MAXIMUM WEIGHT

Maximum Take-off Weight . . . . . 10,100 lbs
Maximum Landing Weight . . . . . 9,700 lbs
Maximum Ramp Weight . . . . . 10,160 lbs
Maximum Zero Fuel Weight . . . . . No Limitation

CENTER OF GRAVITY LIMITS (Landing Gear Extended)

Aft Limit: 160.0 inches aft of datum at all weights.
Forward Limit: At 10,100 lbs., 152.0 inches aft of datum; at 9700 lbs., 150.7 inches aft of datum; at 7850 lbs. or less, 144.7 inches aft of datum.

STRUCTURAL LIMITATIONS

Maximum Operating Cabin Pressure Differential . . . . . 4.7 psi

Fuselage Pressure Vessel Structure . . . . . Inspections in Chapters 5 and 53-10-00 of the Beech *King Air 90 Series Maintenance Manual* are required for continued airworthiness.

AFT FACING CHAIRS

Only aft facing seats (placarded as such on the leg crossmember) are authorized in the aft facing position. The headrest and seat back of the aft facing seat must be in the fully raised position for takeoff and landing.

LIMITATIONS WHEN ENCOUNTERING SEVERE ICING CONDITIONS (Required By FAA AD 98-04-24)

WARNING

Severe icing may result from environmental conditions outside of those for which the airplane is certificated. Flight in freezing rain, freezing drizzle, or mixed icing conditions (supercooled liquid water and ice crystals) may result in ice build-up on protected surfaces exceeding the capability of the ice protection system, or may result in ice forming aft of the protected surfaces. This ice may not be shed using the ice protection systems, and may seriously degrade the performance and controllability of the airplane.

1. During flight, severe icing conditions that exceed those for which the airplane is certificated shall be determined by the following visual cues. If one or more of these visual cues exists, immediately request priority handling from Air Traffic Control to facilitate a route or an altitude change to exit the icing conditions.
   a. Unusually extensive ice accumulation on the airframe and windshield in areas not normally observed to collect ice.
   b. Accumulation of ice on the upper surface of the wing, aft of the protected area.
   c. Accumulation of ice on the engine nacelles and propeller spinners farther aft than normally observed.
2. Since the autopilot, when installed and operating, may mask tactile cues that indicate adverse changes in handling characteristics, use of the autopilot is prohibited when any of the visual cues specified above exist, or when unusual lateral trim requirements or autopilot trim warnings are encountered while the airplane is in icing conditions.
3. All wing icing inspection lights must be operative prior to flight into known or forecast icing conditions at night. [NOTE: This supersedes any relief provided by the Master Minimum Equipment List (MMEL).]

AFTER LANDING

1. Landing and Taxi Lights - AS REQUIRED
2. Ice Protection - OFF
3. Electrical Load - OBSERVE LIMITS
4. Trim - SET
5. Flaps - UP

ENGINE SHUTDOWN AND SECURING

1. Parking Brake - SET
2. Inverter - OFF
3. Avionics - OFF
4. Light Switches - OFF
5. Autofeather Switch - OFF
6. Fuel Control Heat Switches - OFF
7. Cabin Temp Mode - OFF; Vent Blower - AUTO
8. Battery - CHARGED (BATTERY CONDITION CHECK - Refer to page 2-11)
9. ITT - BELOW 585°C FOR ONE MINUTE
10. Propeller Levers - FEATHER
11. Condition Levers - CUT OFF
12. Master Cockpit Light Switch - OFF

CAUTION

Monitor ITT during shutdown. If sustained combustion is observed, proceed immediately to the ENGINE CLEARING procedure on Page 2-3. During shutdown, ensure that the compressors decelerate freely. Do not close the Fuel Firewall Valves for normal engine shutdown.

13. Battery and Generator Switches - OFF
14. Control Locks, Pitot Covers, Tie-down and Chocks - AS REQUIRED

CAUTION

The standby pumps are connected to the batttery bus. Failure to turn these switches OFF will discharge the battery.

