

Part 135

Quick Reference
Handbook

Quick Reference Handbook

Table of Contents

Section 1	3	Oxygen Equipment Requirements	9
Aircraft Speed	3	Procedures during Instrument Approaches	9
Holding	3	Radio Communication Loss	10
Airspace	3	RVR and Ground Visibility - comparable values	10
Alternate Airports	4	Takeoff Airport Requirements	10
Alternate Airport Requirements	4	Two pilot crews: Lower than Standard T/O mins:	10
ATC Light Signals	5	Turbojet Operations	11
Bomb Threats, Weapons See Section II	5	VFR Weather Minimums	11
Circling Maneuvers	5	Section 2	12
Contact Approach	5	Weapons	12
Destination Airport Requirements	5	Bomb Threats	12
Icing Conditions: Operating Limitations:	5		
IFR Approach & Landing Minimums	6		
IFR Landing Minimums C53:	7		
Non-Precision Approach (Straight-In)	7		
Precision Approach (Straight in)	7		
IFR Operations Outside of controlled Airspace	7		
IFR Takeoff Minimums	7		
Land and Hold Short Operations (LAHSO)	8		
1. Dry Runways:	8		
2. Wet runways:	8		
Landing Distance Planning	8		
Minimum Altitudes IFR	9		
Minimum Altitudes VFR	9		

Section 1

Aircraft Speed

91.117 : Maximum aircraft speeds:

- a) Below 10,000' - 250 kts (288 mph)
- b) At or below 2,500' AGL within 4 NM of primary airport of class C or D Airspace - 200 kts (230 mph)
- c) In airspace underlying Class B Airspace designated as VFR corridor - 200 kts (230 mph) May operate at a higher airspeed if required or requested by .ATC or if lower airspeed compromises safety_

Holding

AIM 5-3-7- speed limits

Civil Turbojet

Maximum, Airspeed

- | | |
|--------------------------------|----------|
| 1. MHA through 6,000' | 210 KIAS |
| 2. Above 6,000 through 14,000' | 230 KLAS |
| 3. Above 14,000' | 265 KIAS |

1. Start speed reduction when 3 minutes or less from holding fix. Cross the holding fix initially, at or below the maximum holding speed.
2. Make all turns:
 - a) degrees per second, or
 - b) 30 degrees bank angle, or
 - c) 25 degrees bank provided a flight director system is used.

NOTE: Use whichever requires the least bank angle.

Airspace

(a) Except as provided in paragraph (b) of this section and § 91.157, no person may operate an aircraft under VFR when the flight visibility is less, or at a distance from clouds that is less, than that prescribed for the corresponding altitude and class of airspace in the following table:

Airspace	Altitude	Time	Flight visibility	Distance from clouds
Class A	Not Applicable	Not Applicable	Not Applicable	Not Applicable
Class B	Not Applicable	Not Applicable	3 statute miles	Clear of Clouds
Class C	Not Applicable	Not Applicable	3 statute miles	1,000 feet above 500 feet below horizontal
Class D	Not Applicable	Not Applicable	3 statute miles	1,000 feet above 500 feet below horizontal
Class E	Less than 10,000 feet MSL	Not Applicable	3 statute miles	1,000 feet above 500 feet below horizontal
	At or above 10,000 feet MSL	Not Applicable	5 statute miles	1,000 feet above 1,000 feet below 1 statute mile horizontal

Class G	1,200 feet or less above the surface (regardless of MSL altitude)	Day	1 statute mile	Clear of clouds
		Except as provided in § 91.155(b)		
	Night	3 statute miles	1,000 feet above 500 feet below 2,000 feet horizontal	
	Except as provided in § 91.155(b)			
More than 1,200 feet above the surface but less than 10,000 feet MSL	Day	1 statute mile	1,000 feet above 500 feet below 2,000 feet horizontal	
	Night	3 statute miles	1,000 feet above 500 feet below 2,000 feet horizontal	
More than 1,200 feet above the surface and at or above 10,000 feet MSL	Not	5 statute miles	1,000 feet above 1,000 feet below 1 statute mile horizontal	
	Applicable			

Alternate Airports

91.167: Not required if destination has an instrument approach and Wx is-

- 1- +/- 1 hour of ETA,
- 2- 2,000 ceilings, and
- 3- 3 miles visibility.

