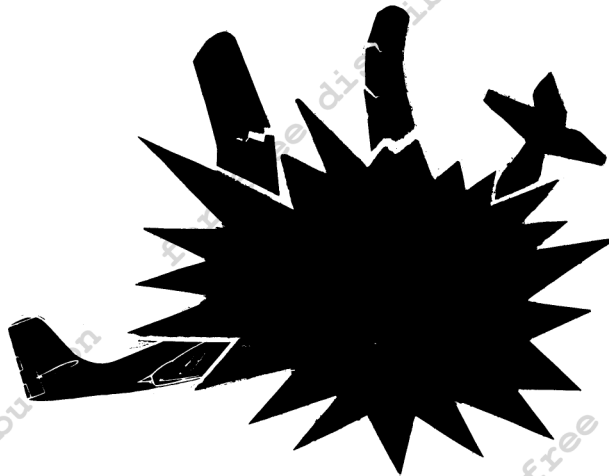


Department of Transportation
FEDERAL AVIATION ADMINISTRATION
VFR PILOT EXAM-O-GRAM* NO. 22

POTENTIAL MID-AIR COLLISIONS

Analyses of answers to Pilot and Ground Instructor Written Tests indicate that many applicants do not fully understand several areas in Regulations and procedures that were devised as safety measures for VFR flying. Two of the areas will be covered in this Exam-O-Gram that seem to give applicants the most difficulty. They concern VFR Altitudes/Flight Levels in controlled and uncontrolled airspace and Airport Advisory Service at uncontrolled airports.

A pilot who does not keep abreast of and comply with the latest Regulations and procedures could be a source of danger to himself and to others in his vicinity. A Federal Aviation Administration report indicated that 549 "near mid-air" collisions were reported within the United States during calendar year 1962. This compared with 516 reports for 1961 and 470 reports during 1960. The Near Mid-Air Collision Report of 1968 listed 1,128 hazardous incidents. It would be reasonable to assume that other "near mid-air" collisions occurred that were not reported.



Failure to comply with Regulations and Procedures increases the degree of potential mid-air collision hazards!

Could any pilot with considerable flying experience truthfully say that he has never been involved in a "near miss" with other aircraft - or - that he is not seriously concerned about mid-air collisions? It is often so easy to fly for a long period of time with our head in the cockpit while we study charts or change radio frequencies. Finally, something tells us that we should start looking around, and then we suddenly realize how foolish we were to expose ourselves to the potential hazards of a mid-air collision while we were preoccupied.

Most pilots know very well the danger of not properly guarding the airplane from other aircraft while their attention is divided between things inside and outside the cockpit -- yet is there a pilot flying today who will not some day break this rule of common sense?

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* Exam-O-Grams are non-directive in nature and are issued solely as an information service to individuals interested in Airman Written Examinations.

TO AVOID OR REDUCE THE HAZARD OF TOO MUCH "EYES-INSIDE-THE-COCKPIT" FLYING, WHAT ACTION SHOULD A PILOT TAKE IN VFR CROSS-COUNTRY PREFLIGHT PLANNING?