NIGHT OR INSTRUMENT FLIGHT (BEFORE TAKE-OFF)

1. Internal Lights - CHECK
2. External Lights - CHECK
3. Flight Instruments - CHECK
4. Instrument Vacuum and Deice Pressure - CHECK (HIGH IDLE)
5. Voltage and Loadmeters - CHECK
6. Engine Auto-ignition - CHECK

ICING FLIGHT

CAUTION

Stalling airspeeds should be expected to increase when ice has accumulated on the airplane due to the distortion of the wing airfoil. For the same reason, stall warning devices are not accurate and should not be relied upon. Keep a comfortable margin of airspeed above the normal stall airspeed with ice on the airplane. Maintain a minimum of 140 knots during sustained icing conditions to prevent ice accumulation on unprotected surfaces of the wing. To ensure adequate windshield anti-icing protection, operation in icing conditions at or below ambient temperatures of -24°C is not recommended.

Check all systems before take-off when icing flight is anticipated.

1. Engine Anti-Ice

a. Before take-off: 1000 ft lbs torque or above
   (1) Engine Ice Protection Controls
      (a) Extend (pull) - Check for torque drop, indicating vane extension
      (b) Retract (push) - Check for torque increase to previous reading, indicating vane retraction
   (2) Power Levers - IDLE

b. In Flight:
   (1) Before visible moisture is encountered at + 5°C and below, or;
   (2) At night when freedom from visible moisture is not assured at + 5°C and below
      (a) Engine ice protection - PULL
      (b) Check proper operation by noting torque drop
      (c) Regain torque by advancing power levers if desired (observe ITT limits)

CAUTION

If in doubt, extend the vanes. Engine icing can occur even though no surface icing is present. If freedom from visible moisture can not be assured, engine ice protection should be activated. Visible moisture is moisture in any form; clouds, ice crystals, snow, rain, sleet, hail or any combination of these.

2. Engine Auto-Ignition

a. Before Take-off
   (1) Power Levers - IDLE
   (2) Engine Auto-Ignition Switches - ARM
   (3) Annunciator Panel - IGNITION LIGHTS ILLUMINATED
   (4) Power Levers - ADVANCE TO ABOVE 425 FOOT-POUNDS TORQUE (Annunciator Lights - OFF, Green ARM lights - ON)
   (5) Power Levers - RETARD TO IDLE (Annunciator Lights - ON, Green ARM lights - OFF)

b. In Flight:
   (1) Engine Auto-Ignition - ARM

NOTE

Engine auto-ignition must be ARMED for icing flights and flights at night above 14,000 feet. To prevent prolonged operation of the igniters during descent when auto-ignition is armed, do not reduce power below 425 ft lbs torque.

3. Surface Deice System

a. Before take-off: Deice switch - CHECK BOTH POSITIONS (SINGLE - Up, MANUAL - Down)
   (1) Check deice pressure gage
   (2) Check boots visually for inflation and hold down

b. In flight: (When ice accumulates 1/2 to 1 inch) - Deice switch - SINGLE. Repeat as required.

NOTE

Either engine will supply sufficient air for deice operation. In the event of failure of SINGLE cycle, use MANUAL cycle.

4. Windshield Heat Switch - AS REQUIRED (before ice forms)

5. Stall Warning Heat Switch - ON

6. Pitot Heat Switches - ON

CAUTION

Prolonged use of pitot and stall warning heat on the ground will damage the heating elements.

Temporary Change
to the
FAA Approved Airplane Flight Manual

P/N 90-590012-3TC2

PUBLICATION AFFECTED:	Beech King Air E90 FAA Approved Airplane Flight Manual, P/N 90-590012-3, Dated March 17, 1972, or later revision.
DESCRIPTION OF CHANGE:	Allows for visual checking of both wing and both horizontal stabilizer boots for inflation and hold down.
FILING INSTRUCTIONS:	Insert this Temporary Change into the Beech King Air E90 FAA Approved Airplane Flight Manual following page 2-8 (Section II, NORMAL PROCEDURES), and retain until rescinded or replaced.

