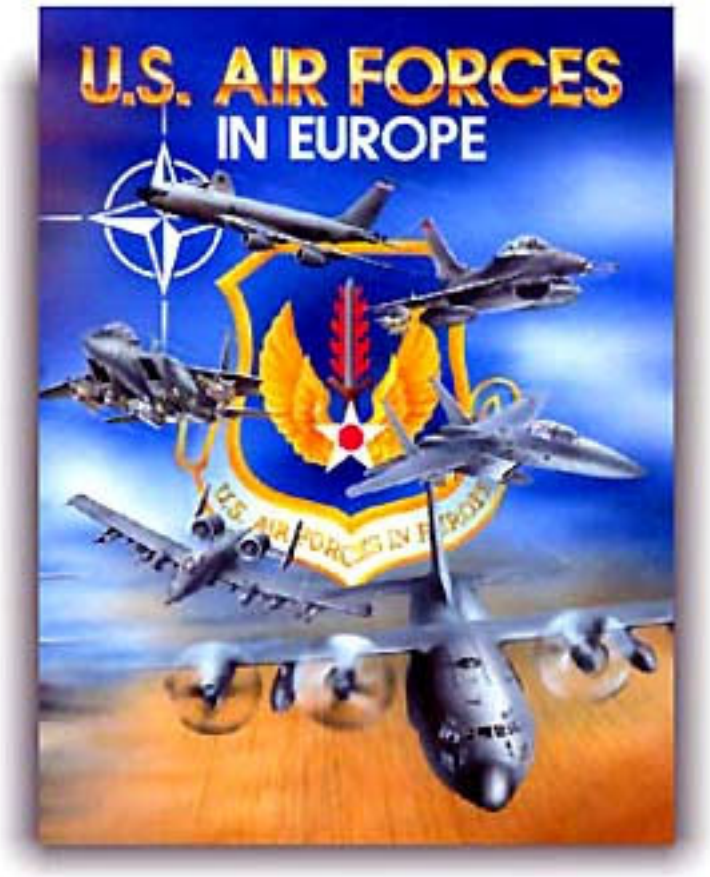
RAF LAKENHEATH AND RAF MILDENHALL

MID AIR COLLISION AVOIDANCE



MID AIR COLLISION AVOIDANCE

Mid-Air Collision Avoidance (MACA) is an important topic within both military and civilian aviation. The purpose of this pamphlet is to provide information about the RAF Lakenheath/RAF Mildenhall area to help aircrew recognize and avoid mid-air collision hazards.

Both RAF Lakenheath and RAF Mildenhall have been active military installations since World War II. However, RAF Lakenheath and RAF Mildenhall aircraft frequently deploy to areas throughout Europe, the Mediterranean, Southwest Asia, and the United States. The resulting fluctuation in traffic density may lull some pilots into relaxing their vigilance when flying through/near the local area. This is a potential hazard. RAF Lakenheath is home to the 48th Fighter Wing with F-15C, F-15E and F-35A aircraft. These aircraft fly upward of 40 to 50 missions per day. RAF Mildenhall supports the 100th Air Refueling Wing, which flies KC-135R aircraft; the 352d Special Operations Wing, comprised of two squadrons of MC-130J and CV-22 aircraft; the U.S. Navy's BE-200, and a multitude of transient Air Mobility Command aircraft, including C-5, C-17, and KC-10 aircraft. This level of traffic density creates a potential for mid-air collisions, and a demand for greater vigilance by all pilots transiting in the vicinity of the RAF Lakenheath/RAF Mildenhall Combined Military Aerodrome Traffic Zone (CMATZ). Additionally, RAF Lakenheath/RAF Mildenhall aircraft conduct high-intensity training in D208 -- the Stanford Training Area (STANTA) and the East Anglia MTRA (2000' - FL 240).

To aid in seeing and avoiding military traffic in the RAF Lakenheath/RAF Mildenhall area, information on locally based aircraft, training routes, traffic patterns, and arrival/departure routes is attached. Listed airspeeds are in knots indicated airspeed (KIAS).

Other aviators seeing you is just as important as you seeing others. Therefore, we strongly encourage all traffic transiting the RAF Lakenheath/RAF Mildenhall area to use traffic advisory services provided by Lakenheath Radar Approach Control on frequency 128.9 or 242.05. This service can help both military and civilian pilots to see and avoid each other. **Due to the speeds involved, many military aircraft routinely conduct practice approaches under radar services outside the boundaries of the CMATZ**.

In the interest of improved flying safety the 48FW and 100ARW Flying Safety Offices are available to speak to any assembly of pilots on the subjects contained in this pamphlet. The Flying Safety Office telephone numbers are (01638) 525659 at RAF Lakenheath, and (01638) 544719 at RAF Mildenhall. The RAF Lakenheath Radar Approach Control services RAF Lakenheath as well as RAF Mildenhall; the telephone number is (01638) 523942. If you have any questions regarding this pamphlet, please do not hesitate to call.

PLEASE CALL LAKENHEATH APPROACH CONTROL ON 128.9 / 242.05 Within 20 Miles of the CMATZ

RAF Lakenheath/RAF Mildenhall Combined Military Aerodrome Traffic Zone (CMATZ) and Aerodrome Traffic Zones (ATZs)

The extensive air traffic activity in the RAF Lakenheath/RAF Mildenhall area brings into clear focus the potential for mid-air collisions. While the final responsibility for avoiding such mishaps rests with the pilot, a number of services are available which can help lighten the pilot's burden in this regard. RAF Lakenheath Radar Approach Control (RAPCON) has the ability to provide a Basic Service, Traffic Service and Deconfliction Service to any aircraft transiting the CMATZ.

RAF Lakenheath RAPCON is responsible for the airspace within the CMATZ. Military aircraft transiting this zone must contact Lakenheath Approach before entering the CMATZ. Civilian aircraft, although not required, are strongly encouraged to contact Lakenheath Approach before entering the CMATZ. The CMATZ, by definition, is the airspace within five nautical miles of the mid-point of the longest runway, from the surface to 3000 ft above the aerodrome level. The airspace includes "stubs" extending 10nm from the end of each runway, and a width of 4nm (2nm either side of extended centerline) from 1000 ft to 3000 ft. The airspace includes a non-standard extension 5nm to the south of the Mildenhall runways (Ref: UKLF Handbook/MILDI 13-201 4.1.2). In general, the CMATZ shall include the area of approximately 15 miles surrounding the RAF Lakenheath and RAF Mildenhall airports. Pilots requesting traffic advisories and flight following are encouraged to contact Lakenheath Approach on VHF frequency 128.9/UHF frequency 242.05 within 20nm of the CMATZ.

