

CERTIFICATES AND DOCUMENTS:

- AIRWORTHINESS CERTIFICATE** * Never expires unless aircraft is no longer registered or the required maintenance has not been performed.
- REGISTRATION CERTIFICATE** * Valid unless aircraft is sold, owner dies, or aircraft is unusable, i.e. damaged.
- OPERATING LIMITATIONS** * P.O.H. (limitations imposed by the manufacturer) must be on board the aircraft.
- WEIGHT AND BALANCE** * For that aircraft — must be the most recent.

INSPECTIONS:

- 1** CURRENT ANNUAL — (12 calendar months - signed off by I.A. - Inspector of Authorization)
- 2** 100 HOUR INSPECTION.
NOTE: An annual can be substituted for a 100 hour, but not vice versa
- 3** A.D.'S — All airworthiness directives must be complied.
- 4** E.L.T. — Every 12 calendar months or 1/2 battery useful life or after 1 cumulative hour of use.
- 5** TRANSPONDER - Every 24 calendar months.
- 6** PITOT STATIC SYSTEM - Every 24 calendar months.

AIRCRAFT EQUIPMENT (91.205):

1 DAY V.F.R.

T achometer for each engine.
O il temperature gauge.
M anifold pressure gauge.(Turbo powered)
A irspeed indicator.
T emperature gauge for each liquid cooled engine.
O il pressure gauge.

F uel gauge indicating quantity.
L anding gear position lights. (r.g. - Retractable gear)
A ltimeter.
M agnetic Direction indicator.
E mergency locator transmitter. (If required by 9 1.207)
S eat belts.

NOTE: D.M.E. required above FL 240

2 NIGHT V.F.R. = DAY V.F.R.

F uses —3 of each kind required.
L anding light — if for hire.
A nti collision lights
P osition lights.
S ource of power.

PERSONAL REQUIREMENTS

What do you need to legally perform a flight?

- 1** Be current
- 2** Have completed a Bi-annual Flight Review
- 3** Valid medical certificate. (Know durations).
- 4** Pilot's license
- 5** Sign off in the aircraft if it is a
 - i) Taildragger
 - ii) High performance
 - iii) High altitude capable
 - iv) Type rated – if required
- 6** Pass the I'M SAFE
 - i) Illness
 - ii) Medication
 - iii) Stress
 - iv) Alcohol
 - v) Fatigue
 - vi) Emotion
- 7** Have all available information to conduct the flight safely. (91.103)
 - i.e. Runway lengths of intended use.
 - Takeoff and landing distances.
 - Weather reports and forecasts.
 - Fuel requirements.
 - Any alternative.
 - Any known traffic delays, etc.

PRIVILEGES:

What are the privileges of a commercial pilot's license?

- a) May act as P.I.C. of an aircraft carrying persons or property for compensation or hire.
- b) May act as P.I.C. of an aircraft for compensation or hire.
- c) May give instruction in an airship or balloon if they hold an appropriate category and class rating.

CURRENT:

To remain current you must have completed the following:

- 1) Bi-annual Flight Review within 24 calendar months.

To carry passengers you must within the previous 90 days have completed:

- 1) 3 takeoff's and landings as sole manipulator in category and class. (If tailwheel to a full stop or if operating at night to a full stop at night.)

MEL:

A minimum equipment list is list equipment approved by the manufacturer and the FAA. You can legally fly the aircraft with/without this equipment.

WEATHER:

How can we obtain weather information?

- i) F.S.S.
- ii) D.U.A.T.
- iii) Internet
- iv) T.V.
- v) T.W.E.B.
- vi) T.I.B.S.

The flight service station offers three types of briefing:

- a) Standard b) Abbreviated c) Forecast

AIRMET is an advisory of significant weather phenomena at intensities lower than sigmets. i.e. Moderate icing, Moderate turbulence, sustained winds of > 30 knots at the surface.

SIGMET advises on non convective weather that is potentially hazardous to all aircraft. i.e. Severe turbulence, severe icing, dust or sandstorms that reduce visibility to < 3 miles.

