



WEATHER THEORY

Measurement Of Temperature, Pressure And Moisture

The primary cause of all changes in the earth's weather is variation of solar energy received by the Earth's regions. .

Average sea level temperature is 59 degrees Fahrenheit, or 15 degrees Celsius, decreasing 2 degrees Celsius per 1000 feet. Unsaturated air flowing upslope will cool at 3 degrees per 1000 feet.

Average sea level pressure is 29.92 inches Hg., or 1013.2 millibars. Pressure decreases 1 inch per 1000 feet.

The tropopause is the boundary between the troposphere (below) and the stratosphere, and exists at an average height of 37,000 feet. The tropopause contains an abrupt change in temperature lapse rate. In the tropopause and stratosphere, there are relatively small changes in temperature with an increase in altitude.

The jet stream is a trough of high speed winds (50 knots or greater) that corresponds with the height of the tropopause. Jetstream winds are weaker and farther north in the summer.

Warm air can hold more moisture than cold air, so precipitation, clouds, and poor visibility can occur when the air is cooled to its dew point (the temperature at which the air is saturated).

Pressure Systems

An air mass is a body of air that covers an extensive area and has fairly uniform properties of temperature and moisture.

Pressure gradient toward a low pressure area, and coriolis force that deflects winds to the right, counteract to cause winds to flow parallel to the isobars.

Above 2000 AGL, wind flow is parallel to the isobars, and when the isobars are closer together, the pressure gradient is steeper and the winds are stronger.

Surface friction causes surface winds to flow across the isobars at an angle, rather than parallel to the isobars.

Stability

Stability of the air is determined by the ambient (actual) temperature lapse rate.

Stable air forced upward will remain stable and produce layer-like clouds with little vertical development.

Stability (Cont)

Unstable air forced upward will produce clouds with considerable vertical development and associated turbulence.

In general:

Stability	Stable	Unstable
Characteristic	Warm air over cold surface.	Cold air over warm surface.
Cloud type	Stratiform	Cumuliform
Smoothness	Smooth air	Turbulent
Frontal type	Warm front	Cold front
Precipitation	Steady rain	Showers and thunderstorms
Visibility	Poor	Good

The passage of any front always produces a wind change. Frontal waves are areas of low pressure that develop along a frontal line. They form on slow-moving cold fronts or on stationary fronts.

Temperature Inversions

A temperature inversion exists where there is an increase in temperature as altitude is increased.

Air is stable. Expect smooth air and poor visibility due to fog, haze, or low clouds.

The most frequent type of ground based inversion is that produced by ground radiation on clear, cool nights when the wind is light.

Lenticular Clouds

(ACSL) Altocumulus standing lenticular clouds are almond- or lens-shaped clouds that show little or no movement, but may contain strong winds and turbulence.

Wind Shear

Wind shear is a change in wind direction and/ or speed in a horizontal or vertical direction.

It may be encountered during periods of strong temperature inversion and near thunderstorms.

With a warm front, the most critical period is before the front passes the airport.

During a climb or descent through an inversion, be alert for a sudden change in airspeed.

Cumulonimbus Clouds (Thunderstorms)

The three ingredients needed to form a thunderstorm are unstable air, high moisture content, and a lifting action.

Thunderstorms always produce lightning. The thunderstorm life cycle has three stages:

CUMULUS (building) - Updrafts extend from the earth to above the cloud tops.

MATURE - Recognized by rainfall at the surface.

DISSIPATING - Comprised of downdrafts.

Squall line thunderstorms often develop ahead of a cold front, and produce the most severe conditions.

Squalls are sudden increases in windspeed of at least 15 knots, lasting for at least 1 minute.

Embedded thunderstorms are obscured by massive cloud layers and cannot be seen.