NORMAL PROCEDURES

ICING FLIGHT

1. *Surface Deice System:*
   a. Preflight: Check boots for damage and cleanliness.
   b. Before Take-off: Check Boots for Inflation and Vacuum Hold Down
      1) Condition Levers - HIGH IDLE
      2) Pneumatic Pressure - GREEN ARC (12-20 PSI)
      3) Surface Deice Switch - SINGLE AND RELEASE
         a) Pneumatic Pressure Gage - WILL DECREASE MOMENTARILY
         b) Boots - CHECK BOTH WING AND BOTH HORIZONTAL STABILIZER BOOTS VISUALLY, IF POSSIBLE, FOR INFLATION AND VACUUM HOLD DOWN
         c) Wing Boots will inflate in approximately 6 seconds, followed by horizontal stabilizer boots.
      4) Surface Deice Switch - MANUAL AND HOLD
         a) Pneumatic Pressure Gage - WILL DECREASE MOMENTARILY
         b) Boots - CHECK BOTH WING AND BOTH HORIZONTAL STABILIZER BOOTS VISUALLY, IF POSSIBLE, FOR INFLATION
      5) Surface Deice Switch - RELEASE
         • Boots - CHECK BOTH WING AND BOTH HORIZONTAL STABILIZER BOOTS VISUALLY, IF POSSIBLE, FOR VACUUM HOLD DOWN
      6) Condition Levers - LOW IDLE

FAA Approved by: [redacted]
for John Tigue
Raytheon Aircraft Company
DOA-230339-CE

7. Electrothermal Propeller Deice:

CAUTION

Do not operate propeller deice when the propellers are static.

a. Before Take-off:
   (1) Propeller Heat Switch - ON
   (2) Deice Ammeter - 14 to 18 AMPERES
   (3) To check the automatic timer, watch the deice ammeter closely for at least two minutes. A small momentary needle deflection approximately every 30 seconds shows that the timer is switching and indicates normal system operation.

b. In Flight
   (1) Propeller Heat Switch - ON. The system may be operated continuously in flight and will function automatically until the switch is turned OFF.
   (2) Relieve propeller imbalance due to ice by increasing rpm briefly and returning to the desired setting. Repeat as necessary.

CAUTION

If the propeller ammeter reads above 18 amperes or below 14 amperes, refer to the EMERGENCY PROCEDURES section.

8. Engine Air Inlet

a. In Flight:
   (1) Engine Lip Boot Switches - ON (before ice forms)

9. Fuel Vent Heat Switches - ON

10. Wing Ice Lights - AS REQUIRED

11. Static Air Source - REFER TO EMERGENCY PROCEDURES SECTION

BLENDING ANTI-ICING ADDITIVE TO FUEL

The following procedure will be used when blending anti-icing additive complying with MIL-I-17686 as the aircraft is being refueled through the tank fillers.

1. Using "HI-FLO PRIST" blender (Model PHF-204), remove cap containing the tube and clip assembly
2. Attach piston grip on collar
3. Press tube into button
4. Clip tube end to fuel nozzle
5. Pull trigger firmly to assure full flow and lock in place
6. Start flow of additive when refueling begins. (Refueling should be at 30 gal/min minimum, 60 gal/min maximum. A rate of less than 30 gal/min may be used when topping off tanks.)

CAUTION

Assure that the additive is directed into the flowing fuel stream and that additive flow is started after fuel flow starts and is stopped before fuel flow stops. Do not allow concentrated additive to contact coated interior of fuel cells or aircraft painted surfaces. Use not less than 20 fl oz of additive per 260 gallons of fuel or more than 20 fl oz of additive per 104 gallons of fuel.

FAILURE OF SECONDARY (ELECTRICAL) LOW PITCH STOP (IF INSTALLED)

With a combination of both low airspeed (below 110 kts) and low power (below 400 ft-lbs), if either Secondary Low Pitch Stop warning light illuminates in flight DO NOT pull the " PROP GOV - IDLE STOP" circuit breaker, and DO NOT attempt reversing upon landing.