135.223: Not required if destination has instrument approach and Wx is-

1. +/- 1 hour of ETA
2. Ceiling at least 1,500' above lowest circling approach MDA, or

3. If no circling approach, 1,500' above lowest approach minimums or 2,000' above APT elevation, whichever is higher, and
4. Visibility is forecast to be at least 3 miles, or 2 miles more than the lower applicable minimum, whichever is greater.

Alternate Airport Requirements

91.169: Wx at ETA must be at or above alternate airport minimums specified for the instrument approach procedure. If no alternate minimums are prescribed then Wx must be:

- 600/2 - Precision approach, or
- 800/2 - Non-precision approach

If airport doesn't have instrument approach, Wx must allow VFR descent and landing from MEA.

135.221: May not designate as alternate unless Wx will be at or above authorized (ATCO C55) alternate airport landing minimums at ETA.

C55: Alternate Airport IFR Wx Minimums-

- 1- Airports with one (precision or non-precision) straight-in or circling approach -
 - +400' to approach HAT or HAA, and
 - +1 SM to approach visibility minimum
 - 2- Airports with two (precision or non-precision) straight-in approaches to different suitable runways-
 - +200' to the higher HAT of the two approaches, and
 - +1/2 SM to the higher visibility minimum of the two approaches.
- (Check inoperative components chart)

ATC Light Signals

91.125

Color and type of signal	Aircraft on the surface	Aircraft in flight
Steady green	Cleared for takeoff	Cleared to land
Flashing green	Cleared to taxi	Return for landing (to be followed by steady green at proper time)
Steady red	Stop	Give way to other aircraft and continue circling
Flashing red	Taxi clear of runway in use	Airport unsafe - do not land
Flashing white	Return to starting point on airport	Not applicable
Alternating red and green	Exercise extreme caution	Exercise extreme caution

Bomb Threats, Weapons See Section II

Circling Maneuvers

May not conduct circling maneuvers with Wx less than 1,000 /3 unless PIC has completed approved training program. In any case, may not use a lower circling approach minimum than specified in the table located in the Ops Specs.:

Contact Approach

Not authorized at ATI. Refer to ATCO, ATI does not train for contact approaches.

C54: High minimum PIC provisions: Turbine pilot with less than 100 hrs PIC in type must increase DH or MDA by 100' and visibility by 1/2 mile [135.225(d)] and must use the visibility table.

PIC shall not conduct an approach with less than 4000 RVR (3/4 SM) unless PIC has been specifically qualified to use lower minimums, and then only if:

1. 15% additional runway length is available over length specified by FAR 135.385, and
2. Runway has precision instrument runway markings or centerline lights.

Destination Airport Requirements

91: None prescribed.

135.219: May not takeoff under IFR unless latest reports & forecasts indicate that Wx at ETA will be at or above landing minimums.

135.229: May not use airport unless it is adequate for the operation considering size, surface, obstructions and lighting. For operations at night with PAX pilot must:

- a) Determine the wind direction from an illuminated wind direction indicator or ground communications. (For takeoff, pilot may determine this from personal observation), and
- b) The area used for landing and takeoff are clearly shown by boundary or runway marker lights.

Note: Takeoff and landing area may be marked by flare pots or lanterns if approved by the Administrator.

Icing Conditions: Operating Limitations:

1335.227. May not takeoff with frost, snow or ice adhering to any propeller, windshield, wing, stabilizer or control surface, power plant installation, or to pitot static or flight attitude instrument system, except:

- a) Takeoffs may be made with frost on wings, or stabilizing or control surface if it has been polished smooth.
- b) Takeoffs may be made with frost under the winu in the area of fuel tanks if authorized by the Administrator.

May not takeoff if conditions are such that frost, ice or snow may reasonably be expected to adhere to the airplane unless pilot has completed all applicable training required by 135.341, and unless one of the following is met:

1. A pre-takeoff contamination check has been completed within 5 minutes prior to takeoff.
2. Approved alternate procedure is established to determine airplane is free of frost, ice or snow and procedure has been performed.
3. Certificate holder has an approved deicing/anti-icing program that complies with 121.029(c) and the takeoff complies with that program.