Microbursts

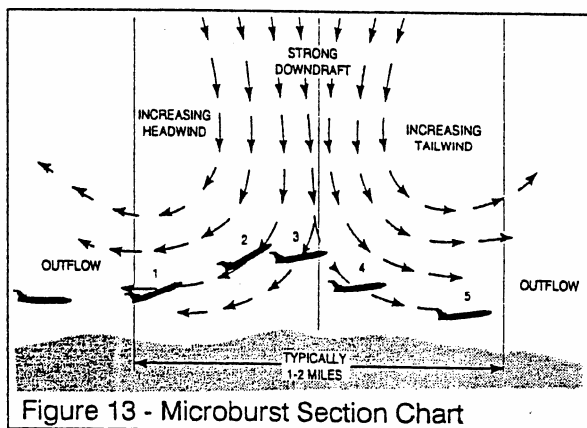


Figure 13 - Microburst Section Chart

Strong downdrafts from a thunderstorm may reach 6,000 FPM, and seldom last more than 15 minutes.

At position 1, expect a performance increase without a change in pitch or power.

At positions 3 and 4, expect the most severe downdraft.

At position 4, expect decreasing performance with a tailwind and downdraft.

An aircraft that encounters a 45 knot headwind within a microburst may expect a total of 90 knot windshear across the microburst.

If you cannot avoid penetrating a thunderstorm, set power for recommended turbulence penetration airspeed and attempt to maintain a level flight attitude.

Turbulence that momentarily causes slight, erratic changes in altitude and/or attitude is defined as light turbulence.

Structural icing

Freezing rain occurs where rain is falling into freezing temperatures. Temperatures are above freezing at some higher altitude. Freezing rain causes the highest rate of ice accumulation.

Ice pellets are freezing rain that has frozen, and indicate freezing rain at a higher altitude. Wet snow is an indication that the temperature is above freezing at your altitude.

Frost is formed if the surface temperature of the airplane is below dew point and the dew point is below freezing. Frost causes early airflow separation, resulting in a loss of lift.

Fog

Radiation fog occurs with clear sky, little or no wind, small temperature/dew point spread, and over a land surface.

Advection fog requires wind. It occurs in coastal areas as the result of an addition of moisture, when warm air flows from a body of water over a colder surface.

4092. I31 IRA

Which is true regarding the use of airborne weather-avoidance radar for the recognition of certain weather conditions?

- A) The radarscope provides no assurance of avoiding instrument weather conditions.
- B) The avoidance of hail is assured when flying between and just clear of the most intense echoes.
- C) The clear area between intense echoes indicates that visual sighting of storms can be maintained when flying between the echoes.

4094. I21 IRA

A common type of ground or surface based temperature inversion is that which is produced by

- A) warm air being lifted rapidly aloft in the vicinity of mountainous terrain.
- B) the movement of colder air over warm air, or the movement of warm air under cold air.
- C) ground radiation on clear, cool nights when the wind is light.

4095.

How much colder than standard temperature is the actual temperature at 9,000 feet, as indicated in the following excerpt from the Winds and Temperature Aloft Forecast?

FT	6000	9000
	0737-04	1043-10

- A) 3 °C.
- B) 10 °C.
- C) 7 °C.

NOTE: CORRECT ANSWER IN BOLD ITALICS



4096.
The primary cause of all changes in the Earth's weather is

- A) variation of solar energy received by the Earth's regions.
- B) changes in air pressure over the Earth's surface.
- C) movement of the air masses.

4097. I20 IRA
A characteristic of the stratosphere is

- A) an overall decrease of temperature with an increase in altitude.
- B) a relatively even base altitude of approximately 35,000 feet.
- C) relatively small changes in temperature with an increase in altitude.

4098. I27 IRA
Steady precipitation, in contrast to showers, preceding a front is an indication of

- A) stratiform clouds with moderate turbulence.
- B) cummuliform clouds with little or no turbulence.
- C) stratiform clouds with little or no turbulence.

4099. I24 IRA
The presence of ice pellets at the surface is evidence that

- A) there are thunderstorms in the area.
- B) a cold front has passed.
- C) there is freezing rain at a higher altitude.