Additionally, the RAF Lakenheath and RAF Mildenhall Aerodrome Traffic Zones (ATZs) fall within the confines of the CMATZ. The dimensions of an ATZ are as follows: a 2.5 nautical mile radius centered on the mid-point of the longest runway of the airfield, extending from the surface to 2000 feet above the aerodrome level. All pilots need to be aware of the requirement to receive prior approval from Air Traffic Control prior to entering an ATZ.

If your route of flight will take you near the RAF Lakenheath/RAF Mildenhall area, maintain a constant visual scan for conflicting traffic. **Although our military aircraft are receiving radar service, many of the smaller civil aircraft which are not transponder equipped may not be picked up on radar**. Also, almost all RAF Lakenheath aircraft operate on UHF only and do not hear civilian pilots (operating on VHF) making radio calls. Therefore, it is essential that all pilots employ the "see and avoid" concept. Remember---heads up, eyes out and fly safely.

UNITED KINGDOM LOW FLYING SYSTEM (UKLFS)

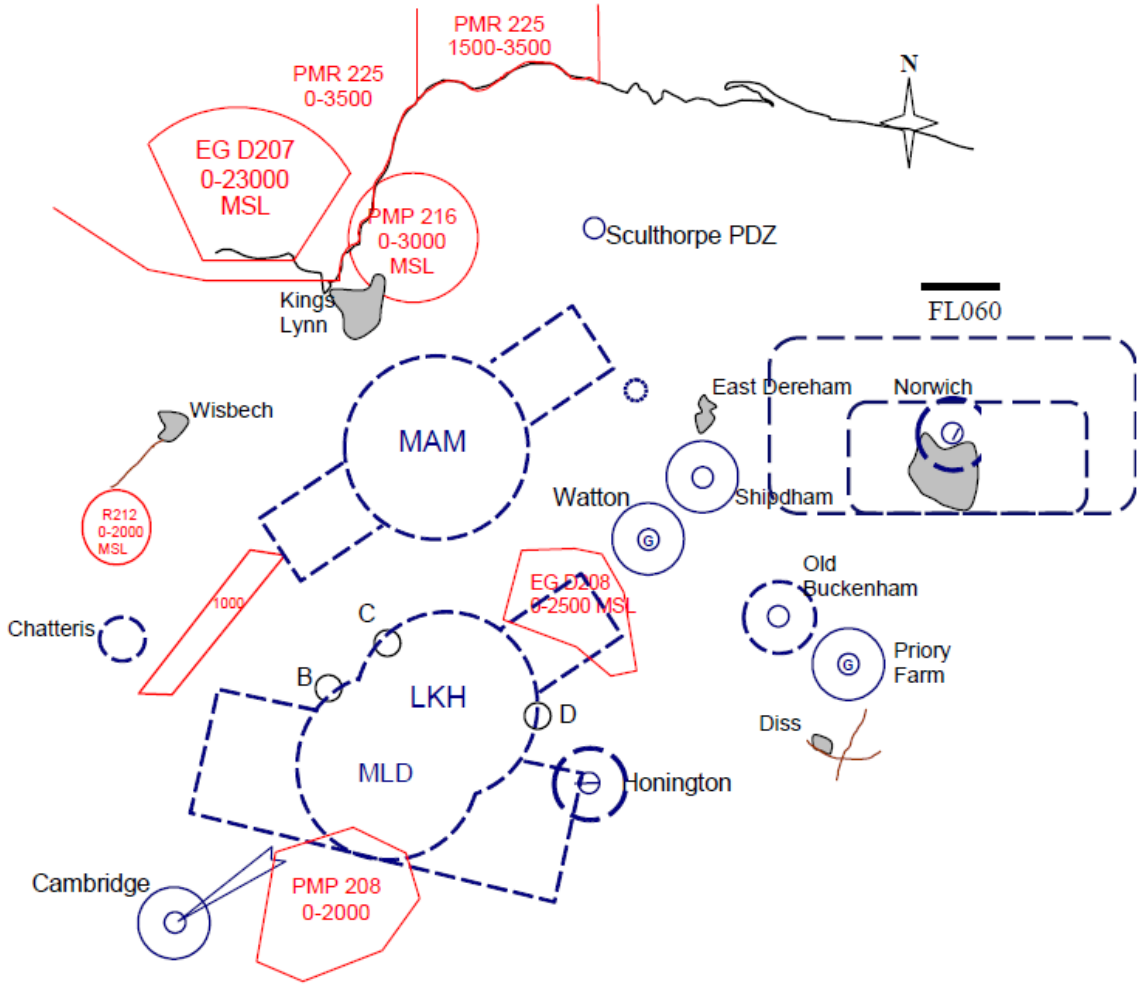
The UK Low Flying System is designed to facilitate low-altitude military training in the United Kingdom. The 352d Special Operations Wing (SOW) conduct extensive training in the low flying system in the area of East Anglia, especially the airspace surrounding RAF Mildenhall/RAF Lakenheath. These organizations conduct numerous operations utilizing the UKLFS, including area drop zones, landing zones, infiltration/exfiltration, Combat Search and Rescue (CSAR), helicopter air-refueling, assault zone reconnaissance and assessment, combat medical care, and the direction of Close Air Support (CAS) assets.

Many operations are carried out exclusively at night between the surface and 2000 feet AGL, at airspeeds ranging from 90 to 280 KIAS. Although night-vision goggles are an integral part of unit operations, they cannot be relied upon for visual de-confliction. See the following map below or consult the UK Low-Fly Handbook for information regarding the system's operational constraints and

