Department of Transportation

FEDERAL AVIATION ADMINISTRATION

VFR PILOT EXAM-O-GRAM* NO. 26

COMMON MISCONCEPTIONS (Series 2)

Each question in FAA Airman Written Examinations offers the examinee a group of four answers from which to select the answer he believes to be correct. Applicants' comments and analyses of the answer sheets indicate that particular incorrect answers are frequently being chosen because of a misconception regarding certain items of required aeronautical knowledge. This Exam-O-Gram, as well as Exam-O-Gram No. 17, attempts to correct a few of these preconceived ideas.

WHAT INDICATED AIRSPEED SHOULD BE USED FOR LANDING APPROACHES TO FIELDS OF HIGHER ELEVATIONS? For all practical purposes, use the SAME indication as you use at fields of lower elevations.

WILL THE SAME INDICATED APPROACH SPEED BE SAFE AT HIGH ELEVATIONS? YES, in relatively smooth air. We all know that as altitude increases, the air becomes less dense, and consequently with decreased drag the airplane travels faster through the air. However, this faster speed creates no increase in impact pressure on the airspeed pitot system because of the lesser air density. In other words, we get a higher True Airspeed with the same Indicated Airspeed. Although the True Airspeed (TAS) at which an airplane stalls in thinner air is higher, the margin of safety is unaffected since the airplane is actually flying at a higher True Airspeed. Nevertheless, for the purpose of maintaining positive control in unstable air, the use of a higher than normal indicated speed is recommended for approaches during the turbulent or gusty conditions prevalent in mountainous areas, just as is used at fields of lower elevations in these conditions.

WHAT EFFECT DOES THINNER AIR HAVE ON APPROACH AND LANDING? Even though using the same indicated airspeed that is appropriate for sea level operations, the True Airspeed is faster, resulting in a faster groundspeed (with a given wind condition). This increase in groundspeed naturally makes the landing distance longer and should be carefully considered when landing at high elevation fields, particularly if the field is short.

WHAT INDICATED AIRSPEED SHOULD BE USED ON TAKEOFF AT HIGH ELEVATIONS? Just as in landing, the groundspeed as well as the takeoff distance, will be greater at high elevation fields. However, don't let this mislead you into P-U-L-L-I-N-G the airplane off the ground. If you do, the airplane will mush and settle back to the ground in a stalled condition. Use the SAME indicated airspeed as you use for takeoff at fields with lower elevations.

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

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WHAT WOULD YOU THINK IF YOU OVERHEARD THIS AIRPLANE "DISCREPANCY" REPORT? "Hey, Chief, - fix this goofed-up airspeed indicator! I was practicing power-off stalls with the gear and flaps down, but the airplane didn't stall until the pointer was 10 mph less than the white arc painted on the dial."

IS THE AIRSPEED INDICATOR FAULTY OR IS THE WHITE ARC MISPLACED? Not necessarily either one! Remember, the colored arcs on the airspeed dial mark the Calibrated Airspeed (CAS) and not merely the observed Indicated Airspeed (IAS) limitations.

WHAT IS CALIBRATED AIRSPEED (CAS), is Indicated Airspeed corrected for installation and instrument error. A wide difference between these speeds may exist, particularly at low airspeeds or under landing conditions. Installation error is caused when static atmosphere in certain flight attitudes enters the static system with a different pressure than it does in normal cruise conditions, creating a variance in pitot-static differential. Check the airspeed correction data for each airplane. You may find (as in the typical table below) that an IAS of 60 MPH is actually a CAS of 69 MPH.

