent requirements. There are IFR and VFR military training routes.

IFR Military Training Route (IR) Operations on IR routes are conducted under Instrument Flight Rules (IFR) regardless of weather conditions. VFR Military Training Route (VR) Operations on VR routes are always conducted in accordance with Visual Flight Rules (VFR).

Military Training Routes are depicted on the VFR Sectional, and Low Altitude En-route Charts. Normal width of the route is 10 NM to 2 NM each side of the centerline for IR routes and 10 NM to 2 NM for VR routes (although some of the segments of these routes may be as narrow as 2 NM or as wide as 10 NM). For current information on routes in your vicinity (to include times in use, altitudes, and actual width), contact any FSS within 100 NM of the route. Give the specialist your position, route of flight, and destination when requesting information on MTRs in your vicinity. This will permit the FSS specialist to identify any MTRs which could be a factor to you.

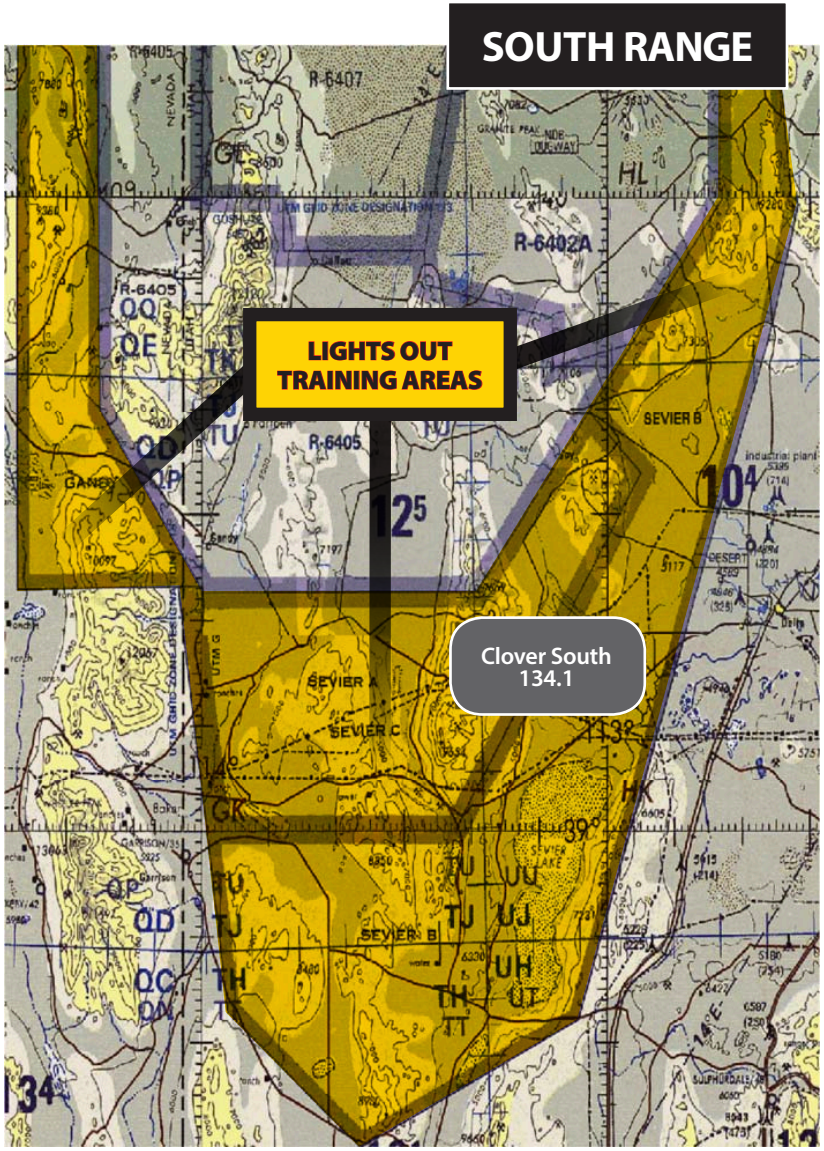


UTAH TEST AND TRAINING RANGE (UTTR)



LIGHTS OUT OPERATIONS IN THE MOAs

Military aircraft have been approved to conduct lights out training operations in the Lucin, Sevier, and Gandy MOAs. The training will be stopped for any observed traffic, however, the radar coverage in this area does not extend to the surface. Clover control can provide flight following on 118.45 or 134.1 (as depicted below)



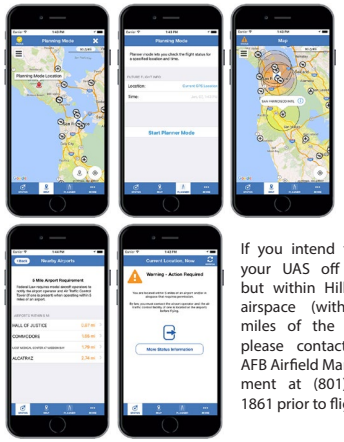
Unmanned Aircraft Systems (UAS)

Whether you're a novice drone pilot or have many years of aviation experience, it's important you know the latest information and requirements to safely and legally operate your recreational or commercial UAS.

PILOT INFORMATION

There are requirements and processes to become a pilot. The website www.faa.gov/uas has all the information and links needed to walk you through the process, whether your a first time pilot or existing pilot.

B4UFLY is an easy-to-use free smartphone app that helps unmanned aircraft operators determine in real time whether there are any restrictions or requirements in effect at the location where they want to fly. Below are sample screen shots.