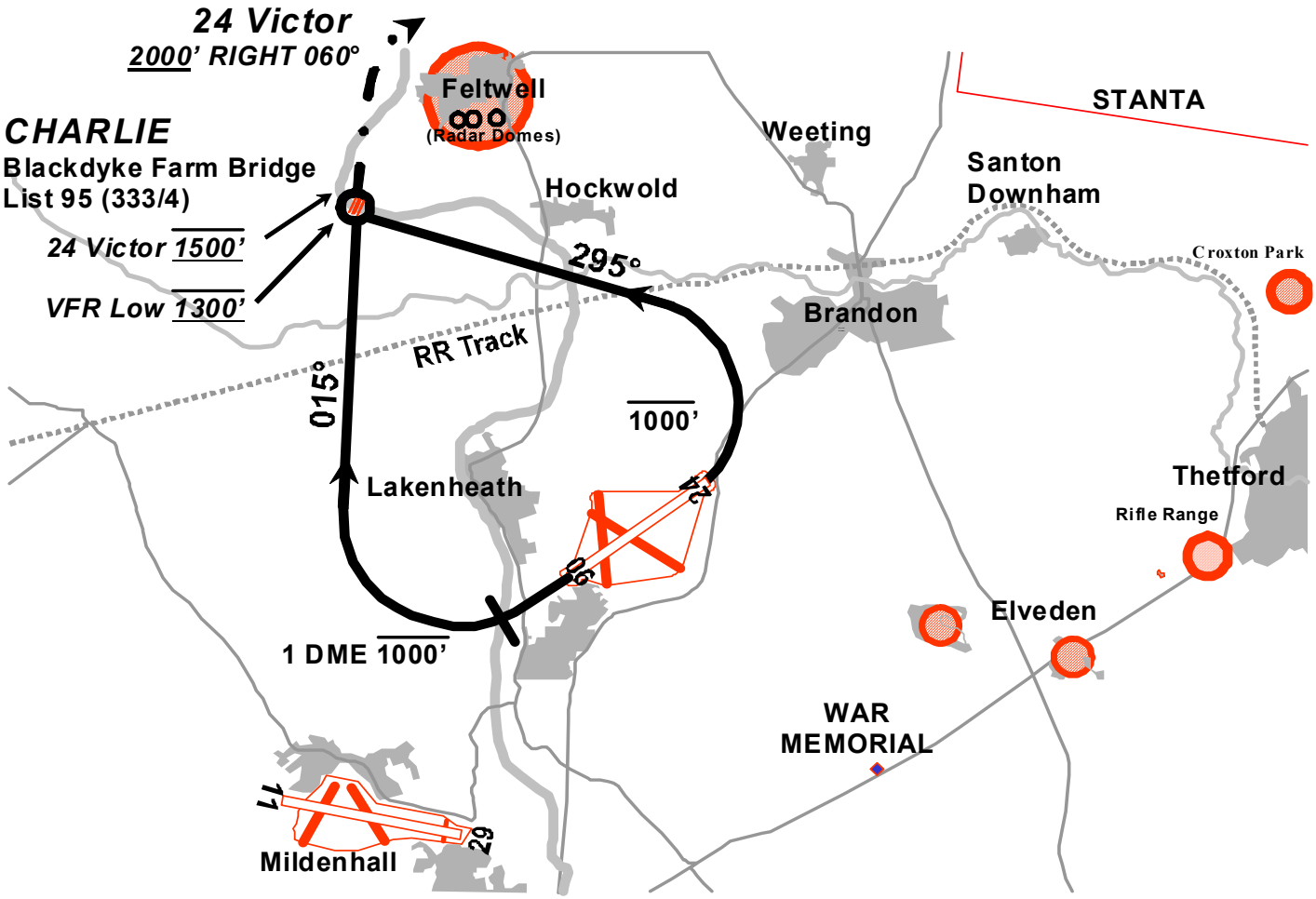
limitations. Any additional information can be obtained from the 352d SOW Safety Office at (01638) 544408 or 48 Fighter Wing Flight Safety Office at (01638) 525659.

Note: US military pilots are required to understand and use the UK Low-Fly Handbook as a flight planning tool; it provides valuable information on glider operations, restrictions, and other hazards associated with low flying in the UK.

RAF LAKENHEATH/MILDENHALL COMBINED MATZ / AERODROME TRAFFIC ZONES



RAF LAKENHEATH VISUAL DEPARTURES



48FW aircrew will be notified of Fen Restricted Pattern via 48 FW ATIS

24 VICTOR (48 FW A/C requesting VFR Departure to IFR pick-up: Min WX is 2500'/8 km) Climb VMC on track 240°. Cross LKH 1 DME at or below 1000' MSL, turn right 015° to PT Charlie cross PT Charlie at 1500' MSL **(2500' MSL Fen Restricted Pattern)**. Cross Feltwell above 2000' MSL. Turn right 060° to intercept LKH 026°R. Cross 13 DME at or below FL190. Depart VMC or as instructed.

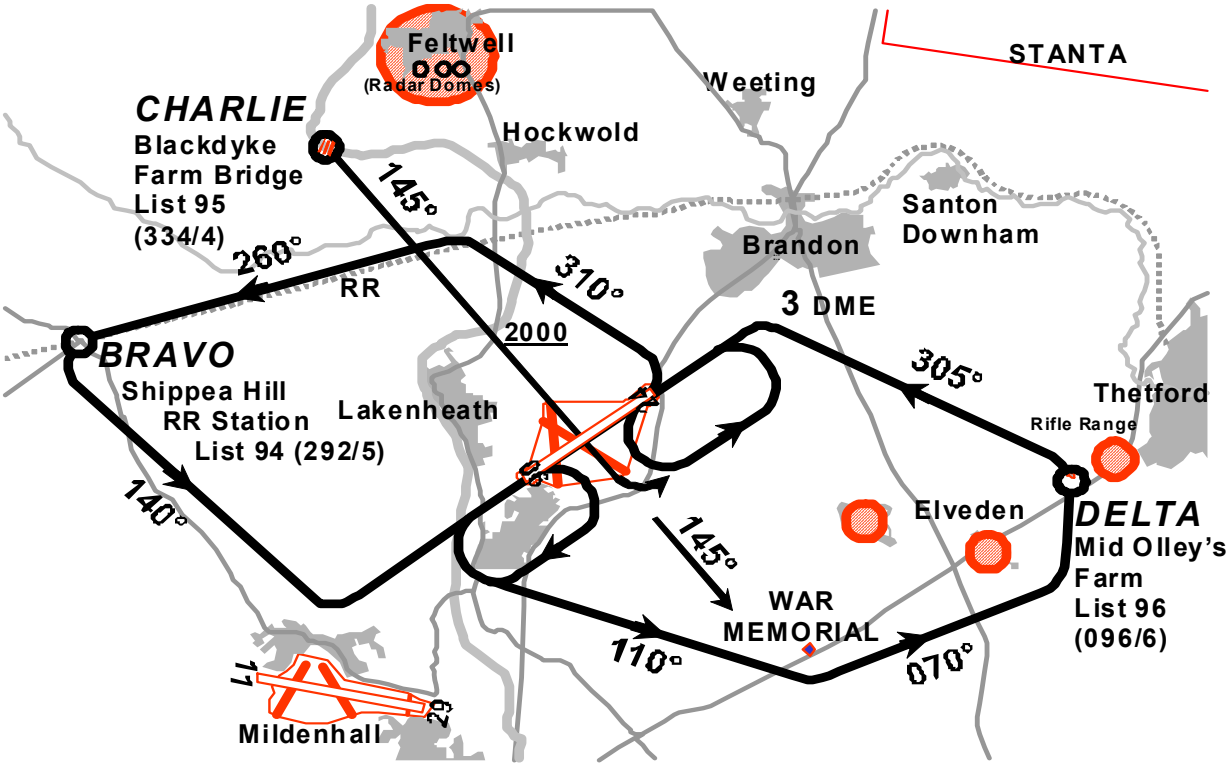
NOTE: If proceeding on an IFR flight plan, maintain VMC until able to pickup Deconfliction Service past PT Charlie. Avoid direct over flight of satellite tracking facility at RAF Feltwell.