At airspeeds above 110 kts and/or power settings above 400 ft-lbs, if either Secondary Low Pitch Stop warning light illuminates in flight, AND the respective propeller begins feathering:

1. Power Lever (affected side) . . . . . .REDUCE AS REQUIRED (to keep torque within limits)
2. "PROP GOV - IDLE STOP" Circuit Breaker (copilot's right subpanel). . . . . PULL
   (Warning light should extinguish and propeller speed should increase to governor setting.)
3. Power Lever (affected side) . . . . . .RETURN TO DESIRED POWER

WARNING

If the Secondary Low Pitch Stop system is installed in the airplane, any malfunction of the system must be repaired before the next flight.

SEVERE ICING CONDITIONS
(Alternate Method Of Compliance With FAA AD 98-04-24)

THE FOLLOWING WEATHER CONDITIONS MAY BE CONDUCIVE TO SEVERE IN-FLIGHT ICING:

- Visible rain at temperatures below 0 degrees Celsius ambient air temperature.
- Droplets that splash or splatter on impact at temperatures below 0 degrees Celsius ambient air temperature.

PROCEDURES FOR EXITING THE SEVERE ICING ENVIRONMENT:

These procedures are applicable to all flight phases from takeoff to landing. Monitor the ambient air temperature. While severe icing may form at temperatures as cold as -18 degrees Celsius, increased vigilance is warranted at temperatures around freezing with visible moisture present. If the visual cues specified in the Limitations Section for identifying severe icing conditions are observed, accomplish the following:

1. Immediately request priority handling from Air Traffic Control to facilitate a route or an altitude change to exit the severe icing conditions in order to avoid extended exposure to flight conditions more severe than those for which the airplane has been certificated.
2. Avoid abrupt and excessive maneuvering that may exacerbate control difficulties.
3. Do not engage the autopilot.
4. If the autopilot is engaged, hold the control wheel firmly and disengage the autopilot.
5. If an unusual roll response or uncommanded roll control movement is observed, reduce the angle-of-attack.
6. Do not extend flaps when holding in icing conditions. Operation with flaps extended can result in a reduced wing angle-of-attack, with the possibility of ice forming on the upper surface further aft on the wing than normal, possibly aft of the protected area.
7. If the flaps are extended, do not retract them until the airframe is clear of ice.
8. Report these weather conditions to Air Traffic Control.

Light	Occupants may be required to use seat belts, but objects in the airplane remain at rest.

Thunderstorms, squall lines and violent turbulence should be regarded as extremely dangerous and must be avoided. Hail and tornadic wind velocities can be encountered in thunderstorms that can destroy any airplane, just as tornadoes destroy nearly everything in their path on the ground.

Thunderstorms also pose the possibility of a lightning strike on an airplane. Any structure or equipment which shows evidence of a lightning strike, or being subjected to a high current flow due to a strike, or is a suspected part of a lightning strike path through the airplane, should be thoroughly inspected and any damage repaired prior to additional flight.

A roll cloud ahead of a squall line or thunderstorm is visible evidence of violent turbulence; however, the absence of a roll cloud should not be interpreted as denoting that severe turbulence is not present.

Even though flight in severe turbulence must be avoided, flight in turbulent air may be encountered unexpectedly under certain conditions.

The following recommendations should be observed for airplane operation in turbulent air:

Flying through turbulent air presents two basic problems, the answer to both is proper airspeed. On one hand, if you maintain an excessive airspeed, you run the risk of structural damage or failure; on the other hand, if your airspeed is too low, you may stall.

If turbulence is encountered, reduce speed to the turbulent air penetration speed, if given, or to the maneuvering speed, which is listed in the Limitations Section of the Pilot's Operating Handbook and FAA Approved Airplane Flight Manual. These speeds give the best assurance of avoiding excessive stress loads, and at the same time providing the proper margin against inadvertent stalls due to gusts.