CONVECTIVE SIGMET is weather advisory concerning convective weather significant to the safety of all aircraft. i.e. Tornadoes, Lines of thunderstorms, Embedded thunderstorms, Hail > 3/4 inch.

METAR is an aviation routine weather report — It is a hourly surface observation of conditions at a particular airport.

T.A.F. is Terminal Aerodrome Forecast — It is a concise statement of expected conditions at an airport during a specified period. (Usually 24 hours.)

H.I.W.A.S. is Hazardous Inflight Weather Advisory Service.

A.T.I.S. is Automated Terminal Information Service.

T.I.B.S. is Telephone Information Briefing Service.

E.F.A.S. is Enroute Flight Advisory Service, better known as flight watch 122.0.

PIREP. Pilot report - contains Location, Time, Altitude, Aircraft type, and at least one weather element encountered.

NOTICE TO AIRMEN SYSTEM

NOTAM

A notice containing essential flight operation information not known sufficiently in advance to publicize by other means. Types of NOTAM's include the following:

NOTAM "D"	Information that requires wide dissemination and pertains to enroute navigational aids, civil public use landing areas listed in the Airports Facility Directory and aeronautical data related to IFR operations.
NOTAM "L"	Information that requires local dissemination, but does not qualify as NOTAM(D) information. This includes, but is not limited to, aircraft jettisoning fuel, bird activity, moored balloons, military training activity, etc.
FDC	Information that is regulatory in nature pertaining to flight including, but not limited to, changes to charts, procedures, and airspace usage.
NOTICE TO AIRMEN PUBLICATION	Issued every 14 days, designed primarily for the pilot, contains current NOTAM information considered essential to the safety of flight as well as supplemental data to other aeronautical publications. Information published in the Notice to Airmen Publication is provided on request only.

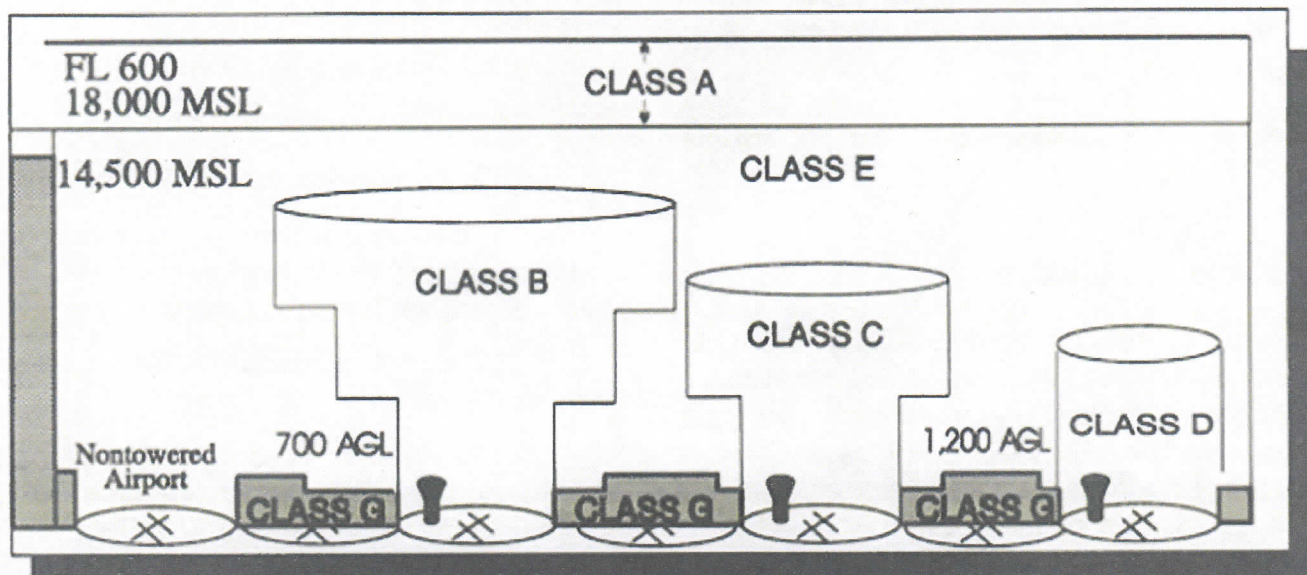
AIRSPACE CLASSIFICATIONS:

- CLASS A:** Class A Airspace is the airspace from FL 180 or 18,000 feet MSL to FL 600 or 60,000. All pilots flying in Class A airspace shall file an Instrument Flight Rules (IFR) flight plan and receive an appropriate air traffic control (ATC) clearance. When climbing through 18,000 feet, the pilot will change the altimeter setting from the local altimeter (30.01 for example) to 29.92. This ensures all aircraft flying in class A airspace have the same altimeter setting and will have proper altitude separation.
- CLASS B:** Class B Airspace is generally the airspace from the surface to 10,000 feet MSL. This airspace is normally around the busiest airports in terms of aircraft traffic such as Chicago or Los Angeles. Class B airspace is individually designed to meet the needs of the particular airport and consists of a surface area and two more layers. Most Class B airspace resembles an upside down wedding cake. Pilots must contact air traffic control to receive an air traffic control clearance to enter Class B airspace. Once a pilot receives an air traffic control clearance, they receive separation services from other aircraft within the airspace.
- CLASS C:** Class C Airspace is the airspace from the surface to 4,000 feet above the airport elevation. Class C airspace will only be found at airports that have an operational control tower, are serviced by a radar approach control, and that have a certain number of IFR operations. Although Class C airspace is individually tailored to meet the needs of the airport, the airspace usually consists of a surface area with a 5 nautical mile (NM) radius, an outer circle with a 10 NM radius that extends from 1,200 feet to 4,000 feet above the airport elevation and an outer area. Pilots must establish and maintain two-way radio communications with the ATC facility providing air traffic control services prior to entering airspace. Pilots of visual flight rules (VFR) aircraft are separated from pilots of instrument flight rules (IFR) aircraft only. Anchorage International airport, located in Anchorage, Alaska, has Class C airspace.
- CLASS D:** The fourth airspace is Class D Airspace, which is generally that airspace from the surface to 2,500 feet above the airport elevation. Class D airspace only surrounds airports that have an operational control tower. Class D airspace is also tailored to meet the needs of the airport. Pilots are required to establish and maintain two-way radio communications with the ATC facility providing air traffic control services prior to entering the airspace. No separation services will be provided to pilots of VFR (Visual Flight Rules) aircraft. Pilots operating under VFR must still use "see-and-avoid" for aircraft separation. Airports without operating control towers are uncontrolled airfields. Here pilots are responsible for their own separation and takeoff and landings. Uncontrolled airports use a "UNICOM" frequency that pilots will transmit their intentions to other aircraft using the airport. **EXAMPLE:**
"CESSNA 1870 VICTOR (the aircraft's callsign) DEPARTING UNION CITY (the uncontrolled airport) RUNWAY 17 (the pilot's intentions)."

AIRSPACE CLASSIFICATIONS: (Continued)

CLASS E: The fifth airspace to discuss is Class E Airspace which is generally that airspace that is not Class A, B, C, or D. Class E airspace extends upward from either the surface or a designated altitude to the overlying or adjacent controlled airspace. If an aircraft is flying on a Federal airway below 18,000 feet MSL, it is in Class E airspace. Class E airspace is also the airspace used by aircraft transiting to and from the terminal or en route environment normally beginning at 14,500 MSL feet to 18,000 feet MSL. Class E airspace ensures IFR aircraft remain in controlled airspace when approaching aircraft without Class D airspace or when flying on "Victor airways" -- federal airways that are below 18,000 feet. NOTE: VFR aircraft can fly up to 17,500 feet IF they can maintain VFR weather clearance criteria (and the aircraft is equipped to fly at 17,500 feet).

CLASS G: Class G Airspace is uncontrolled airspace. IFR aircraft will not operate in Class G airspace. VFR aircraft can operate in Class G airspace.