4100. I29 IRA
Which conditions result in the formation of frost?

- A) The temperature of the collecting surface is at or below freezing and small droplets of moisture are falling.
- B) When dew forms and the temperature is below freezing.
- C) Temperature of the collecting surface is below the dewpoint of surrounding air and the dewpoint is colder than freezing.

4101.
To which meteorological condition does the term "dewpoint" refer?

- A) The temperature to which air must be cooled to become saturated.
- B) The temperature at which condensation and evaporation are equal.
- C) The temperature at which dew will always form.

4102. I24 IRA
What temperature condition is indicated if wet snow is encountered at your flight altitude?

- A) The temperature is above freezing at your altitude.
- B) The temperature is below freezing at your altitude.
- C) You are flying from a warm air mass into a cold air mass.

4103.
The amount of water vapor which air can hold largely depends on

- A) relative humidity.
- B) air temperature.
- C) stability of air.

4104.
Clouds, fog, or dew will always form when

- A) water vapor condenses.
- B) water vapor is present.
- C) the temperature and dewpoint are equal.

4105. I23 IRA
What causes surface winds to flow across the isobars at an angle rather than parallel to the isobars?

- A) Coriolis force.
- B) Surface friction.
- C) The greater density of the air at the surface.

4106.
Winds at 5,000 feet AGL on a particular flight are southwesterly while most of the surface winds are southerly. This difference in direction is primarily due to

- A) a stronger pressure gradient at higher altitudes.
- B) friction between the wind and the surface.
- C) stronger Coriolis force at the surface.

4107.
What relationship exists between the winds at 2,000 feet above the surface and the surface winds?

- A) The winds at 2,000 feet and the surface winds flow in the same direction, but the surface winds are weaker due to friction.
- B) The winds at 2,000 feet tend to parallel the isobars while the surface winds cross the isobars at an angle toward lower pressure and are weaker.
- C) The surface winds tend to veer to the right of the winds at 2,000 feet and are usually weaker.

NOTE: CORRECT ANSWER IN BOLD ITALICS



4108. I23 IRA

Which force, in the Northern Hemisphere, acts at a right angle to the wind and deflects it to the right until parallel to the isobars?

- A) Centrifugal.
- B) Pressure gradient.
- C) Coriolis.**

4112.

The most frequent type of ground- or surface-based temperature inversion is that produced by

- A) radiation on a clear, relatively still night.**
- B) warm air being lifted rapidly aloft in the vicinity of mountainous terrain.
- C) the movement of colder air under warm air, or the movement of warm air over cold air.

4113. I21 IRA

If the air temperature is +8 °C at an elevation of 1,350 feet and a standard (average) temperature lapse rate exists, what will be the approximate freezing level?

- A) 3,350 feet MSL.
- B) 5,350 feet MSL.**
- C) 9,350 feet MSL.

4114. I21 IRA

What feature is associated with a temperature inversion?

- A) A stable layer of air.**
- B) An unstable layer of air.
- C) Air mass thunderstorms.

4115. I25 IRA

What type of clouds will be formed if very stable moist air is forced upslope?

- A) First stratified clouds and then vertical clouds.
- B) Vertical clouds with increasing height.
- C) Stratified clouds with little vertical development.**

4116. I27 IRA

The general characteristics of unstable air are

- A) good visibility, showery precipitation, and cumuliform-type clouds.**
- B) good visibility, steady precipitation, and stratiform-type clouds.
- C) poor visibility, intermittent precipitation, and cumuliform-type clouds.

4117. I27 IRA

Which is a characteristic of stable air?

- A) Fair weather cumulus clouds.
- B) Stratiform clouds.**
- C) Unlimited visibility.

NOTE: CORRECT ANSWER IN BOLD ITALICS

4118.

What type clouds can be expected when an unstable air mass is forced to ascend a mountain slope?

- A) Layered clouds with little vertical development.
- B) Stratified clouds with considerable associated turbulence.
- C) Clouds with extensive vertical development.**

4119.