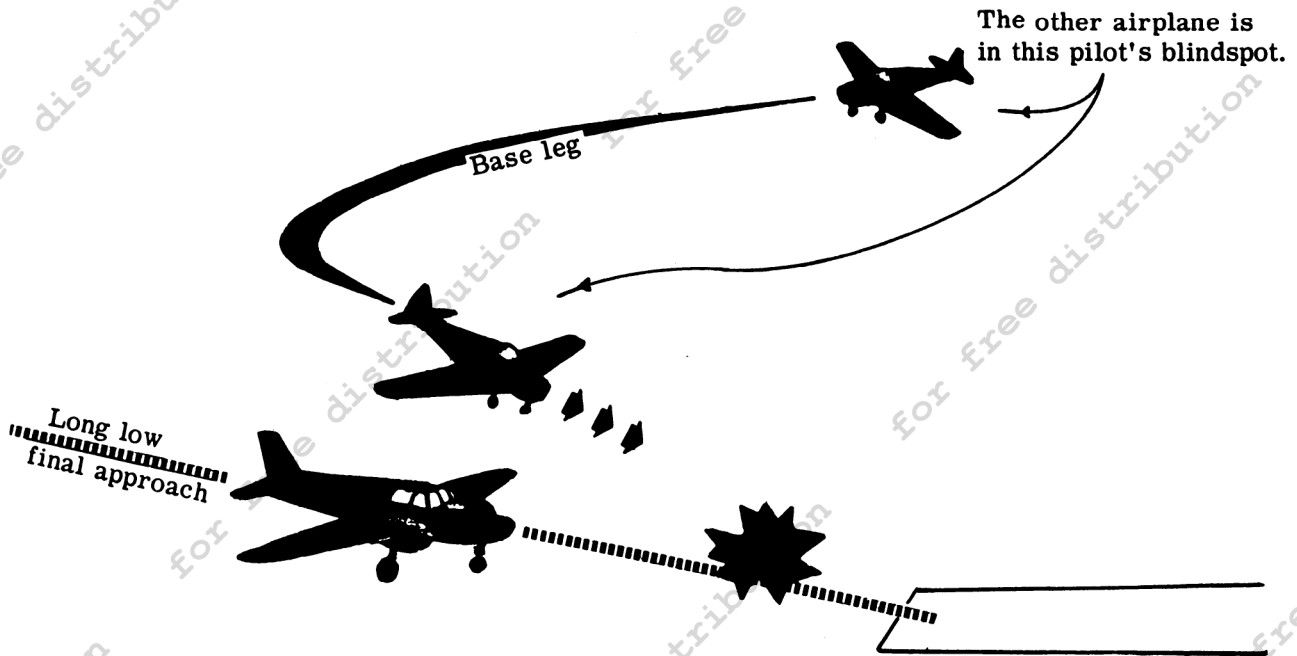
- (a) He should obtain from proper charts all the information pertinent to his route of flight. Information such as: headings, distances, checkpoints, altitudes, etc., should be placed in a flight log format. On the reverse side of the FLIGHT PLAN (FAA Form 7233) a flight log is provided for pilots.
- (b) All necessary charts should be folded in proper sequence and conveniently located in the cockpit.
- (c) The current issue of Airman's Information Manual (AIM) should be referred to with particular attention to NOTAMS and Airport/Facility Directory sections. All radio frequencies to be used on the flight should be written on the flight log for ready reference during the flight.
- (d) The AIM Airport Directory or Airport/Facility Directory sections should be consulted to obtain airport data and to review VFR procedures for approaches to busy air terminals. For example: The Airport/Facility Directory section for Roanoke Municipal Airport under Radar Services states: "Stage II - Contact Approach Control within 20 NM radius".
- (e) The Airman's Information Manual should be reviewed for additional information under such headings as: Good Operating Practices, Air Navigation Radio Aids, Airport-Air Navigation Lighting and Marking Aids, Weather, Preflight, Departure, Radar Assistance to VFR Aircraft, VFR Cruising Altitudes, Arrival, and Emergency Procedures.
- (f) A careful study of the Sectional or World Aeronautical Charts should be made to determine if your route of flight will traverse a Prohibited, Restricted, Caution, or Warning Area.

HOW DOES THE TOWER ASSIST IN PREVENTING MID-AIR COLLISIONS AT A CONTROLLED AIRPORT? Although it is always the direct responsibility of the pilot, when flying in VFR weather conditions, to avoid collision with other aircraft, the information and clearances issued by the controller in the tower are intended to aid pilots to the fullest extent in avoiding collisions. The controller in the tower issues clearances that can be safely followed without collision hazard if reasonable caution is exercised by the pilot. By advising the tower of your position well in advance of entering the control zone (normally a minimum of 15 miles out), you will be able to receive information on other aircraft which might be in your vicinity as well as being assured of a safe and orderly entry into the traffic pattern under the direction of the control tower.