AIRSPEED CORRECTION TABLE

FLAPS 0°								
IAS - MPH	60	80	100	120	140	160	180	200
CAS - MPH	69	82	100	119	139	160	181	202
***FLAPS 20°**								
IAS - MPH	40	50	60	70	80	90	100	110
CAS - MPH	57	62	68	75	84	93	102	112
***FLAPS 40°**								
IAS - MPH	40	50	60	70	80	90	100	110
CAS - MPH	57	62	68	75	83	92	102	111

*Maximum flap speed 110 MPH-CAS

WHAT IS THE RELATIONSHIP BETWEEN AIRSPEED INDICATOR COLORED ARCS AND STALLING SPEEDS? In the above illustrations, the white arc shows a stalling speed of 57 MPH (CAS), but because of installation error (reflected in the table), this airplane may not stall with power-off and gear and flaps down until the pointer is on 40 MPH (IAS). Similarly a variation is noted for the green arc and stalling speed with gear and flaps UP. Since an airplane in flight is operated most of the time within the upper speed range, installation error is normally adjusted so as to be at a minimum in that range. This results in the greatest error at the lower speed range, but provides a corresponding increase in the margin of safety at the critical lower airspeeds.

* *

CAN NORMAL IN-FLIGHT ASSISTANCE BE RECEIVED FROM ALL VOR STATIONS? NO, many VOR stations can be used only for navigation purposes. These stations without voice capability have the navigation transmitting frequency underlined on the newer aeronautical charts. Stations of this type cannot be used for weather information, position reporting, flight plans, or emergency assistance.

IN TERMINAL FORECASTS DOES THE LETTER "C" MEAN CLEAR SKIES? NO, -- when used in the cloud group of the forecast, it indicates the cloud layer that constitutes the CEILING.

IS THE WIND ALWAYS SHOWN IN TERMINAL FORECASTS? NO, -- if the wind is forecast to be less than 10 knots, it is omitted.

IS THE VISIBILITY ALWAYS SHOWN IN TERMINAL FORECASTS? NO, -- if the visibility is forecast to be more than 8 miles, it is omitted.

IS THE HEIGHT OF CLOUD TOPS PREDICTED IN TERMINAL FORECASTS? NO, -- only the base of the clouds above the surface is predicted. Cloud tops are usually found in Pilot Reports (PIREPS), and often in Area Forecasts.

ARE TURBULENT CONDITIONS PREDICTED IN TERMINAL FORECASTS? NO, -- however, a prediction of gusty surface conditions may be included in the wind group of Terminal Forecasts.

* *

IN TELETYPE FORECASTS AND REPORTS, IS THE WIND INFORMATION RELATIVE TO TRUE NORTH OR MAGNETIC NORTH? All printed weather information, such as Area Forecasts, Terminal Forecasts, Aviation Weather Sequence Reports, Winds Aloft Forecasts, etc., presents the wind direction as measured from TRUE NORTH. To use this wind direction for the computations of problems in which magnetic values are required, magnetic variation should be applied. That is, add or subtract variation as appropriate to the area involved, when magnetic headings are desired.

IN RADIO BROADCASTS, IS THE WIND DIRECTION RELATIVE TO TRUE NORTH OR MAGNETIC NORTH? Surface wind direction given in traffic instructions by the tower, or in airport advisories by an FSS, is always given as MAGNETIC direction, so as to be readily related to the runway number which is also a magnetic direction. In scheduled weather broadcasts the wind is given in True direction for all reported stations except that of the station making the broadcast, in which case the wind is reported in Magnetic direction.

* *

CAN THE DATE AN ANNUAL INSPECTION IS DUE BE DETERMINED FROM AIRWORTHINESS CERTIFICATES? NO, -- with regard to the due date of an Annual Inspection, the Airworthiness Certificate is of no value unless it was issued within the preceding 12 calendar months. This certificate is issued only when the aircraft is certificated as being airworthy at the time of original manufacture (or after being substantially altered or repaired), and in most cases is issued only once in the lifetime of the aircraft.