VFR LOW (VFR dept to enter low fly 5/6, Min WX: 1800'/8 km, squawk: 7001):

RWY 24: Climb on track 240°. Cross 1 DME at or below 1000' MSL, turn right 015° direct PT Charlie, climb to 1300' MSL (2500' MSL Fen Restricted Pattern, min weather 3000'/8KM). Descend into low fly past PT Charlie

RWY 06: Turn left 295° direct PT Charlie NLT departure end of RWY to avoid Brandon. Cross the departure end of RWY at or below 1000 ft, then climb to 1300' MSL. Descend into low fly past PT Charlie.

RAF LAKENHEATH VISUAL PATTERNS



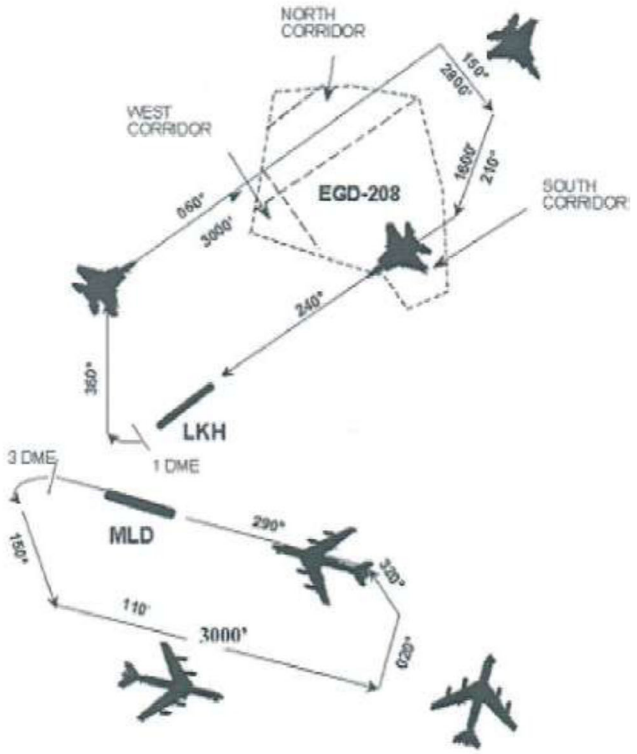
RWY 06: Recover via PT BRAVO or PT CHARLIE.
RWY 24: Recover via PT DELTA, DIRECT INITIAL, or PT CHARLIE.

ALITUDES: RAPCON will bring fighters in at 2500' (3500' FRP @ PT CHARLIE). Pilot may descend to 2000' (3000' FRP @ PT CHARLIE) when VFR and able to clear own flight path. Descend to 1500' at INTIAL or DOWNWIND.
BRAVO: Request BRAVO to INITIAL with ATC. Report PT BRAVO and proceed direct 3nm INITIAL.
DELTA: Request DELTA to INITIAL with ATC. Report PT DELTA and proceed direct 3nm INITIAL.
CHARLIE TO DOWNWIND ENTRY: Rpt PT CHARLIE
with TOWER. Proceed to downwind. If denied, maintain altitude and re-enter at PT DELTA.

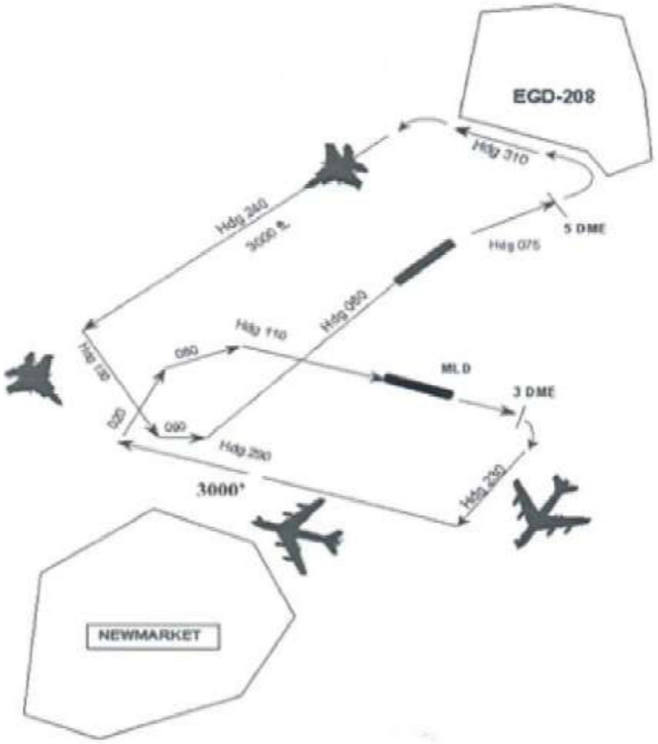
NOTES: Standard pattern airspeed: 300 KCAS / 1500' (1000' VFR straight-in).
Squawk: 0461 (all aircraft).
VFR pattern entry at entry points: 3000'/8 km (4000'/8 km Fen Restricted Pattern)
VFR traffic pattern: 2500'/ 5 km // Overhead: 2000' / 5 km // Straight-in: 1500'/ 5 km

