

Austin's Very Easy Guide to Legal IFR Flight Planning Under Part 135

2012 Revision 0

THINGS CHANGE OFTEN! CHECK MY WEB SITE PERIODICALLY TO ENSURE THAT YOU ARE USING THE MOST RECENT VERSION.

Volume 1 in the “Austin’s Very Easy Guide” (AVEG) series
Available free at www.austincollins.com

For official information specific to your employer, refer to:

- ☑ Your company's operations manual.
- ☑ Your company's FAA operations specifications.
- ☑ Your company's approved training program.
- ☑ Your aircraft's POH or AFM.
- ☑ The applicable Federal Aviation Regulations.
- ☑ Any relevant FAA Advisory Circulars.
- ☑ Standing case law and interpretations published by the FAA Office of the Chief Counsel and/or rulings issued by NTSB Administrative Law Judges.



The Complete Series:

- Vol. 1 – Austin's Very Easy Guide to Legal IFR Flight Planning Under Part 135
- Vol. 2 – Austin's Very Easy Guide to On-Demand Part 135 Flight/Duty/Rest Rules
- Vol. 3 – Austin's Very Easy Guide to Basic Principles and Concepts of Weather
- Vol. 4 – Austin's Very Easy Guide to Proper Radio Phraseology and Technique
- Vol. 5 – Austin's Very Easy Guide to Winter Operations
- Vol. 6 – Austin's Very Easy Guide to Passing Your Part 135 IFR-PIC Checkride

Although much of the information contained in this series is generic and could potentially apply to many areas of aviation, it is designed specifically as a study aid for those pilots engaged in on-demand Part 135 single-pilot IFR cross-country operations in small reciprocating aircraft. **THIS MATERIAL IS NEITHER ENDORSED BY NOR APPROVED FOR ANY SPECIFIC OPERATOR. IT IS GENERAL INSTRUCTIONAL AND GUIDANCE INFORMATION ONLY!**

INTRODUCTION

When you are preparing to fly (as a commercial pilot employed by a Part 135 operator) under the provisions of 14 CFR Part 135 – which you *must* any time you have **customer property** (even a single empty container) or **paying passengers** on board your aircraft – and actual IFR conditions exist, you must follow certain additional and/or different planning procedures before you attempt to depart. It may not be legal to make the trip . . . or it may only be legal to make the trip under certain circumstances. (NOTE: Some operators may require you to operate under IFR at all times, regardless of the weather.)

In any case, *if you violate any aspect of Part 135 during your flight, the FAA will have grounds (depending upon the perceived severity of the violation) to suspend or revoke your ATP or commercial pilot certificate.*



So be careful! Guard your own safety as well as your investment in your career. Remember that these regulations were ultimately designed to *protect* pilots by insulating them from the pressure to attempt takeoffs or landings in dangerously low conditions. The general public is therefore (indirectly) protected as well. They were also “written in blood,” to use the common but morbid expression, meaning that they were created in response to past accidents in the hope of preventing future ones.

What I have done in this AVEG is a little different from what you might see in other regulatory study guides. I have broken down the regulatory requirements into six very specific questions which you must ask yourself prior to commencing an IFR-135 flight. Those questions, along with examples of how to use them, appear on the following pages. I hope you find them helpful.

Throughout this AVEG, I will use an imaginary example operator, “Austin’s Air Service, LLC.” The operator for whom you work will probably have very different procedures, different Op Specs, different equipment etc. Please take this only as a typical example for general reference purposes!

Also, remember these four things:

- First, remember that according to page C52 in the Op Specs issued to Austin’s Air Service, LLC., pilots flying for AAS are **ONLY** allowed to shoot category I ILS, LOC, LOC BC, VOR and NDB approaches, with or without DME. No others (GPS, RNAV, MLS, LORAN, SDF, LDA, PAR, ASR, CAT II, CAT III or anything else you can think of) may be considered in the IFR/135 flight planning process!
- Second, also remember that the only forecasts and reports that have any **legal** (i.e., evidentiary) value (in case you ever have to defend yourself and your pilot certificate in front of an administrative law judge) are those reports *provided by* or *approved by* the FAA or the NWS. And watch out for airports that don’t have ASOS or AWOS or ATIS. If an airport does not have an official source of weather, then *you cannot conduct IFR operations there under Part 135 . . . unless* you have a specific provision in your Op Specs that allows you to do so. (For VFR operations under Part 135, however, §135.213 says that the pilot may use his own observations when official weather is not available.)