FROM WHICH DOCUMENTS CAN THE DUE DATE OF AN ANNUAL INSPECTION BE DETERMINED? By checking the entries in the aircraft and engine maintenance records (in most cases aircraft and engine logbooks) certifying the latest Annual Inspection. If the records show the preceding inspection was performed on April 5, 1973, then the next inspection is due at the end of the 12th month subsequent to that date; that is, by the end of April 30, 1974.

IS THERE A DIFFERENCE BETWEEN AN AIRPORT TRAFFIC AREA AND A CONTROL ZONE? YES, definitely; although in some cases they may coincide laterally, in which case rules applicable to each are in effect.

WHAT IS AN AIRPORT TRAFFIC AREA? An Airport Traffic Area is the airspace surrounding an airport at which there is an operating control tower. It extends from the surface upward to 3,000 feet, and although not marked on the chart (except by the presence of control tower CT frequencies), it includes the area within a 5-mile radius from that airport (see Fig. 1). When operating within the Airport Traffic Area, a pilot is required, unless otherwise authorized, to maintain two-way radio communications with the tower. This does not apply when operating for the purpose of taking off or landing at airports without a control tower that happen to be within the Airport Traffic Area of another airport. This rule is also not applicable when the tower is not in operation nor at airports without control towers outside of an Airport Traffic Area. (See Fig. 2.) The airport traffic pattern of an airport is not to be confused with an Airport Traffic Area.

Airport Traffic Area

(Tower Frequency)

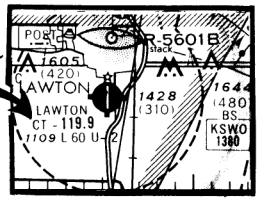

Fig. 1

No Airport Traffic Area

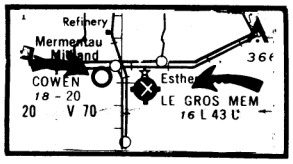

Fig. 2

WHAT IS A CONTROL ZONE? A Control Zone is an airspace surrounding one or more airports, within which, rules additional to those governing flight in control areas and "airport traffic areas," apply for the protection of air traffic. Normally, an aircraft shall not be operated under Visual Flight Rules within a Control Zone beneath a ceiling of less than 1,000 feet or with a visibility of less than 3 miles. To do so requires a special VFR clearance from Air Traffic Control. If the airport lies within a Control Zone as well as an Airport Traffic Area (see Fig. 3), this clearance is obtained through the control tower. However, all Control Zones do not have a control tower or lie within an Airport Traffic Area (see Fig. 4). In this case arriving and departing traffic is controlled by ATC either by direct communication between the control center and the pilot, or through an appropriate radio facility. Frequently, clearances are conveyed to an aircraft by a nearby Flight Service Station (FSS). All Control Zones are marked on charts by a circular broken line, normally a 5-mile radius with extensions as necessary for IFR approaches, extending from the surface upward to the Continental Control Area, and may encompass more than one airport. These special rules are also applicable to the other airports within the Control Zone boundaries.

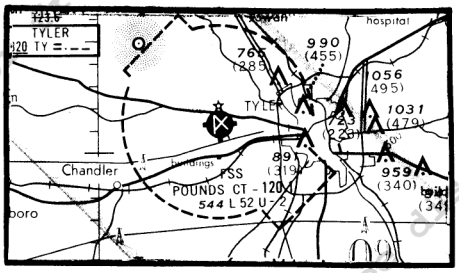

Fig. 3

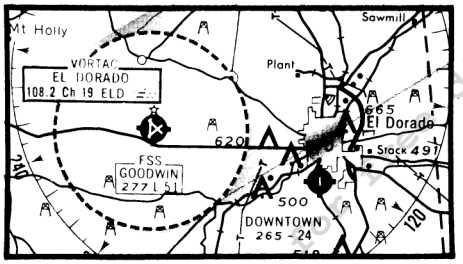

Fig. 4

FAA Aeronautical Center
Flight Standards Technical Division
Operations Branch
P. O. Box 25082
Oklahoma City, Oklahoma 73125