Radar Traffic Patterns

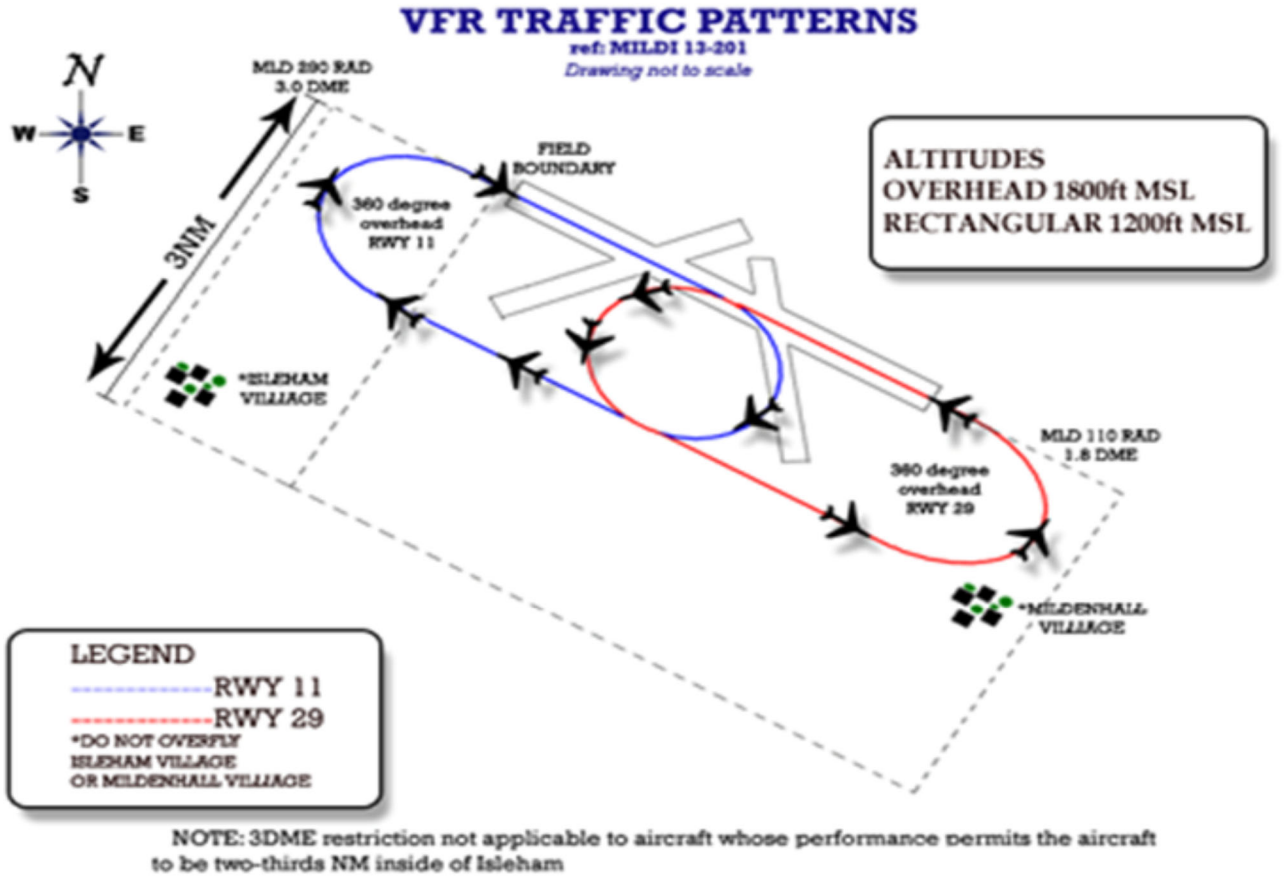
Runways 24 & 28



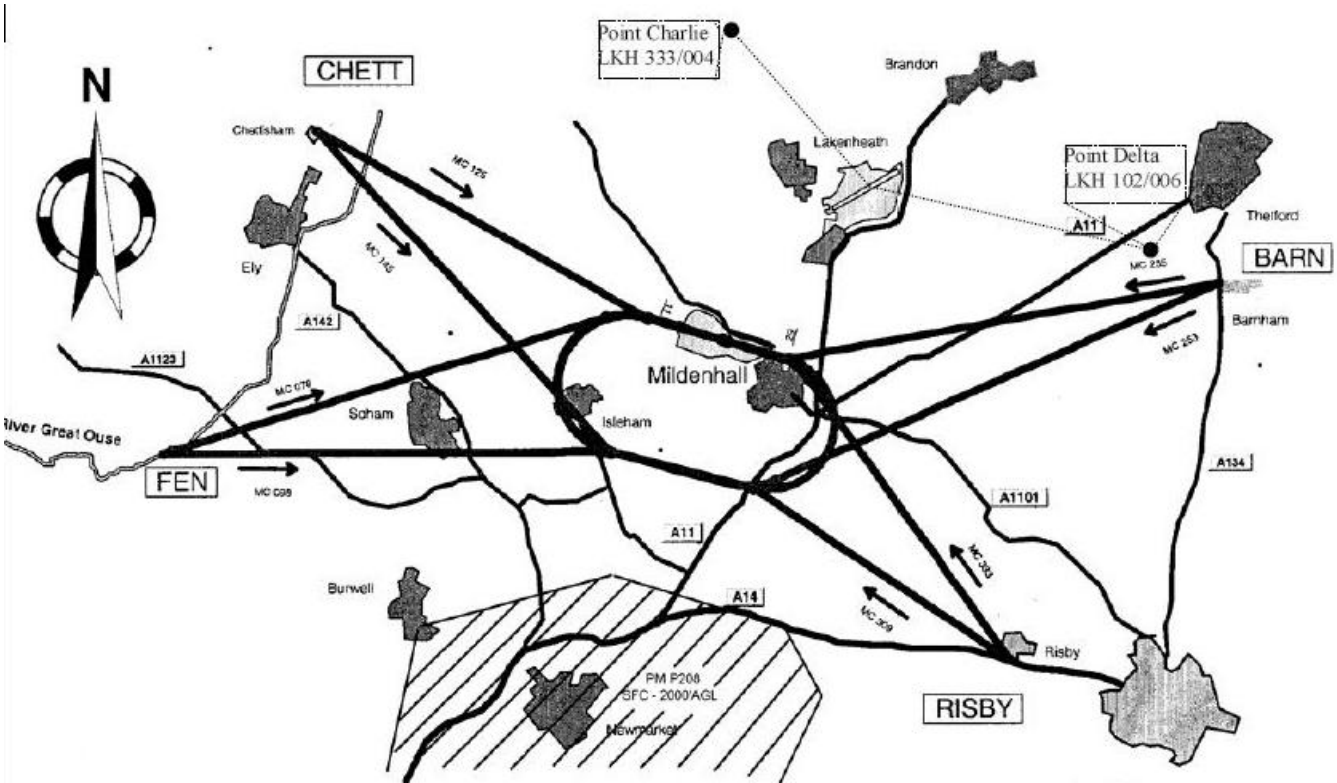
Runways 06 & 10



RAF MILDENHALL VISUAL PATTERNS



NOTE: 3DME restriction not applicable to aircraft whose performance permits the aircraft to be two-thirds NM inside of Isleham