What are the characteristics of stable air?

- A) Good visibility, steady precipitation, and stratus-type clouds.
- B) Poor visibility, intermittent precipitation, and cumulus-type clouds.
- C) Poor visibility, steady precipitation, and stratus-type clouds.**

4120.

What are some characteristics of unstable air?

- A) Nimbostratus clouds and good surface visibility.
- B) Turbulence and poor surface visibility.
- C) Turbulence and good surface visibility.**

4121. I25 IRA

Stability can be determined from which measurement of the atmosphere?

- A) Low-level winds.
- B) Ambient lapse rate.**
- C) Atmospheric pressure.

4122. I25 IRA

What determines the structure or type of clouds which form as a result of air being forced to ascend?

- A) The method by which the air is lifted.
- B) The stability of the air before lifting occurs.**
- C) The amount of condensation nuclei present after lifting occurs.

4123.

Which of the following combinations of weather producing variables would likely result in cumuliform-type clouds, good visibility, rain showers, and possible clear-type icing in clouds?

- A) Unstable, moist air, and no lifting mechanism.
- B) Stable, dry air, and orographic lifting.
- C) Unstable, moist air, and orographic lifting.**

4124.

Unsaturated air flowing upslope will cool at the rate of approximately (dry adiabatic lapse rate)

- A) 3 °C per 1,000 feet.**
- B) 2 °C per 1,000 feet.
- C) 2.5 °C per 1,000 feet.

4125.
A temperature inversion will normally form only

A) in stable air.
B) in unstable air.
C) when a stratiform layer merges with a cumuliform mass.

4126. I30 IRA
Which weather phenomenon signals the beginning of the mature stage of a thunderstorm?

A) The start of rain at the surface.
B) Growth rate of cloud is maximum.
C) Strong turbulence in the cloud.

4127. I27 IRA
Frontal waves normally form on

A) slow moving cold fronts or stationary fronts.
B) slow moving warm fronts and strong occluded fronts.
C) rapidly moving cold fronts or warm fronts.

4128. I27 IRA
Which are characteristics of an unstable cold air mass moving over a warm surface?

A) Cumuliform clouds, turbulence, and poor visibility.
B) Cumuliform clouds, turbulence, and good visibility.
C) Stratiform clouds, smooth air, and poor visibility.

4129. I28 IRA
Which clouds have the greatest turbulence?

A) Towering cumulus.
B) Cumulonimbus.
C) Altocumulus castellanus.

4130. I28 IRA
Standing lenticular clouds, in mountainous areas, indicate

A) an inversion.
B) unstable air.
C) turbulence.

4131.
The suffix 'nimbus', used in naming clouds, means a

A) cloud with extensive vertical development.
B) raincloud.
C) dark massive, towering cloud.

4132. I28 IRA
The presence of standing lenticular altocumulus clouds is a good indication of

A) a jetstream.
B) very strong turbulence.
C) heavy icing conditions.

4133. I29 IRA
Which family of clouds is least likely to contribute to structural icing on an aircraft?

A) Low clouds.
B) High clouds.
C) Clouds with extensive vertical development.

4134. I26 IRA
What are the four families of clouds?

A) Stratus, cumulus, nimbus, and cirrus.
B) Clouds formed by updrafts, fronts, cooling layers of air, and precipitation into warm air.
C) High, middle, low, and those with extensive vertical development.

4135. I26 IRA
Where can wind shear associated with a thunderstorm be found? Choose the most complete answer.

A) In front of the thunderstorm cell (anvil side) and on the right side of the cell.
B) In front of the thunderstorm cell and directly under the cell.
C) On all sides of the thunderstorm cell and directly under the cell.

4136. I27 IRA
Which weather phenomenon is always associated with the passage of a frontal system?

A) A wind change.
B) An abrupt decrease in pressure.
C) Clouds, either ahead or behind the front.