Except for airplanes that meet the ice protection provisions of Appendix A (34) 135, may not:

- a) fly IFR into known or forecast light or moderate or severe icing conditions, or
- b) Fly VFR into known light or moderate icing conditions unless aircraft has functioning deicing or anti-icing equipment protecting each propeller, windshield, wing, stabilizing or control surface, and pitot static or flight attitude instrument system.

If current Wx reports and briefing information indicate that the forecast icing condition that would otherwise have prevented the flight will be encountered because of changed Wx conditions since the forecast was made, the above restrictions regarding forecast icing do not apply. ATCO II-18 through II-29: Refer to ATCO manual for deice/anti-ice procedures and holdover times.

IFR Approach & Landing Minimums

135.225: May not begin an instrument approach unless-

- a) Destination or Alternate Airport has an approved Wx reporting facility, or
- b) A pilot conducting an eligible on-demand operation may begin an instrument approach

procedure to an airport that does not have a weather reporting facility if—

- (1) The alternate airport has a weather reporting facility operated by the U.S. National Weather Service, a source approved by the U.S. National Weather Service, or a source approved by the Administrator; and
- (2) The latest weather report issued by the weather reporting facility includes a current local altimeter setting for the destination airport. If no local altimeter setting for the destination airport is available, the pilot may use the current altimeter setting provided by the facility designated on the approach chart for the destination airport.

- c) May not begin final approach segment unless latest reported Wx is at or above minimums, however, if aircraft is already on the final approach segment and a later report indicates below minimums, the approach may be continued and landing made if the pilot finds actual conditions to be at or above minimums.

91.175: May not operate below MDA or DH unless-

1. Continuously in position from which a normal descent and landing can be made, and for operations under 135 will allow touchdown to occur within touchdown zone of runway.
2. Flight Visibility greater than or equal to approach minimums.
3. At least one of the following is distinctly visible and identifiable:
 - a) Approach Light System (ALS), -- may not descend below 100' above the TDZ elevation unless red terminating bars or the red side row bars are visible.
 - b) Threshold
 - c) Threshold markings
 - d) Threshold lights
 - e) Runway End Identifier Lights (REIL)

- f) Visual Approach Slope Indicator (VASI)
- g) Touchdown Zone or TDZ markings
- h) TDZ lights
- i) Runway or runway markings
- j) Runway lights.

IFR Landing Minimums C53:

May not use a landing minimum lower than prescribed by published instrument approach procedure.

Non-Precision Approach (Straight-In)

In any case, may not use an IFR landing minimum for a straight-in non-precision approach that is lower than specified in the table. TDZ RVR, when available, is controlling. (see note 6)

--NON-PRECISION APPROACHES -

Note 1: For NDB approaches with a FAF, add 50' to the HAT.

Note 2: For NDB approaches without a FAF, add 100' to the HAT.

Note 3: For VOR approaches without a FAF, add 50' to the HAT. (Con't...)

Note 4: For NDB approaches, the lowest authorized visibility is 3/4 and the lowest RVR is 4000.

Note 5: For LOC approaches, the lowest authorized visibility is 3/4 and the lowest RVR is 4000.

Note 6: The mid RVR and Rollout RVR reports (if available) provide advisory information to pilots. The mid RVR report may be substituted for the TDZ RVR if TDZ RVR is not available.

Precision Approach (Straight in)

In any case, may not use an IFR landing minimum for a straight in precision approach that is lower than specified in the table. TDZ RVR, when available is controlling (see note 3).

--PRECISION APPROACHES-

Note 1: A full ILS requires an operative LOC, GS and OM, or FAF. A precision or surveillance radar fix, an NDB, VOR, DME fix, or a published minimum GSIA fix may be used in lieu of an outer marker.

Note 2: Visibility values below 1/2 SM are not authorized and shall not be used.

Note 3: The mid RVR and Roll out RVR report may be substituted for the TDZ RVR if TDZ RVR is unavailable.

IFR Operations Outside of controlled Airspace

A14: IFR operations outside of controlled airspace are approved if -

- C64: Flight is cargo or non-scheduled pax, and
1. Airport has instrument approach, and
 2. Approved source of Wx reporting, and
 3. Means for PIC to obtain air traffic advisories and airport and facility status Unicom, FSS, etc..)

Note: All facilities and services necessary for safe IFR must be operational. An airport meeting the above requirements may also be selected as an alternate or diversionary airport.