GENERAL INFORMATION ONLY – CHECK YEAR AND REVISION NUMBER

- Third, remember that not a single one of these six questions is relevant when operating under Part 135 under VFR. You only have to consider them when operating under Part 135 under IFR.
- Finally – and I cannot emphasize this too strongly – **read the regulations – all of them, every word, every punctuation mark!** The FAA holds you accountable to *them* . . . not to this. This is just an overview and study guide.

I. The GOM vs. the Op Specs

The General Operations Manual –

The General Operations Manual, or GOM, contains all your official company policies and procedures, as well as the management structure and chain of command. Arranged in an industry-standard format, it has been approved by the FAA. I should digress here for just a moment to mention the distinction between an “accepted” document and an “approved” document. Some things are accepted by your FSDO, others are approved by your FSDO. In very simple terms, if it’s accepted, the FSDO is saying, “we don’t mind if you do it this way.” If it’s approved, the FSDO is saying, “you *will* do it this way.” As far as the FAA is concerned, an approved document has the force of federal law: compliance is mandatory. In the 13 years that I have worked for a Part 135 operator, I have seen several different Principal Operations Inspectors (POIs) come and go, and despite all the FAA’s efforts at nationwide standardization, it continuously amazes me how many differences there are from one POI to another. Remember that different POIs will have different opinions, different interpretations and different areas of emphasis and special focus. When the United States gets a new President, lots of things change even though the Constitution and federal government are both still technically and theoretically the same, right? The same thing always happens when you get a new POI. When in doubt, ask your POI what he or she considers acceptable. (Your POI may then turn around and ask his or her supervisor, and so on and so forth up the food chain to the top of the totem pole until an official, formal, final, definitive answer comes down from the national level.)

The Operations Specifications –

This book is a set of government authorizations permitting a commercial operator or a commercial air carrier operating under Part 135 to do certain things and forbidding it to do other things. Called the “Op Specs” for short, they are “custom-tailored” FARs which apply specifically and exclusively to (for instance) Austin’s Air Service, LLC. Here is a critical point: *the Op Specs always take precedence over the “generic” FARs.* Sometimes they allow us to do things that we would not otherwise be allowed to do. Other times they prevent us from doing things that we would otherwise be allowed to do. So whenever there is an apparent contradiction or conflict between the FARs and the Ops Specs – in other words, when the FARs say one thing and the Op Specs say something different – we will go by the Op Specs. (Generally, this works to our operational advantage.) A common misconception is that the FAA expects you to do whatever is more restrictive, but as we will soon see, this is not necessarily always true.

GENERAL INFORMATION ONLY – CHECK YEAR AND REVISION NUMBER

Op Specs are typically broken down into five standard parts:

Part A – general authorizations

Part B – enroute authorizations

Part C – terminal authorizations

Part D – maintenance authorizations

Part E – weight and balance authorizations

Both the GOM and the Op Specs are subject to periodic revision.

The operator itself generates revisions to the GOM. They are subject to review and approval or acceptance by the certificate-holding district office (CHDO).

The CHDO itself generates new pages for the Op Specs and *issues* them to the operator.

When you (as the pilot employee) receive an update to the GOM, you must remove and/or install the affected pages and then make a notation in the GOM's Record of Revisions (at Austin's Air Service, LLC., our RR is located in page 6 of the preface).

When you (as the pilot employee) receive an update to the Op Specs, you must remove and/or install the affected pages, but there is no Record of Revisions similar to what the GOM has.

Many operators issue Op Specs as a chapter or section of the GOM. Other operators issue two separate binders. They may even be provided on a computerized access system. At Austin's Air Service, LLC., our Op Specs are Section III of the GOM.

No matter how your employer provides them, you must always carry the GOM / Op Specs with you in the airplane at all times when flying under Part 135. It is a ramp-checkable item! Over the years, I have seen many pilots get "busted" on ramp checks because they hadn't actually installed an update that the operator had sent out to them. Remember this: the FAA *knows* that a revision has gone out! After all, they either approved it or issued it!

Let's look at a couple of pages from the make-believe Op Specs issued to our make-believe operator, Austin's Air Service, LLC.

Both of these pages are from Part C – terminal authorizations. After each page I have provided a few explanatory notes.