4137. I30 IRA
Where do squall lines most often develop?

A) In an occluded front.
B) In a cold air mass.
C) Ahead of a cold front.

4138. I28 IRA
Where does wind shear occur?

A) Exclusively in thunderstorms.
B) Wherever there is an abrupt decrease in pressure and/or temperature.
C) With either a wind shift or a windspeed gradient at any level in the atmosphere

4139. I28 IRA
What is an important characteristic of wind shear?

A) It is primarily associated with the lateral vortices generated by thunderstorms.
B) It usually exists only in the vicinity of thunderstorms, but may be found near a strong temperature inversion.
C) It may be associated with either a wind shift or a windspeed gradient at any level in the atmosphere.

NOTE: CORRECT ANSWER IN BOLD ITALICS



4140.
Which is a characteristic of low-level wind shear as it relates to frontal activity?

- A) With a warm front, the most critical period is before the front passes the airport.
- B) With a cold front, the most critical period is just before the front passes the airport.
- C) Turbulence will always exist in wind-shear conditions.

4141. I27 IRA
What is indicated by the term “embedded thunderstorms”?

- A) Severe thunderstorms are embedded within a squall line.
- B) Thunderstorms are predicted to develop in a stable air mass.
- C) Thunderstorms are obscured by massive cloud layers and cannot be seen.**

4142. I57 IRA
If squalls are reported at your destination, what wind conditions should you anticipate?

- A) Sudden increases in windspeed of at least 16 knots to a peak of 20 knots or more, lasting for at least 1 minute.**
- B) Peak gusts of at least 35 knots for a sustained period of 1 minute or longer.
- C) Rapid variation in wind direction of at least 20° and changes in speed of at least 10 knots between peaks and lulls.

4143. I30 IRA
During the life cycle of a thunderstorm, which stage is characterized predominately by downdrafts?

- A) Cumulus.
- B) Dissipating.**
- C) Mature.

4144. I30 IRA
Which weather phenomenon is always associated with a thunderstorm?

- A) Lightning.**
- B) Heavy rain showers.
- C) Supercooled raindrops.

4145. I30 IRA
Which thunderstorms generally produce the most severe conditions, such as heavy hail and destructive winds?

- A) Warm front.
- B) Squall line.**
- C) Air mass.

4146. I30 IRA
Which procedure is recommended if a pilot should unintentionally penetrate embedded thunderstorm activity?

- A) Reverse aircraft heading or proceed toward an area of known VFR conditions.
- B) Reduce airspeed to maneuvering speed and maintain a constant altitude.
- C) Set power for recommended turbulence penetration airspeed and attempt to maintain a level flight attitude.**

4147. I30 IRA
What is an indication that downdrafts have developed and the thunderstorm cell has entered the mature stage?

- A) The anvil top has completed its development.
- B) Precipitation begins to fall from the cloud base.**
- C) A gust front forms.

4148. I30 IRA
What are the requirements for the formation of a thunderstorm?

- A) A cumulus cloud with sufficient moisture.
- B) A cumulus cloud with sufficient moisture and an inverted lapse rate.
- C) Sufficient moisture, an unstable lapse rate, and a lifting action.**

4149. I28 IRA
Fair weather cumulus clouds often indicate

- A) turbulence at and below the cloud level.**
- B) poor visibility.
- C) smooth flying conditions.

4150. I28 IRA
What is an important characteristic of wind shear?

- A) It is an atmospheric condition that is associated exclusively with zones of convergence.
- B) The Coriolis phenomenon in both high- and low-level air masses is the principal generating force.
- C) It is an atmospheric condition that may be associated with a low-level temperature inversion, a jet stream, or a frontal zone.**

4151. I29 IRA
Why is frost considered hazardous to flight operation?

- A) Frost changes the basic aerodynamic shape of the airfoil.
- B) Frost decreases control effectiveness.
- C) Frost causes early airflow separation resulting in a loss of lift.**

NOTE: CORRECT ANSWER IN BOLD ITALICS



4152. I29 IRA

In which meteorological environment is aircraft structural icing most likely to have the highest rate of accumulation?