IFR Takeoff Minimums

91.175: No takeoff minimums prescribed.

135.217: May not takeoff IFR with Wx at or above T/O minimums (ATCO C57) but below landing minimums unless suitable alternate airport is within 1 hour at normal still air cruise.

135.225: May takeoff under IFR if reported Wx is greater than or equal to the lowest straight-in landing minimums if-

- a) Wind direction & velocity permit the approach to be used, and
- b) All ground facilities & airborne equipment needed are operational, and

c) Certificate holder is approved for such operation.

(ATCO C57)

C57: Standard minimums are 1SM or 5,000 RVR (2 engines or less). RVR must be used if available and is controlling.

a) If no published T/O minimums, may use standard minimums.

b) If published T/O minimum is greater than standard and no alternate procedure (such as minimum climb gradient) is published, may not use a lower T/O minimum than the published minimum.

c) When T/O minimums are equal to or less than standard, may use T/O minimums equal to the lowest straight-in landing minimum.

Land and Hold Short Operations (LAHSO)

A27: Authorized as follows:

1. Dry Runways:

Only those airports Listed in the Airport/Facility Directory, Special notices section under simultaneous operations on intersecting runways, and the following LAHSO demonstration runways:

a) DFW - RWY 17L/17R LAHSO taxiway B,

b) DFW - RWY 18L/18R LAHSO taxiway B,

c) DFW - RWY 35L/35R LAHSO taxiway Z,

d) DFW - RWY 36L/36R LAHSO taxiway Z,

e) DFW - RWY 31R LAHSO taxiway P,

f) ORD - RWY 9 LAHSO taxiway S,

g) IAD - RWY 12 LAHSO runway 1L/19R flight path,

h) GNV - RWY 24 LAHSO runway 10/28 flight path,

i) GNV - RWY 28 LAHSO runway 6/24 flight path.

2. Wet runways:

Only those airports listed under BOS, ORD, and PIT in the A/FD as in #1 IV-7a: A notice that LAHSO are in effect should be broadcast on ATIS, however, it is not required.

Flight Crew Procedures:

1. When approaching airports study A/C performance and layout chart to determine runway needed for landing.

2. The following requirements must be met to accept a LAHSO clearance:

a) Clear and dry runways. Breaking action, if reported must be good.

b) Weather is VFR (at least 1000/3).

c) For Learjets: Thrust reversers (if installed), antiskid, and spoilers are all operational.

d) No MEL weight penalties which reduce the landing runway weight (increase the landing roll).

e) Available landing distance is verified with the tower controller.

3. Once a LAHSO clearance is accepted, it becomes binding. **PIC may not deviate without an amended clearance.** "Hold short of ..." must be in read back.

4. Landing aircraft should go around rather than risk an overshoot. Crossing aircraft should not start across until satisfied that landing aircraft is adequately positioned and the crossing can be made without stopping on the runway.

5. PIC is ultimately responsible for the safety of LAHSO

Landing Distance Planning

91.103 Preflight Action - (a) For a flight under IFR or a flight not in the vicinity of an airport, weather reports and forecasts, fuel requirements, alternatives available if the planned flight cannot be completed, and any known traffic delays of which the pilot in command has been advised by ATC;

135.85 Landing Limitations Destination Airports

Landing Distance divided by .6 (Dry Runways) take that value and multiply by 115% for wet runways.

Sample Problem Dry		Sample Problem Wet
Part 91 4000' Elev 50 Degrees 11,000 lbs .	Landing Distance 2943'	Part 91 2943 x 1.4 = 4120'
Part 135 Part 91 ? .6	2943 ? .6 = 4905'	4905' x 115% = 5641

Minimum Altitudes IFR

91.177. Except for takeoff or landing, may not operate IFR below:

- a) Applicable minimum altitude prescribed in FAR 95 & 97
- b) IN MOUNTAINOUS AREAS - 2,000' above the highest obstacle within 4 NM radius, or
- c) IN NONMOUNTAINOUS AREAS -- 1,000' above highest obstacle within 4 NM radius. Note- flight below MEA is permitted if a MOCA is prescribed and flight is within 22 NM of a VOR

Minimum Altitudes VFR

91 119 : Except for takeoff or landing, may not operate an airplane below the following altitudes:

- a) ANYWHERE - An altitude allowing an emergency landing without undue hazard to persons or property on the surface if a power unit fails
- b) OVER CONGESTED AREAS - 1,000' above the highest obstacle within a 2,000' radius.
- c) OTHER THAN CONGESTED AREAS - 500' above the surface, except over open water or sparsely populated

areas and then no closer than 500' to any person, vessel, vehicle, or structure.