Beware of overcontrolling in an attempt to correct for changes in attitude; applying control pressure abruptly will build up G-forces rapidly and could cause structural damage or even failure. You should watch particularly your angle of bank, making turns as wide and shallow as possible. Be equally cautious in applying forward or back pressure to keep the airplane level. Maintain straight and level attitude in either up or down drafts. Use trim sparingly to avoid being grossly out of trim as the vertical air columns change velocity and direction. If necessary to avoid excessive airspeeds, lower the landing gear.

WIND SHEAR

Wind shears are rapid, localized changes in wind direction, which can occur vertically as well as horizontally. Wind shear can be very dangerous to all airplanes, large and small, particularly on approach to landing when airspeeds are slow.

A horizontal wind shear is a sudden change in wind direction or speed that can, for example, transform a headwind into a tailwind, producing a sudden decrease in airspeed because of the inertia of the airplane. A vertical wind shear is a sudden updraft or downdraft. Microbursts are intense, highly localized severe downdrafts.

The prediction of wind shears is far from an exact science. Monitor your airspeed carefully when flying in storms, particularly on approach. Be mentally prepared to add power and go around at the first indication that a wind shear is being encountered.

FLIGHT IN ICING CONDITIONS

Every pilot should be intimately acquainted with the FAA Approved National Weather Service definitions for ice intensity and accumulation which we have reprinted below:

Intensity	Ice Accumulation
Trace	Ice becomes perceptible. Rate of accumulation slightly greater than rate of sublimation. It is not hazardous even though deicing/anti-icing equipment is not utilized, unless encountered for an extended period of time (over 1 hour).
Light	The rate of accumulation may create a problem if flight is prolonged in this environment (over 1 hour). Occasional use of deicing/anti-icing equipment will prevent or remove accumulation. It does not present a problem if the deicing/anti-icing equipment is used.
Moderate	The rate of accumulation is such that even short encounters become potentially hazardous and use of deicing/anti-icing equipment, or diversion, is necessary.
Severe	The rate of accumulation is such that deicing/anti-icing equipment fails to reduce or control the hazard. Immediate diversion is necessary.

It is no longer unusual to find deicing and anti-icing equipment on a wide range of airplane sizes and types. Since the

capability of this equipment varies, it becomes the pilot's primary responsibility to understand limitations which restrict the use of the airplane in icing conditions and the conditions which may exceed the systems capacity.

Pilots and airplane owners must carefully review the Pilot's Operating Handbook and FAA Approved Airplane Flight Manual in order to ascertain the required operable equipment needed for flight in icing conditions. In addition, they must ascertain from the same sources the limits of approval or certification of their airplane for flight in icing conditions, and plan the flight accordingly if icing conditions are known or forecast along the route.

Remember that regardless of its combination of deicing/anti-icing equipment, any airplane not fully equipped and functional for IFR flight is not properly equipped for flight in icing conditions. An airplane which does not have all critical areas protected in the required manner by fully operational equipment must not be exposed to icing encounters of any intensity. When icing is detected, the pilot of such an airplane must make immediate diversion by flying out of the area of visible moisture or going to an altitude where icing is not encountered.

Even airplanes fully equipped and certified for flight in the icing conditions described in Appendix C to FAR Part 25 must avoid flights into those conditions defined by the National Weather Service as "Severe". No airplane equipped with any combination of deicing/anti-icing equipment can be expected to cope with such conditions. As competent pilots know, there appears to be no predictable limits for the severest weather conditions. For essentially the same reasons that airplanes, however designed or equipped for IFR flight, cannot be flown safely into conditions such as thunderstorms, tornadoes, hurricanes or other phenomena likely to produce severe turbulence, airplanes equipped for flight in icing conditions cannot be expected to cope with "Severe" icing conditions as defined by the National Weather Service. The prudent pilot must remain alert to the possibility that icing conditions may become "Severe" and that his equipment will not cope with them. At the first indication that such condition may have been encountered or may lie ahead, he should immediately react by selecting the most expeditious and safe course for diversion.