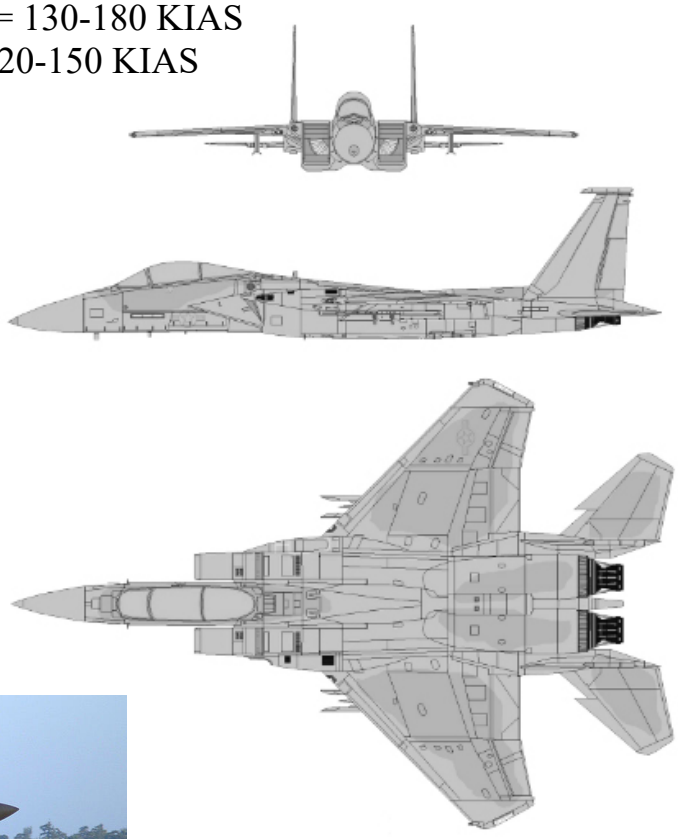


UNITED STATES AIR FORCE AIRCRAFT

The following aircraft are permanently stationed in the UK at RAF Lakenheath and RAF Mildenhall:

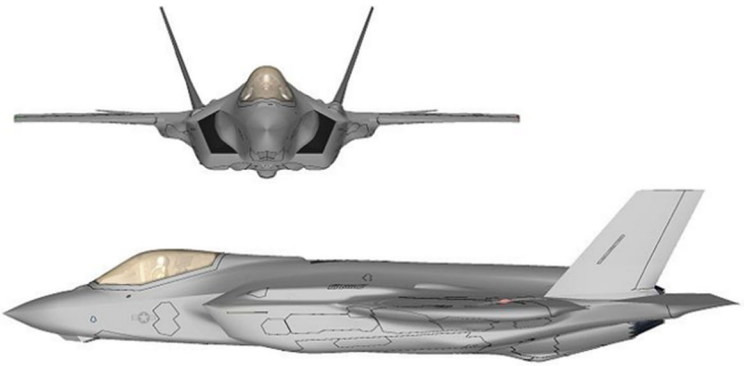
McDONNE LL DOUGLAS F-15C/F-15E

- **MISSION:** Multipurpose Fighter
- **CREW:** 2 (F-15E) /1 (F-15C)
- **WING SPAN:** 42 feet 10 inches
- **LENGTH:** 63 feet 9 inches
- **ENGINES:** Two Pratt and Whitney turbofans with afterburners.
- **THRUST:** 30,000 lbs per engine
- **RANGE:** 2,400 nautical miles with external tanks
- **SPEEDS:** Initial Approach = 300 KIAS
  Pre-landing speed = 250 KIAS
  Final approach speed = 130-180 KIAS
  Touchdown speed = 120-150 KIAS



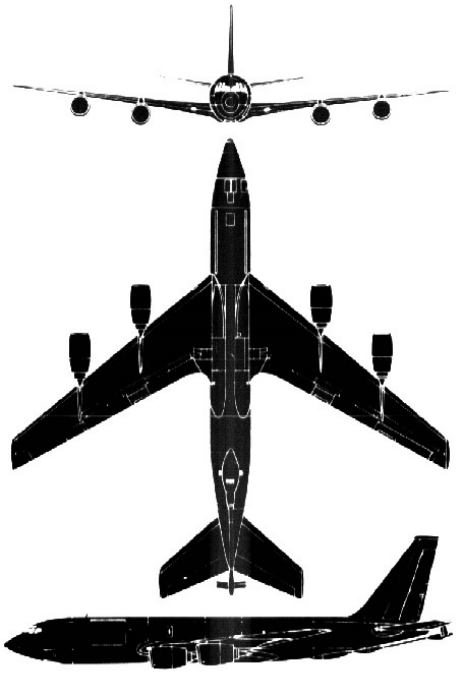
LOCKHEED MARTIN F-35A

- **MISSION:** Multipurpose Fighter
- **CREW:** 1
- **WINGSPAN:** 35 feet (10.7 meters)
- **LENGTH:** 51 feet (15.7 meters)
- **ENGINES:** One Pratt & Whitney F135-PW-100 turbofan
- **THRUST:** 43,000 lbs
- **RANGE:** 1,350 nautical miles
- **SPEEDS:** Initial Approach = 300 KIAS
  Pre-landing speed = 250 KIAS
  Final approach speed = 140-160 KIAS
  Touchdown speed = 120-135 KIAS



BOEING KC-135R
Military version of the Boeing 707

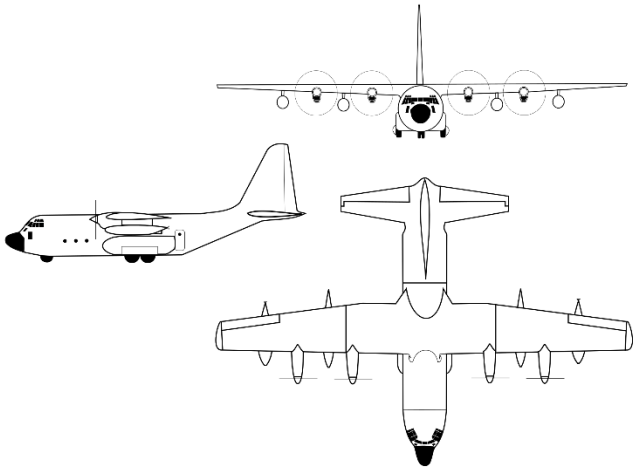
- **MISSION: Aerial refueling of US and NATO aircraft**
- **CREW: 3**
- **MAX GROSS WEIGHT: 322,500 lbs.**
- **WING SPAN: 130 feet 10 inches**
- **LENGTH: 136 feet 3 inches**
- **ENGINES: Four CFM56- International F108-CF-100 turbofans**
- **THRUST: 22,224 pounds per engine**
- **LOAD: 50,000 lbs. of cargo/200,000 pounds of fuel**
- **SPEEDS: Enroute descent: 285 KIAS**
  Pre-landing: 190-250 KIAS
  Final approach: 130-170 KIAS



CAUTION WAKE TURBULENCE!