135.203: Except for takeoff or landing, may not operate airplane below the following altitudes:

- a) Day - 500' above the surface or less than 500' horizontally from any obstacle.
- b) Night- 1,000' above highest obstacle within 5 miles of intended course, or in mountainous terrain less than 2,000' above highest obstacle within 5 miles of course.

Oxygen Equipment Requirements

135. 157 Passengers: Equipment required must:

- a) Enable pilots to readily determine each O2 source supply and whether the O2 is being delivered to the dispensing units, or
- b) In the case of individual dispensing units, to enable each user to make the above determination, and
- c) To allow the pilots to use undiluted O2 at their discretion above Ff. 250. Refer to table

Note When cabin altitude exceeds 10,000', must comply with 135.89 (a)

Procedures during Instrument Approaches

ATCO IV-3

1. Flight crews will, prior to reaching the initial approach fix, conduct a review of the instrument approach plate to include the following:
 - a) Field elevation.
 - b) Type of approach.
 - c) Radio configuration.
 - d) MDA or DH
 - e) Missed approach procedure.
 - f) Approach speed
2. Flight crews will, prior to the final approach fix, complete the appropriate landing checklist.

3. For two pilot operations, the non-flying pilot shall monitor and call out significant excursions from the desired heading, altitude, airspeed, or rate of descent, and:
 - a) Raw ILS data shall be monitored during approach
 - b) Call out "500 feet" above airport elevation, cross check altimeters, instruments and flag warnings.
 - c) Call out "100 feet" above MDA or DH.
 - d) Call out "MDA" or "DH".
 - e) Call out "Approach, Strobe, or Centerline lights in sight", "Runway in sight", or "No runway in sight." Non-standard sighting call outs shall not be made.
 - f) During non-precision approaches, the altitude call out at MDA shall be continued while maintaining the MDA:
 - a. Until the aircraft reaches the missed approach point.
 - b. Until the pilot can maintain visual reference for landing.
 - c. Until a missed approach procedure is commenced and positive rate of climb is established.

Radio Communication Loss

91.185: IFR Radio Comm Failure: If VMC, continue flight VFR and land as soon as practicable. If IMC. continue by:

1. Route, in order of
 - a) Last ATC assigned;
 - b) It on vectors, direct to fix, route or airway specified in vector clearance;
 - c) Route ATC advised may be expected; or
 - d) Route in flight plan.
2. Altitude, highest of
 - a) Last ATC assigned;
 - b) MEA, or
 - c) Expected (as advised by ATC)
3. Leave Clearance Limit:

- a) When clearance limit is a fix from which an approach begins, start descent & approach at EFC time. If no EFC time, at ETA as filed or amended.
- b) If no approach begins at fix, begin descent & approach at ETA as filed or amended

RVR and Ground Visibility - comparable values

91.175: If RVR minimums are prescribed for takeoff or landing and no RVR is reported use the following table to convert ground visibility:

RVR(feet)	Visibility (SM)
1,600	1/4
2,400	1/2
3,200	5/8
4,000	3/4
4,500	7/8
5,000	1
6,000	1 1/4

Takeoff Airport Requirements

91: None prescribed.

135.219: May not takeoff under IFR from an airport where Wx minimums are at or above takeoff minimums, but below authorized landing minimums unless there is an alternate airport within 1 hour flying time (still air at normal cruise) of the departure airport.

Two pilot crews: Lower than Standard T/O mins:

Aircraft must have dual flight instruments with independent power sources. PIC must have 100 hrs PIC in type. SIC must have 100 hrs in type if SIC is manipulating the controls for takeoff.