Note to Student Pilots: To receive additional assistance while operating in areas of concentrated air traffic, a student pilot should identify himself as a student pilot during his initial call to an FAA radio facility (Control Tower, FSS, Approach Control, etc.). For example: "Dayton Tower, this is Fleetwing 1234, Student Pilot, over."

At some busy airports (examples are: Memphis, El Paso, and Seattle) an expansion of the normal tower service is made possible through the use of radar. Here the tower will probably request that you listen on the approach control frequency which he will supply. You will then receive essentially the same information and direction as though the tower had you in visual contact, but at a much greater range. The number of such airports with this service is increasing rapidly and is another step toward reducing the possibility of mid-air collisions.

WHY SHOULD A PILOT CHECK THE GRAPHIC NOTICES AND SUPPLEMENTAL DATA SECTION OF THE AIRMAN'S INFORMATION MANUAL? Before departing on an extensive cross-country flight in unfamiliar country, the pilot should check the Special Operations and Area Notices, such as notices for "Terminal Radar Service Areas" and "Terminal Area Notices." For example: Special Air Traffic Rules apply to VFR flights in the Valparaiso, Florida, Terminal Area because of the high speed special activities conducted in the vicinity of Eglin AFB.



The collision that is about to happen as illustrated above can happen at any airport. A number of such accidents have already occurred - LOOK AROUND - DO NOT LET IT HAPPEN TO YOU.

IS TRAFFIC INFORMATION AVAILABLE AT CERTAIN NONCONTROLLED AIRPORTS?

Yes, at certain noncontrolled airports (no control tower) where FAA Flight Service Stations are operating, there is available to you Airport Advisory Service. Use of this radio service will aid you in avoiding mid-air collisions.

WHAT SERVICE DOES THE AIRPORT ADVISORY SERVICE PROVIDE? The Flight Service Station (FSS) at uncontrolled airports provides airport advisory service to aircraft operating to or from the airport on which the station is located. The airport advisory service provides the following information to aircraft which are in communication with the station: Wind Direction and Velocity; Favored Runway; Altimeter Setting; Pertinent Known Traffic; Pertinent Known Field Conditions; Airport Taxi Routes and Traffic Patterns, etc.

NOTICE! There may be other aircraft in the vicinity of the airport not in communication with and thus not known by the FSS.

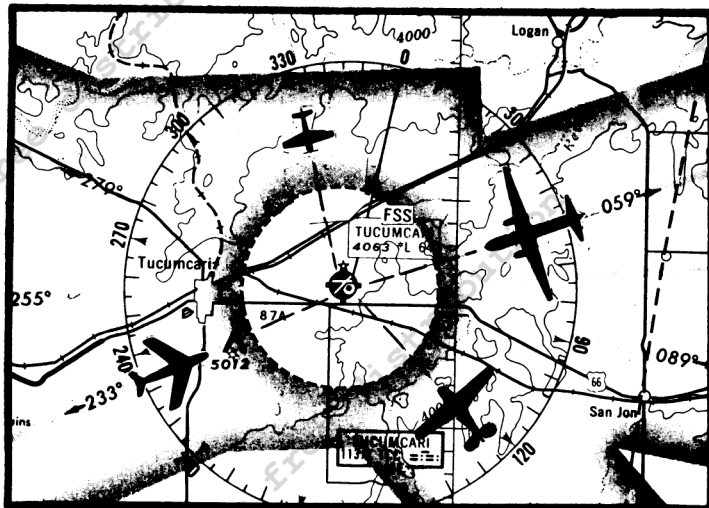
HOW DOES THE PILOT KNOW WHERE TO FIND AIRPORT ADVISORY SERVICE LOCATIONS?