Every pilot of a properly fully-equipped Beech airplane who ventures into icing conditions must maintain the minimum speed (KIAS) for operation in icing conditions, which is set forth in the Normal Procedures section, and in the Limitations section, of his Pilot's Operating Handbook and FAA Approved Airplane Flight Manual. The pilot must remain aware of the fact that if he allows his airspeed to deteriorate below this minimum speed, he will increase the angle of attack of his airplane to the point where ice may build up on the under side of the wings aft of the area protected by the deice/anti-icing equipment.

Ice build-up, and its extent in unprotected areas may not be directly observable from the cockpit. Due to distortion of the wing airfoil, increased drag and reduced lift, stalling speeds will increase as ice accumulates on the airplane. For the same reasons, stall warning devices are not accurate and cannot be relied upon in icing conditions.

Even though the pilot maintains the prescribed minimum speeds for operating in icing conditions, ice is still likely to build up on the unprotected areas. Under some atmospheric conditions, it may even build up aft of the de-iced areas despite the maintenance of the prescribed minimum speed. The effect of ice accumulation on any unprotected surface is aggravated by length of exposure to the icing conditions. Ice buildup on unprotected surfaces will increase drag, add weight, reduce lift, and generally, adversely affect the aerodynamic characteristics and performance of the airplane. It can progress to the point where the airplane is no longer capable of flying. Therefore, the pilot operating even a fully-equipped airplane in sustained icing conditions must remain sensitive to any indication, such as observed ice accumulation, loss of airspeed, the need for increased power, reduced rate of climb, or sluggish response, that ice is accumulating on unprotected surfaces and that continued flight in these conditions is extremely hazardous, regardless of the performance of the deicing/anti-icing equipment.

Since flight in icing conditions is not an everyday occurrence, it is important that you maintain a proper proficiency and awareness of the operating procedures necessary for safe operation of the airplane and that the airplane is in a condition for safe operation.

Ensure moisture drains in the airplane structure are maintained open as specified in the Aircraft Maintenance Manual, so that moisture will not collect and cause freezing in the control cable area. Also, control surface tab hinges should be maintained and lubricated as specified in the Aircraft Maintenance Manual.

In icing conditions the autopilot should be disengaged at an altitude sufficient to permit the pilot to gain the feel of the airplane prior to landing. In no case should this be less than the minimum altitude specified in the Autopilot Airplane Flight Manual Supplement.

Observe the procedures set forth in your Pilot's Operating Handbook and FAA Approved Airplane Flight Manual during operation in icing conditions.

Activate your deice and anti-icing systems before entering an area of moisture where you are likely to go through a freezing level.

For any owner or pilot whose use pattern for an airplane exposes it to icing encounters, the following references are required reading for safe flying:

- The airplane's Pilot's Operating Handbook and FAA Approved Airplane Flight Manual, especially the sections on Normal Procedures, Emergency Procedures, Abnormal Procedures, Systems, and Safety Information.
- FAA Advisory Circular 91-51 - Airplane Deice and Anti-ice Systems.
- Weather Flying by Robert N. Buck.

Finally, the most important ingredients to safe flight in icing conditions - regardless of the airplane or the combination of deicing/anti-icing equipment - are a complete and current weather briefing, sound pilot judgment, close attention to the rate and type of ice accumulations, and the knowledge that "severe icing" as defined by the National Weather Service is beyond the capability of modern airplanes and an immediate diversion must be made. It is the inexperienced or uneducated pilot who presses on "regardless" hoping that steadily worsening conditions will improve, only to find himself flying an airplane which has become so loaded with ice that he can no longer maintain altitude. At this point he has lost most, if not all, of his safety options, including perhaps a 180 degree turn to return along the course already traveled.

The responsible and well-informed pilot recognizes the limitations of weather conditions, his airplane and its systems, and reacts promptly.