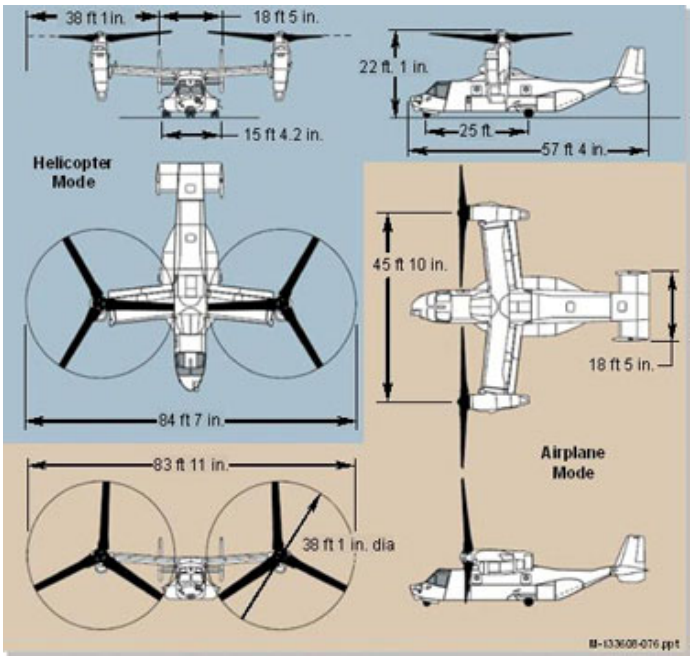
LOCKHEED MC-130J Commando II

- **MISSION: Airlift, Infil/Exfil, Airdrop, Air-refueling (rotary-wing & tilt-rotor)**
- **CREW: 5**
- **MAX GROSS WEIGHT: 175,000 lbs.**
- **WING SPAN: 132 feet 7 inches**
- **LENGTH: 97 feet 9 inches**
- **ENGINES: Rolls-Royce AE 2100D3 turboprops**
- **SPEEDS: Approach: 100-150 KCAS**
  Departure: 180 KCAS
  Cruise: 220-240 KCAS



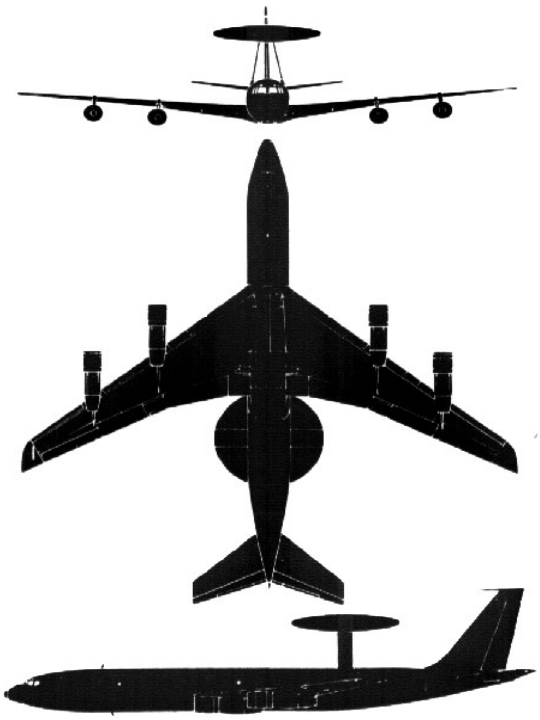
BELL BOEING CV-22 OSPREY

Mission: long-range infiltration, exfiltration, and resupply
Thrust: 6,150 shaft horsepower per engine
Wingspan: 83 feet, 10 inches (25.6 meters)
Length: 57 feet, 4 inches (17.4 meters)
Height: 31 feet, 5 inch (9.6 meters)
Rotary Diameter: 38 feet (11.6 meters)
Cruise Speed: 230 miles per hour (200 knots)
Ceiling: 25,000 feet (7,620 meters)
Maximum Vertical Takeoff Weight: 52,600 pounds (23,859 kilograms)
Maximum Rolling Takeoff Weight: 60,500 pounds (27,443 kilograms)



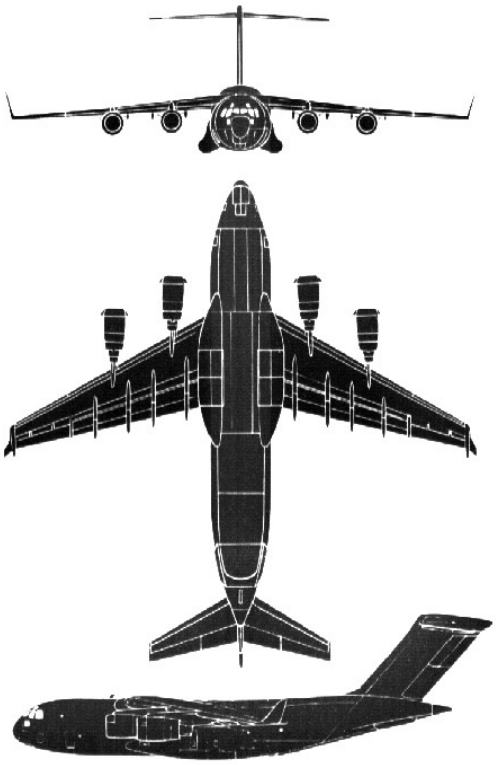
OTHER US AIR FORCE AIRCRAFT THAT MAY TRANSIT RAFM and RAFL

