

Special Use Airspaces - Ground Lesson

Attention

If you fly over the White House you will be intercepted at the least. If you cross a MTR you might get hit by a plane moving 3-4X your speed.

Objective

To learn all the airspaces you should stay clear of.

Schedule

Ground instruction – 15 minutes

Reference Material

https://en.wikipedia.org/wiki/Military_training_route
https://en.wikipedia.org/wiki/Military_operations_area
https://en.wikipedia.org/wiki/Restricted_airspace
https://en.wikipedia.org/wiki/Prohibited_airspace

Material

Military Training Routes (MTRs)

Military training routes are aerial corridors across the United States in which military aircraft can operate below 10,000 feet faster than the maximum safe speed of 250 knots that all other aircraft are restricted to while operating below 10,000 feet. The routes are the result of a joint venture between the Federal Aviation Administration and the Department of Defense to provide for high-speed, low-altitude military activities.

Military Training Routes are divided into Instrument Routes (IR), and Visual Routes (VR). Each route is identified by either of these two letters, followed by either four digits for routes below 1,500 feet above ground level, or three digits for routes extending for at least one leg above 1,500 ft AGL. (i.e., VR-1056). The difference between the IR and VR routes is that IR routes are flown under Air Traffic Control, while VR routes are not.

VRxxxx / IRxxxx are less than 1500 AGL

VRxxx / IRxxx 1500+ AGL

Airspace above the United States from the surface to 10,000 feet above sea level is limited to 250 knots (indicated airspeed) per the FAA's Federal Aviation Regulations. This speed limit hinders most modern-day tactical aircraft training operations, since low-level strikes are conducted almost exclusively at speeds exceeding 300 knots. Military Training Routes are usually limited to 420 knots, and in no case are aircraft allowed to exceed Mach 1 within United States sovereign airspace, except in designated Military Operation Areas. While on the route military aircraft squawk a Mode C Transponder code of '4000', which informs controllers that they are 'speeding' on a route. This squawk however is only legal by military aircraft, while

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inside a properly scheduled route corridor. MTRs do not constitute an official airspace, and are all open to VFR or IFR civilian traffic; however only military aircraft are allowed to squawk 4000 and exceed 250 knots.

Each route is defined by a number of geographical coordinates and their respective navaid fixes. From this line the corridor is extended a specific number of miles, in the vast majority of cases this is five miles, making the corridor 10 miles wide. The Routes are individually operated through one of the local military air bases, which schedule and 'own' the route. The FAA requires these bases to 'NOTAM' out the routes at least two hours prior to use to allow for civilian traffic to de-conflict if needed.

It is important to note, that there is no official means of navigation for IR or VR routes. A VR route may be flown visually, and an IR route may be flown completely heads down (although this is rarely the case). Although ATC provides deconfliction for IR Routes, VR routes are flown completely independent of external separation. Since VFR traffic does not legally have to be squawking, this provides for a serious hazard to navigation. The FAA claims the military maximizes use of IR routes for this purpose, however the vast majority of military training flights on MTRs are on VR routes.

Military Operations Area (MOA)

A military operations area (MOA) is "airspace established outside Class A airspace to separate or segregate certain nonhazardous military activities from IFR Traffic and to identify for VFR traffic where these activities are conducted." (14 CFR §1.1, U.S.A.) These are designed for routine training or testing maneuvers. Areas near actual combat or other military emergencies are generally designated as restricted airspace. See Temporary Flight Restriction (TFR).

A MOA is a type of special use airspace (SUA), other than restricted airspace or prohibited airspace, where military operations are of a nature that justify limitations on aircraft not participating in those operations. The designation of SUA's identifies for other users the areas where military activity occurs, provides for segregation of that activity from other fliers, and allows charting to keep airspace users informed. Local flight service facilities maintain current schedules and contacts for the agency controlling each MOA.

MOA's are often positioned over isolated, rural areas to provide ground separation for any noise nuisance or potential accident debris. Each designated MOA appears on the relevant sectional charts, along with its normal hours of operation, lower and upper altitudes of operation, controlling authority contact, and using agency.

Whenever an MOA is active, nonparticipating IFR traffic may be cleared through the area provided ATC can ensure IFR separation; otherwise, ATC will reroute or restrict nonparticipating IFR traffic. Although MOA's do not restrict VFR operations, pilots operating under VFR should exercise extreme caution while flying within, near, or below an active MOA. Military pilots do, on occasion, underfly their prescribed MOA at lower altitudes without warning. Additionally, prior to entering an active MOA, pilots are encouraged to contact the controlling agency for traffic advisories due to the frequently changing status of these areas.

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Restricted airspace

Restricted airspace is an area (volume) of airspace typically used by the military in which the local controlling authorities have determined that air traffic must be restricted (if not continually prohibited) for safety or security concerns. It is one of many types of special use airspace designations and is depicted on aeronautical charts with the letter "R" followed by a serial number.

According to the United States Federal Aviation Administration (FAA): "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 or controlling agency may be extremely hazardous to the aircraft and its occupants."

Restricted airspace zones may not be active ("hot") at all times; in such cases there are typically schedules of local dates and times available to aviators specifying when the zone is active, and at other times, the airspace is subject to normal VFR/IFR operation for the applicable airspace class. A few zones are activated by NOTAM; an example is R-2503D over Camp Pendleton in southern California, between San Diego and Los Angeles. This particular zone, beginning at 2000ft above sea level over most of southern Camp Pendleton, can only be active for a certain number of days per year, thus allowing small planes to fly a direct route over land between the two metro areas instead of being diverted offshore or into mountainous terrain further inland.

Prohibited airspace

Prohibited airspace refers to an area (volume) of airspace within which flight of aircraft is not allowed, usually due to security concerns. It is one of many types of special use airspace designations and is depicted on aeronautical charts with the letter "P" followed by a serial number. It differs from restricted airspace in that entry is typically forbidden at all times from all aircraft and is not subject to clearance from ATC or the airspace's controlling body.

According to the U.S. Federal Aviation Administration (FAA): "Prohibited areas contain airspace of defined dimensions identified by an area on the surface of the earth within which the flight of aircraft is prohibited. Such areas are established for security or other reasons associated with the national welfare. These areas are published in the Federal Register and are depicted on aeronautical charts."

Part of a Terminal Area Chart, showing the prohibited/restricted airspace surrounding Camp David. Some prohibited airspace may be supplemented via NOTAMs. For example, Prohibited Area 40 (P-40) and Restricted Area 4009 (R4009) often will have additional restricted airspace added via a NOTAM when the President of the United States visits Camp David in Maryland, while normally the airspace outside of P-40 and R4009 is not prohibited/restricted.

Violating prohibited airspace established for national security purposes may result in military interception and/or the possibility of an attack upon the violating aircraft. Aircraft violating or about to violate prohibited airspace will often be warned beforehand on 121.5 MHz, the emergency frequency for aircraft.