1. RVR 1600 (or RVV 1/4SM) if one of the following is available:
 - a) High Intensity Runway Lights (HIRL), or
 - b) Runway Centerline Lights (CL), or
 - c) Runway Centerline Markings (RCLM), or
 - d) When the above visual aids are unavailable, RVV 1/4 SM may still be used if existing runway lighting and markings provide adequate visual reference to identify runway surface and maintain directional control.
 2. TDZ RVR 1200 and Rollout RVR 1000 if:
 - a) CL operational, and
 - b) Two RVR systems are operational on runway to be used (Mid RVR may be substituted for TDZ or Rollout RVR if either one is unavailable).
 3. TDZ RVR 600, Mid RVR 600, and Rollout RVR 600 if:
 - a) CL operational, and
 - b) RCLM, and
 - c) At least two RVR systems are operational on runway to be used.
- Note:** For T/O's with less than TDZ RVR 1200 and Rollout RVR 1000 aircraft must be operated at a weight which allows performance equivalent to that specified in 135.379.
4. Foreign airports reporting RVR in meters: refer to ATCO manual.

Turbojet Operations

B33: All 135 turbojet operations must be conducted IFR, except-

May accept visual approach or charted visual flight procedure (CVFP) if:

1. In class B, C, D, or E airspace, airspace beneath a transition area, and
2. Under control of an ATC facility,
3. VFR Wx exists and flight can be conducted in VFR conditions, and

4. Within 35 NM of airport and able to maintain visual contact with traffic to be followed, the airport or CVFP.

May cancel IFR if one of the following is met -

1. Within Class B, C, or D Airspace, and is radar monitored and in direct communication with ATC, or
 2. Is in direct communication with airport advisory facility and within 10 NM of airport, or can maintain visual reference with intended runway.
- May takeoff and depart VFR if -
1. VFR Wx is reported and flight can be maintained under VFR, and
 2. IFR Clearance is obtained ASAP after takeoff and before 50 NM from departure airport.

C66: Turbojet Takeoffs with a tailwind may be conducted if the tailwind component is 10 knots or less.

VFR Weather Minimums

91.155:

- a) Except as provided in paragraph (b) of this section and 91.157, may not operate an airplane under VFR when flight visibility or distance from clouds is less than prescribed in the table:

Note	Class .A Airspace - VFR flight not permitted (FL 180-600).
	Class B Airspace - VFR minimums are 3 miles and clear of clouds.
- b) An Aircraft may be operated in class G airspace (uncontrolled) at night when visibility is less than 1 SM if clear of clouds and in an airport traffic pattern within 1/2 mile of the runway.

- c) Except as provided in 91,157, may not operate an aircraft beneath the ceiling under VTR within the lateral boundaries of controlled airspace designated to the surface for an airport when ceiling is less than 1,000'.
- d) Except as provided in 91.175, may not takeoff or land or enter the traffic pattern under VFR within the lateral boundaries of the surface areas of Class B, C, D, or E airspace designated for an airport:
 - 1. Unless ground visibility is at least 3 SM, or
 - 2. If ground visibility is not reported, flight visibility during takeoff or landing in traffic pattern is at least 3 SM.

135.205: May not operate an airplane under VFR in uncontrolled airspace when ceiling is less than 1,000', unless flight visibility is at least 2 SM.

91.157: Special VFR Weather Minimums: May be conducted only

- a) With an ATC clearance,
- b) Clear of Clouds.,
- c) With at least 1 SM flight Visibility,
 - 1. Pilot is instrument rated, and
 - 2. Aircraft is equipped for instrument flight

May not takeoff or land under Special VFR unless ground visibility is at least 1 SM, or if ground visibility is not reported, flight visibility must be at least 1 SM.

Section 2

WEAPONS, BOMB THREATS, ANTI-HIJACKING

Weapons

ATCO II-5: Federal law provides that no person shall carry a deadly or dangerous weapon, either concealed or unconcealed, aboard any aircraft being operated by this company, except;

- 1. Employees or officials of municipal, state; or Federal government who are authorized or required to carry arms and who present proper identification-
 - 2. Passenger carrying supporting firearms (rifles or shotguns) that are dismantled and unloaded.
 - 3. Such other persons authorized by the company who present a letter of authorization signed by the Chief Pilot or Director of Operations
 - 4. Ammunition must be handled in accordance with ATCO section II, page 13 (pilot notification requirements.)
- In no case will authorization be contrary to state or local laws or FAA regulations.

Bomb Threats

See ATCO f•