- A) Cumulonimbus clouds.
- B) High humidity and freezing temperature.
- C) Freezing rain.**

4153. I29 IRA

What is an operational consideration if you fly into rain which freezes on impact?

- A) You have flown into an area of thunderstorms.
- B) Temperatures are above freezing at some higher altitude.**
- C) You have flown through a cold front.

4154.

The average height of the troposphere in the middle latitudes is

- A) 20,000 feet.
- B) 25,000 feet.
- C) 37,000 feet.**

4155.

A jetstream is defined as wind of

- A) 30 knots or greater.
- B) 40 knots or greater.
- C) 50 knots or greater.**

4156. I31 IRA

Under which condition does advection fog usually form?

- A) Moist air moving over colder ground or water.**
- B) Warm, moist air settling over a cool surface under no-wind conditions.
- C) A land breeze blowing a cold air mass over a warm water current.

4157. I31 IRA

A high cloud is composed mostly of

- A) ozone.
- B) condensation nuclei.
- C) ice crystals.**

4158. I27 IRA

An air mass is a body of air that

- A) has similar cloud formations associated with it.
- B) creates a wind shift as it moves across the Earth's surface.
- C) covers an extensive area and has fairly uniform properties of temperature and moisture.**

4159. I24 IRA

What enhances the growth rate of precipitation?

- A) Advective action.
- B) Upward currents.**
- C) Cyclonic movement.

4160. I30 IRA

If you fly into severe turbulence, which flight condition should you attempt to maintain?

- A) Constant airspeed (VA).
- B) Level flight attitude.**
- C) Constant altitude and constant airspeed.

4161. I24 IRA

Which precipitation type normally indicates freezing rain at higher altitudes?

- A) Snow.
- B) Hail.
- C) Ice pellets.**

4162. I32 IRA

Which weather condition can be expected when moist air flows from a relatively warm surface to a colder surface?

- A) Increased visibility.
- B) Convective turbulence due to surface heating.
- C) Fog.**

4163. I31 IRA

Fog is usually prevalent in industrial areas because of

- A) atmospheric stabilization around cities.
- B) an abundance of condensation nuclei from combustion products.**
- C) increased temperatures due to industrial heating.

4164. I31 IRA

In which situation is advection fog most likely to form?

- A) An air mass moving inland from the coast in winter.**
- B) A light breeze blowing colder air out to sea.
- C) Warm, moist air settling over a warmer surface under no-wind conditions.

4165. I31 IRA

In what localities is advection fog most likely to occur?

- A) Coastal areas.**
- B) Mountain slopes.
- C) Level inland areas.

4166.

What types of fog depend upon a wind in order to exist? .

- A) Steam fog and downslope fog.
- B) Precipitation-induced fog and ground fog.
- C) Advection fog and upslope fog.**

NOTE: CORRECT ANSWER IN BOLD ITALICS



4167. I31 IRA

What situation is most conducive to the formation of radiation fog?

- A) Warm, moist air over low, flatland areas on clear, calm nights.
- B) Moist, tropical air moving over cold, offshore water.
- C) The movement of cold air over much warmer water.

4168.

The strength and location of the jetstream is normally

- A) stronger and farther north in the winter.
- B) weaker and farther north in the summer.**
- C) stronger and farther north in the summer.

4169. I31 IRA

Which conditions are favorable for the formation of radiation fog?

- A) Moist air moving over colder ground or water.
- B) Cloudy sky and a light wind moving saturated warm air over a cool surface.
- C) Clear sky, little or no wind, small temperature/dewpoint spread, and over a land surface.**

4171. I29 IRA

Test data indicate that ice, snow, or frost having a thickness and roughness similar to medium or coarse sandpaper on the leading edge and upper surface of a wing can

- A) reduce lift by as much as 50 percent and increase drag by as much as 50 percent.
- B) increase drag and reduce lift by as much as 25 percent.
- C) reduce lift by as much as 30 percent and increase drag by 40 percent.**

4200.