Class A			None	None
Class B			3 statute miles	clear of clouds
Class C			3 statute miles	500 feet below 1,000 feet above 2,000 feet horizontal
Class D			3 statute miles	
Class E	less than 10,000 MSL		3 statute miles	
	at or above 10,000 MSL		5 statute miles	1,000 feet below, 1,000 feet above 1 statute mile horizontal
Class G	1,200 feet or less AGL	Day	1 statute mile	clear of clouds
		Night	3 statute miles	500 feet below 1,000 feet above 2,000 feet horizontal
	more than 1,200 AGL, but less than 10,000 MSL	Day	1 statute mile	
		Night	3 statute miles	
	more than 1,200 AGL, and at or above 10,000 MSL		5 statute miles	1,000 feet below, 1,000 feet above 1 statute mile horizontal

SPECIAL USE AIRSPACE

PROHIBITED AREA:

Airspace of defined dimensions within which the flight of aircraft is prohibited i.e. Airspace surrounding the White House.

RESTRICTED AREA:

That airspace within which the flight of aircraft while not wholly prohibited is subject to restrictions. Restricted areas denote the existence of unusual, often invisible, hazards to aircraft such as artillery firing, aerial gunner etc. Penetration of restricted areas without prior authorization from the controlling agency may be extremely hazardous to the aircraft and its occupants.

WARNING AREA:

Airspace of defined dimensions, extending from three nm outward from the coast of the United States, that contains activity that may be hazardous to nonparticipating aircraft. A warning area may be located over domestic or international waters or both.

MILITARY OPERATIONS AREA:

Airspace of defined vertical and lateral limits established for the purpose of separating certain military training activities from IFR traffic.

ALERT AREA:

An area that may contain a high volume of pilot training or an unusual type of aerial activity. Pilots should be particularly alert when flying in this area. You can proceed through MOA's but should do so with caution and it is advised to contact the controlling agency for traffic advisories.

CONTROLLED FIRING AREA:

Contain activities, which, if not conducted in a controlled environment, could be hazardous to non-participating aircraft. Operations are suspended immediately when an aircraft approaches the area. There is no need to chart CFA's since they do not cause a non-participating aircraft to change its flight path.

AERO MEDICAL FACTORS:

HYPOXIA:

Is a state of oxygen deficiency in the body sufficient to impair functions of the brain and other organs. Judgment, memory, alertness, coordination and ability to make calculations are impaired, and headache, drowsiness, dizziness and a sense of well being (Euphoria) occur. It can be visually recognized in extreme cases by cyanosis (A blue tint to a person's skin color — notably ear lobes, finger tips, and lips). Hypoxia is prevented by heeding factors that reduce tolerance to altitude, by enriching the air or by remaining at lower altitudes.

HYPERVENTILATION:

Normally occurs when a stressful situation is encountered and can occur subconsciously. As hyperventilation "blows off" excessive carbon dioxide from the body, a pilot can experience systems of light-headedness, suffocation, drowsiness, and tingling in the extremities. Incapacitation can eventually result from in-coordination and painful muscle spasms. Reducing the stress or placing a paper bag over the nose and mouth can eliminate the problem breath normally.

CARBON MONOXIDE POISONING: Carbon monoxide is a colorless, odorless and tasteless gas contained in exhaust fumes. When breathed in minute quantities over a period of time, it can significantly reduce the ability of the blood to carry oxygen. [Consequently effects of hypoxia occur. A pilot who detects the odor of exhaust or experiences symptoms of headache, drowsiness, or dizziness while using the heater should immediately shut off the heater and open air vents. If symptoms are severe or continued after landing, medical treatment should be sought.]

MOTION SICKNESS

Generally brought about by turbulent conditions or anxiety. If you have a passenger complaining of motion sickness allow some fresh air into the cockpit, and try diverting the passengers attention. Find some smoother air and if necessary reduce airspeed. Get the passenger involved in the flight by having them search for waypoints or looking for other aircraft, by doing so may divert their mind away from the fact that they are feeling ill. Usually occurs among inexperienced passengers. Always carry a motion sickness bag.

SPATIAL DISORIENTATION

Many different illusions can be experienced in flight. Some can lead to spatial disorientation. Others can lead to landing errors. Illusions rank among the most common factors cited as contributing to fatal aircraft accidents. Various complex motions and forces and certain visual scenes encountered in flight can create illusions of motion and position. Spatial disorientation from these illusions can be prevented only by visual reference to reliable fixed points on the ground or the flight instruments.