WEATHER RADAR

Airborne weather avoidance radar is, as its name implies, for avoiding severe weather - not for penetrating it. Whether to fly into an area of radar echoes depends on echo intensity, spacing between the echoes, and the capabilities of you and your airplane. Remember that weather radar detects precipitation drops. Except for the most advanced radar units, it does not detect turbulence. Therefore, the radar scope provides no assurance of avoiding turbulence. The radar scope also does not provide assurance of avoiding instrument weather from clouds and fog. Your scope may be clear between intense echoes; this clear area does not necessarily mean you can fly between the storms and maintain visual sighting of them.

Thunderstorms build and dissipate rapidly. Therefore, do not attempt to plan a course between echoes. The best use of ground radar information is to isolate general areas and coverage of echoes. You must avoid individual storms by in-flight observations either by visual sighting or airborne radar. It is better to avoid the whole thunderstorm area than to detour around individual storms, unless they are scattered.

Remember that while hail always gives a radar echo, it may fall several miles from the nearest visible cloud and hazardous turbulence may extend to as much as 20 miles from the echo edge. Avoid intense or extreme level echoes by at least 20 miles; that is, such echoes should be separated by at least 40 miles before you fly between them. With weaker echos you can reduce the distance by which you avoid them.

Above all, remember this; never regard any thunderstorm lightly. Even when radar observers report the echoes are of light intensity, avoiding thunderstorms is the best policy. The following are some do's and don'ts of thunderstorm avoidance:

1. Don't land or take off in the face of an approaching thunderstorm. Sudden gust-front low level turbulence could cause loss of control.
2. Don't attempt to fly under a thunderstorm even if you can see through to the other side. Turbulence and wind shear under the storm could be disastrous.
3. Don't fly without airborne radar into a cloud mass containing scattered embedded thunderstorms. Scattered thunderstorms not embedded usually can be visually circumnavigated.
4. Don't trust the visual appearance to be a reliable indicator of the turbulence inside a thunderstorm.
5. Do avoid by at least 20 miles any thunderstorm identified as severe or giving an intense radar echo. This is especially true under the anvil of a large cumulonimbus.
6. Do circumnavigate the entire area if the area has 6/10 or more thunderstorm coverage.
7. Do remember that vivid and frequent lightning indicates the probability of a severe thunderstorm.
8. Do regard as extremely hazardous any thunderstorm with tops 35,000 feet or higher whether the top is visually sighted or determined by radar.

If you cannot avoid penetrating a thunderstorm, the following are some do's BEFORE entering the storm:

9. Tighten your safety belt, put on your shoulder harness, and secure all loose objects.
10. Plan and hold your course to take you through the storm in minimum time.
11. To avoid the most critical icing, establish a penetration altitude below the freezing level or an altitude where the OAT is -15°C or colder.
12. Verify that pitot heat is on, and activate anti-ice systems. Icing can be rapid at any altitude and can cause almost instantaneous power failure and/or loss of airspeed indication.

MOUNTAIN FLYING

Pilots flying in mountainous areas should inform themselves of all aspects of mountain flying, including the effects of topographic features on weather conditions. Many good articles have been published, and a synopsis of mountain flying operations is included in the FAA Airman's Information Manual, Part 1.

Avoid flight at low altitudes over mountainous terrain, particularly near the lee slopes. If the wind velocity near the level of the ridge is in excess of 25 knots and approximately perpendicular to the ridge, mountain wave conditions are likely over and near the lee slopes. If the wind velocity at the level of the ridge exceeds 50 knots, a strong mountain wave is probable with extreme up and down drafts and severe turbulence. The worst turbulence will be encountered in and below the rotor zone, which is usually 8 to 10 miles downwind from the ridge. This zone is sometimes characterized by the presence of "roll clouds" if sufficient moisture is present. Altocumulus standing lenticular clouds are also visible signs that a mountain wave exists, but their presence is likewise dependent upon moisture. Mountain wave turbulence can, of course, occur in dry air and the absence of such clouds should not be taken as assurance that mountain wave turbulence will not be encountered. A mountain