If you intend to fly your UAS off base but within Hill AFB airspace (within 5 miles of the base) please contact Hill AFB Airfield Management at (801)-777-1861 prior to flight.

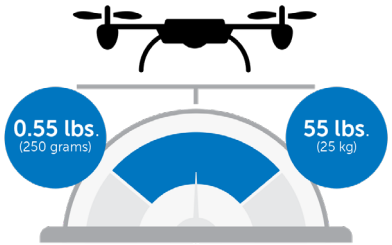
AIRCRAFT REQUIREMENTS

2 Options for Flying Your Drone

There are two options to fly your drone legally. Each option has different requirements depending on how you want to fly. Visit www.faa.gov/uas/getting_started/ to find out.

REGISTRATION

Register your aircraft at https://faadronezone.faa.gov/#/ if it weighs more than 0.55 lbs. (250 grams) and less than 55 lbs. (25 kg).



You will be subject to civil and criminal penalties if you fail to meet the criteria to register an unmanned aircraft and do not register an UAS.

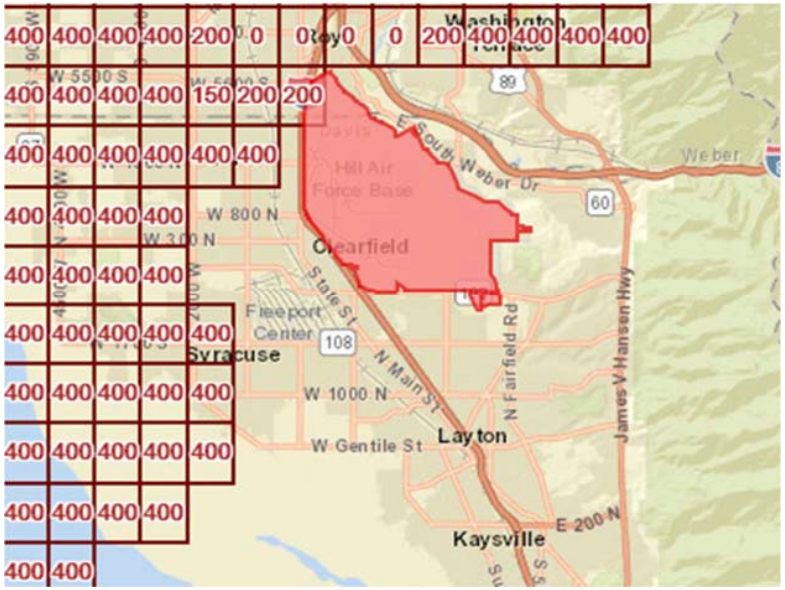
Quick Checklist

- **DO** read & understand all safety guidelines
- **DO** register UAS if over .55 lbs (& less than 55 lbs) & label UAS w/registration number
- **DO** contact the airport or control tower when flying within 5 miles of the airport
- **DO** fly at or below 400 feet
- **DO** fly a model aircraft/UAS at the local model aircraft club
- **DON'T** fly near manned aircraft
- **DON'T** fly beyond line of sight of the operator
- **DON'T** fly an aircraft weighing more than 55 lbs unless it's certified by an aeromodeling community-based organization
- **DON'T** fly contrary to your aeromodeling community-based safety guidelines
- **DON'T** fly model aircraft for payment or commercial purposes

Hill AFB Special Security Instructions (SSI)

What Are Special Security Instructions (SSI)

The FAA, under 14 CFR § 99.7 — Special Security Instructions (SSI), has prohibited all UAS flights within the airspace defined under UAS NOTAM FDC 7/7282. The restrictions extend from the ground up to 400 feet AGL, apply to all types and purposes of UAS flight operations, and remain in effect 24 hours a day, 7 days a week.



UAS Flight Restrictions

Proponent	DOD
Branch	USAF
Base	Hill Air Force Base
Facility	Installation 3
Airspace	D
Reason	National Security
County	Davis
State	Utah
FAA_ID	20171208-DOD-Hill AFB-Installation 3
POC	Airspace Manager, 801-777-3592 (including emergency)
Floor	Surface
Ceiling	400' AGL

https://uas-faa.opendata.arcgis.com
https://www.faa.gov/uas/

USEFUL CONTACTS

Hill AFB Flight Safety
75 ABW/SEF
801-777-2067/2932
75ABW.SE.Workflow@us.af.mil

Utah Air National Guard
Flight Safety
151st ARW/SE
Salt Lake City, Utah 84116
801-245-2608

Salt Lake City Flight Standards
District Office
801-257-5020

Hill Tower
75th Operations Support Sq.
801-777-3745
Freq: 127.15 / 263.15

Ogden Tower
801-625-5569
Freq: 118.7 / 253.5

"Clover Control"
Utah Test and Training Range
801-777-7575
Freq: 134.1 / 118.45

388th Fighter Wing Flight Safety
388 FW/SEF
801-777-3735
388FW.SE@us.af.mil

UTTR Airspace Manager
Hill AFB, Utah 84056
801-777-9384
388rans.uttr.schedule@hill.af.mil

Salt Lake City Center
801-320-1560/801-320-2542
Approach Control
Freq: 121.1 Nth of OGD Airport
Freq: 120.9 b/w OGD & SLIAP
Freq: 126.8 West of SLIAP
Freq: 124.3 South of SLIAP

Provo Tower
801-377-1760
Freq: 125.3

Morgan County Airport
801-622-5600
Freq: 122.8

FSDO Public Outreach
Rick Jeffs
801-257-5073