CENTER OF GRAVITY:

Center of gravity: The point at which an aircraft would balance if it were suspended in air.

Effects of forward center of gravity:

- * **Higher stall speed:** stalling angle of attack reached at a higher speed due to increase wing loading.
- * **Slower cruise speeds:** Increased drag, greater angle of attack to maintain level flight.
- * **More stable:** When angle of attack is increased, the airplane tends to reduce angle of attack; longitudinal stability.
- * **Greater back elevator Pressure required:** Longer take-off roll, higher approach speed and harder to flare.

Effects of aft center of gravity:

- * **Lower stall speed:** Less wing loading
- * **Higher cruise speeds:** Reduced drag, smaller angle of attack required to maintain level flight, less drag.
- * **Less stable:** Stall and spin recovery more difficult; when angle of attack is increased it tends to result in additional increased angle of attack.

CONCLUSION:

The above information is only a guideline to your oral. There are many other areas that can be asked so use it only as an aide to your study. As I'm sure you realize the majority of the oral will be based on your cross country flight plan. Take time on it. Call and get weather information and present your flight plan in a neat and professional manner. In association with the flight plan be familiar with your sectional — review the legend — and be particularly comfortable with all items, and symbols along your route of flight. You can expect numerous questions on airspace — it is a "must know" area.

Regardless of the aircraft type you are flying usually the first few minutes of your oral will consist of completing a data sheet with weight and balance on the aircraft. Commit the speeds to memory and do a practice weight and balance the night before to ensure that you get off to a good start.

COMMONLY ASKED QUESTIONS:

1. Beacon colors at civilian and military airports.
2. Night flying and how your eye operates.
3. Oxygen requirements.
4. Validity of medical certificates.
5. Minimum equipment lists.
6. Fuel requirements for day and night flight.
7. Altitude at which an altitude encoding altimeter is required.
8. Lost and diversion procedures.
9. Alcohol level in the blood.
10. Light signals associated with loss of communications.
11. Instrument errors and failures.

Pilot Acronyms

Minimum Equipment - Day VFR

T - Tachometer
O - Oil Pressure Gauge
M - Manifold Pressure Gauge
A - Airspeed Indicator
T - Temperature Gauge (H₂O cooled engine)
O - Oil Temperature Gauge

F - Fuel Gauges
L - Landing Gear Indicator Lights
A - Altimeter
M - Magnetic Compass
E - Elt
S - Seatbelts

Current Airplane

A - Annual Inspection
A - Airworthiness Directives
V - VOR Check (30 days)
I - 100 hour Inspection
A - Altimeter/Static System (24 cal. months)
T - Transponder (24 cal. months)
E - Elt (12 cal. months, 1 hr. use, ½ useful life)

Lost Procedures

C - Climb
C - Communicate
C - Confess
C - Comply

IFR Clearance

C - Cleared to...
R - Route
A - Altitude
F - Frequency
T - Transponder Code

Approach Fix

T - Time
T - Turn
T - Twist
T - Transition
T - Talk

Night VFR

F - Fuses
L - Landing Light
A - Anti-collision Lights
P - Position Lights
S - Source of power

Minimum Equipment - IFR

G - Generator or Alternator
R - Radios
A - Altimeter
B - Ball
C - Clock
A - Attitude Indicator
R - Rate or Turn Indicator
D - Directional Gyro

Pre-Maneuver

H - Height
E - Engine Instruments
L - Location
L - Lookout (clearing turns)

Engine Failure

A - Airspeed/Best Glide Speed
L - Location to Land
A - Air-Restart
R - Radios (121.5)
M - Mayday Call
S - Secure

3 Things to Land

1. Normal position to land.
2. Required visibility.
3. Approach lights in sight -
100 feet above TDZE.

IFR - Ceilings less than 1,000 feet and/or visibility less than 3 miles

MVFR - Ceilings 1,000 to 3,000 feet and/or visibility 3 to 5 miles

VFR - Ceilings greater than 3,000 feet and visibility greater than 5 miles