The locations are appropriately depicted on the Sectional Charts in this manner:



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WHAT IS A SAFE WAY TO CLIMB OR DESCEND ON VICTOR AIRWAYS? The AIM Good Operating Practices section states: "During climb or descent, pilots are encouraged to fly to the right side of the center line of the radial forming the airway in order to avoid IFR and VFR cruising traffic operating along the center line of the airway."



Possible Widely Scattered Aluminum

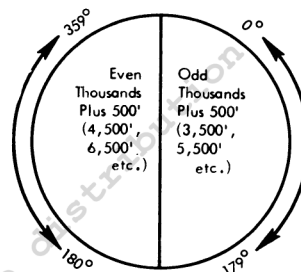
DESTINATION: 
Over The VOR Station!

One of the FAA Near Mid-Air Collision Reports indicates that 81% of the incidents occurred in clear skies and unrestricted visibility conditions. Of the 549 incidents reported 255 (46%) occurred over a VOR facility, and the aircraft were utilizing VOR as the navigational aid in 89% of the en-route incidents. **BE ALERT AT ALL TIMES:** Unlimited visibility appears to encourage a sense of security which is not at all justified.

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DOES ADHERING TO THE VFR ALTITUDE/FLIGHT LEVEL RULE APPROPRIATE FOR THE DIRECTION OF FLIGHT PLAY AN IMPORTANT ROLE IN THE AVOIDANCE OF MID-AIR COLLISIONS? Yes, the rule is specifically designed to provide altitude separation, and applies to local as well as cross-country flights.

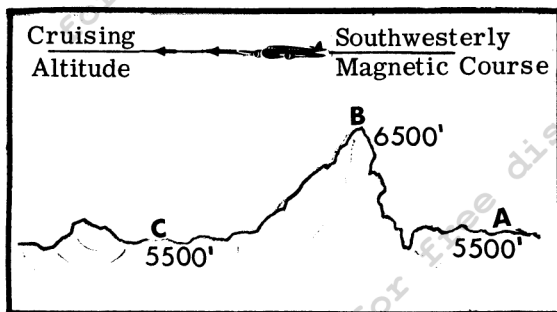
Many Airman Written Test applicants are incorrectly answering questions pertaining to the VFR Altitudes/Flight Levels rule for VFR cruising altitudes. When an aircraft is operated in VFR level cruising flight at more than 3,000 feet above the surface up to Flight Level 290 inclusive, the cruising altitudes (shown in the illustration to the right) shall be observed in accordance with the *magnetic course being flown. (Note: See Airman's Information Manual for more complete coverage of this subject.)



DO THE VFR CRUISING ALTITUDES APPLY BELOW 3000 FEET? No, only when you are flying at more than 3,000 feet above the surface.

UNDER VFR-More than
 3,000' ABOVE THE SURFACE

Assume that in the diagram below your flight traverses terrain with the approximate elevations as depicted. You desire to select a constant cruising altitude which will conform to VFR cruising altitude requirements and also have sufficient altitude above mountain peaks to avoid downdrafts or extreme turbulence. Altitudes above the surface in mountainous areas should be based on the lowest general terrain (excluding deep crevices or canyons).



For example: + 5500' general terrain elev.
 + 3000' above terrain
 8500' effective altitude

10,500' correct (even +500') at points A, B, C.
 10,000' incorrect at points A, B, C.
 9,500' incorrect at points A, B, C.
 9,000' correct at point B-incorrect at points A, C.
 8,500' correct (even +500') at points A, B, C.
 8,000' correct at A, B, C. } less than 3000' above
 7,500' correct at A, B, C. } surface but inadequate
 7,000' correct at A, B, C. } safety above peaks.

*NOTE - Magnetic course is true course corrected for variation. Do not confuse with: true course, compass course, magnetic heading, true heading or compass heading.

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