BOEING E-3 SENTRY

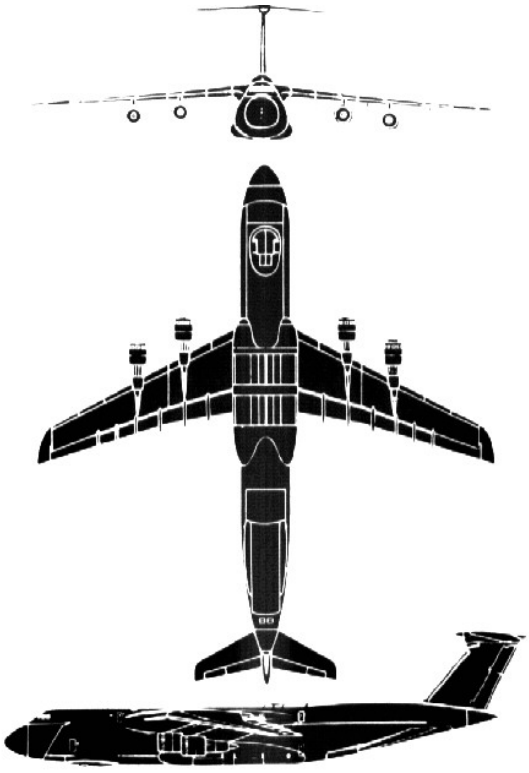


MCDONNELL DOUGLAS KC-10 EXTENDER

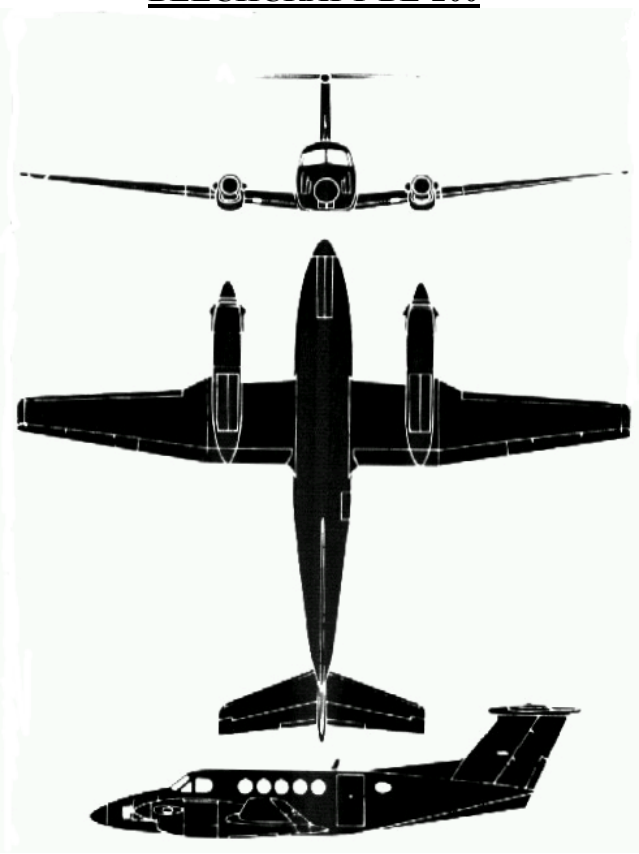
BOEING C-17A GLOBEMASTER



LOCKHEED C-5 GALAXY

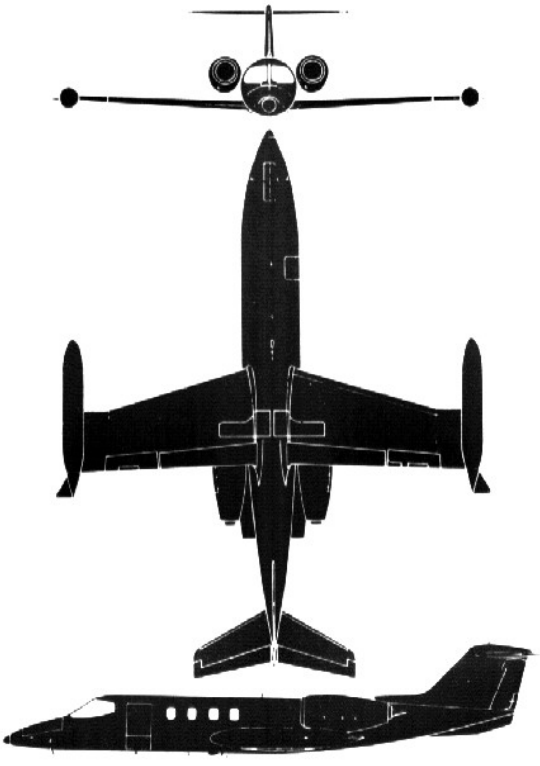


BEECHCRAFT BE-200

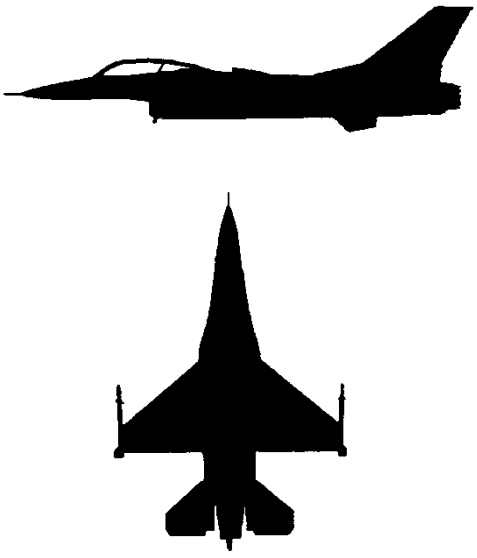


GULFSTREAM GLF-3

LEARJET LJ-35



F-16 FIGHTING FALCON



PILOT ROLE IN COLLISION AVOIDANCE

This section contains actions that you, the pilot, can take to assist in collision avoidance. Also included are visual scanning techniques and information on the limitations of the human eye.

Maintain Vigilance

1. Maintain a vigilant lookout regardless of the type aircraft being flown. Remember that most air misses occur during good VFR weather conditions and during the hours of daylight.

2. Prior to take-off, scan the approach areas for possible landing aircraft by maneuvering the aircraft to provide a clear view of such areas.

3. During climbs and descents in flight conditions, which permit visual detection of other traffic, execute gentle banks left and right at a frequency which permits continuous visual scanning of the airspace around you.

4. Execute appropriate clearing procedures before all turns, abnormal maneuvers, or aerobatics.

5. Be aware of the type of airspace in which you intend to operate, in order to comply with the flight rules applicable to that airspace.

6. Be knowledgeable of the specific flight rules governing operation of aircraft within the various airspace.

7. Be familiar with and exercise caution in areas where you may expect to find a high volume of traffic or special types of aircraft operation i.e., airport traffic patterns, special rules zones, restricted areas, training areas, military bases, etc.

8. Make maximum use of communications equipment and radar services. Know the air traffic facilities proving traffic advisory service and the areas in which they provide these services.

9. Request and use traffic advisories when available to avoid other traffic.

10. Compensate for the blind spots due to aircraft design and flight attitude by moving the head and maneuvering the aircraft.

WHAT CAN I DO ???

This is a non-comprehensive list of actions you can accomplish to promote MACA.

- **Ensure your windscreen is clean.**
- **Have your charts, approach plates, etc. well organized prior to flight.**
- **Do not assume an IFR clearance guarantees separation at all times.**
- **If you're issued or sight conflicting traffic---do not fixate on it, scan other areas, too.**
- **Avoid congested and/or training areas as much as possible.**
- **Clear for other aircraft by using the radio.**
- **Use passengers to assist in clearing for other aircraft.**
- **On descents and letdowns, complete checklists as soon as possible, prior to descending to crowded lower altitudes.**
- **Intersperse checklist items with deliberate outside scans.**
- **Scan, scan, and scan. The next time you fly, consciously note how much time you spend outside the cockpit.**

We all play a role in mid-air collision avoidance…

Fly Smart,

FLY SAFE!!!