Which weather conditions should be expected beneath a low-level temperature inversion layer when the relative humidity is high?

- A) Smooth air and poor visibility due to fog, haze, or low clouds.**
- B) Light wind shear and poor visibility due to haze and light rain.
- C) Turbulent air and poor visibility due to fog, low stratus-type clouds, and showery precipitation.

4210. I67 IRA

A pilot reporting turbulence that momentarily causes slight, erratic changes in altitude and/or attitude should report it as

- A) light turbulence.**
- B) moderate turbulence.
- C) light chop.

NOTE: CORRECT ANSWER IN BOLD ITALICS

4227.

Which feature is associated with the tropopause?

- A) Absence of wind and turbulent conditions.
- B) Absolute upper limit of cloud formation.
- C) Abrupt change in temperature lapse rate.**

4238. I23 IRA

Hazardous wind shear is commonly encountered near the ground

- A) during periods when the wind velocity is stronger than 35 knots.
- B) during periods when the wind velocity is stronger than 35 knots and near mountain valleys.
- C) during periods of strong temperature inversion and near thunderstorms.**

4251. J25 IRA

What is the expected duration of an individual microburst?

- A) Two minutes with maximum winds lasting approximately 1 minute.
- B) One microburst may continue for as long as 2 to 4 hours.
- C) Seldom longer than 15 minutes from the time the burst strikes the ground until dissipation.**

4252. J25 IRA

Maximum downdrafts in a microburst encounter may be as strong as

- A) 8,000 feet per minute.
- B) 7,000 feet per minute.
- C) 6,000 feet per minute.**

4253.

An aircraft that encounters a headwind of 45 knots, within a microburst, may expect a total shear across the microburst of

- A) 40 knots.
- B) 80 knots.
- C) 90 knots.**

4254.

(Refer to figure 13.) If involved in a microburst encounter, in which aircraft positions will the most severe downdraft occur?

- A) 4 and 5.
- B) 2 and 3.
- C) 3 and 4.**

4255.

(Refer to figure 13.) When penetrating a microburst, which aircraft will experience an increase in performance without a change in pitch or power?

- A) 3.
- B) 2.
- C) 1.**



4256.
(Refer to figure 13.) The aircraft in position 3 will experience which effect in a microburst encounter?

- A) Decreasing headwind.
- B) Increasing tailwind.
- C) Strong downdraft.**

4257.
(Refer to figure 13.) What effect will a microburst encounter have upon the aircraft in position 4?

- A) Strong tailwind.**
- B) Strong updraft.
- C) Significant performance increase.

4258.
(Refer to figure 13.) How will the aircraft in position 4 be affected by a microburst encounter?

- A) Performance increasing with a tailwind and updraft.
- B) Performance decreasing with a tailwind and downdraft.**
- C) Performance decreasing with a headwind and down draft.

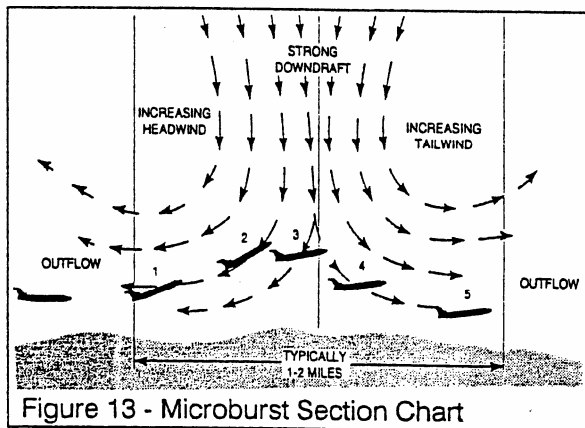


Figure 13 - Microburst Section Chart

NOTE: CORRECT ANSWER IN BOLD ITALICS