U.S. Department
of Transportation
Federal Aviation
Administration

Operations Specifications

C055. Alternate Airport IFR Weather Minima

HQ Control: 04/09/2010
HQ Revision: 030

- a. The certificate holder is authorized to derive alternate airport weather minima from Table 1 below.
- b. Special limitations and provisions:
- (1) In no case shall the certificate holder use an alternate airport weather minimum other than any applicable minimum derived from this table.
 - (2) In determining alternate airport weather minima, the certificate holder shall not use any published IAP which specifies that alternate airport weather minimums are not authorized.
 - (3) When determining the suitability of a runway, wind (including gusts) must be forecast to be within operating limits, including reduced visibility limits, and should be within the manufacturer’s maximum demonstrated crosswind.
 - (4) All conditional forecast elements below the lowest applicable operating minima must be taken into account. Additives are applied only to the height value (H) to determine the required ceiling.
 - (5) When dispatching under the provisions of the MEL, those MEL limitations affecting instrument approach minima must be considered in determining alternate minima.

Table 1 – Alternate Airport IFR Weather Minima

Approach Facility Configuration	Ceiling	Visibility
For airports with at least one operational navigational facility providing a straight-in non-precision approach procedure, a Category I precision approach, or, when applicable, a circling maneuver from an IAP.	Add 400 feet to the MDA (H) or DA (H) as applicable.	Add 1 statute mile to the landing minimum.
For airports with at least two operational navigational facilities, each providing a straight-in approach procedure to different suitable runways.	Add 200 feet to the higher DA (H) or MDA (H) of the two approaches used.	Add 1/2 statute mile to the higher authorized landing minimum of the two approaches used.

Print Date: 5/09/2010

C055-1
Austin’s Air Service, LLC.

Certificate No.: ABCD123A

GENERAL INFORMATION ONLY – CHECK YEAR AND REVISION NUMBER

We commonly like to call this the “one-nav / two-nav” rule.

There was a lot of stuff on that single page, so now let’s talk about what each of these things is actually supposed to mean:

1. The **“C055”** is the page number, typically read as “C 55.” The C refers to the fact that this is from Part C of the Op Specs, “Terminal Authorizations.” Although this is page 55 of Part C, you should not assume that there are necessarily 54 pages ahead of it; the FAA has probably not issued every possible page to our imaginary example air carrier.
2. **“The certificate holder is authorized to derive alternate airport weather minima from Table 1 below.”** This means that the person doing the flight planning – i.e., the pilot in command in the case of Austin’s Air Service, LLC., – will use the table at the bottom of the page **INSTEAD OF** the standard IFR alternate minima from Part 97 (600-2 for a precision approach or 800-2 for a non-precision approach, as we all know) to determine what minimum weather must be forecast in order to be able to legally FILE any given airport as an IFR alternate for any given flight assignment.
3. **“In no case shall the certificate holder use an alternate airport weather minimum other than any applicable minimum derived from this table.”** This means that every single time you fly under Part 135 – yes, that’s 100% of your revenue operations – you **MUST** use the minima derived from Table 1. You will **NEVER** use the standard IFR alternate minima, nor will you ever use the published non-standard IFR alternate minima. You will always – did I say always? – yes, **ALWAYS** derive your own IFR alternate minima. But that’s a **GOOD** thing, folks, because the minima you derive for yourself are **BETTER** (i.e., lower) than the standard and usually much lower than the published non-standard. So think of the “one-nav / two-nav” rule as an operational privilege, because that’s a pretty accurate characterization.

IMPORTANT NOTE: When you operate under Part 91, you will still use either the standard IFR alternate minima or the published non-standard IFR alternate minima, as applicable, unless your manual says otherwise.

4. **“In determining alternate airport weather minima, the certificate holder shall not use any published IAP which specifies that alternate airport weather minimums are not authorized.”** This means that if you see the symbol for “alternate minima not authorized” on the terminal procedure (“approach plate”) then you aren’t allowed to FILE it as your IFR alternate under Part 135. Just in case you forgot, that symbol is a black triangle with a white capital letter A in it followed by the letters NA:



5. **“When determining the suitability of a runway, wind (including gusts) must be forecast to be within operating limits, including reduced visibility limits, and should be within the manufacturer’s maximum demonstrated crosswind.”** When I teach ground school, this is the item that often generates the most in-class debate. Pilot candidates love to throw out hypothetical situations – what if *this*, what if *that*? Here is my standard answer: if there is any reason at all why any given runway would not be safe or suitable – *any reason at all!* – then that runway and any approaches associated with it cease to exist for all practical flight planning purposes. There is no need to parse it more finely than that. In the absence of additional limits in your manual, you may assume that any “maximum demonstrated” values can be considered limitations for Part 135 operations. The Cessna 210, for example, has a “maximum demonstrated” crosswind component of 21 knots. Although this is not a matter of hard law, the FAA generally regards this as a limitation where Part 135 operations are concerned, because the manufacturer has not proven that the aircraft can be landed in a crosswind stronger than that. Pilot candidates frequently ask me about tailwind limitations. Let’s say that the landing distance tables only go up to 10 knots of tailwind. Well, the same concept applies here. There are no data, thus it is considered good operating practice to regard that as a limitation. (The Southwest Airlines accident in Chicago is an excellent illustration of this. Google it.)

6. **“All conditional forecast elements below the lowest applicable operating minima must be taken into account. Additives are applied only to the height value (H) to determine the required ceiling.”** On the terminal procedure (AKA the “approach plate”), the MDA is often predicated on the functional status of various components of the approach, such as the approach lights or runway lighting. This line just reminds you that these things must be factored in when determining what forecast ceiling is required.

7. **“When dispatching under the provisions of the MEL, those MEL limitations affecting instrument approach minima must be considered in determining alternate minima.”** For the sake of simplicity, Austin’s Air Service, LLC. does not use an MEL. So if your DME was inoperative, you simply wouldn’t go. You’d get your DME fixed. If your operator did use an MEL, however, then going without DME might mean higher approach minimums – and thus, a higher forecast ceiling required for the airport you intend to file as your alternate.

U.S. Department
of Transportation
Federal Aviation
Administration

Operations Specifications

**C057. IFR Takeoff Minima, 14 CFR Part 135 Airplane
Operations – All Airports**

HQ Control: 01/13/2000
HQ Revision: 02a

Standard takeoff minima are defined as 1 statute mile visibility or 5000 RVR for airplanes having 2 engines or less and ½ statute mile visibility or 2400 RVR for airplanes having more than 2 engines. RVR reports, when available for a particular runway, shall be used for all takeoff operations on that runway. All takeoff operations, based on RVR, must use RVR reports from the locations along the runway specified in this paragraph.

- a. When a takeoff minimum is not published, the certificate holder may use the applicable standard takeoff minimum and any lower than standard takeoff minima authorized by these operations specifications. When standard takeoff minima or greater are used, the Touchdown Zone RVR report, if available, is controlling.
- b. When a published takeoff minimum is greater than the applicable standard takeoff minimum and an alternate procedure (such as a minimum climb gradient compatible with airplane capabilities) is not prescribed, the certificate holder shall not use a takeoff minimum lower than the published minimum. The Touchdown Zone RVR report, if available, is controlling.

NOTE: Single-engine IFR Part 135 passenger-carrying operations are not authorized lower than standard takeoff minimums at any airport.

- c. When takeoff minimums are equal to or less than the applicable standard minimum, the certificate holder is authorized to use a takeoff minimum equal to the lowest authorized straight-in Category I IFR landing minimum applicable to the certificate holder for that particular airport. The Touchdown Zone RVR report, if available, is controlling.

Print Date: 5/09/2010

C057-1
Austin's Air Service, LLC.

Certificate No.: ABCD123A

GENERAL INFORMATION ONLY – CHECK YEAR AND REVISION NUMBER

We commonly like to call this the “**published, standard or landing**” rule.

Once again, the FAA crammed a lot of information into a dense block, so let’s take a moment to discuss how this translates into a practical decision-making process for the pilot:

1. The “**C057**” is the page number, typically read as “C 57.” The C refers to the fact that this is from Part C of the Op Specs, “Terminal Authorizations.” Although this is page 57 of Part C, you should not assume that there are 56 pages ahead of it; the FAA has probably not issued every possible page to our imaginary example air carrier. In fact, they almost certainly haven’t, since many authorizations are either contradictory or mutually exclusive.
2. “**Standard takeoff minima are defined as 1 statute mile visibility or 5000 RVR for airplanes having 2 engines or less and ½ statute mile visibility or 2400 RVR for airplanes having more than 2 engines.**” Let’s say that Austin’s Air Service, LLC., only operates single-engine Cessna 210 Centurions and twin-engine Beech Barons. Because none of our airplanes has more than two engines, our “standard” takeoff minimum will always be 1 statute mile or 5000 RVR. (There is no standard ceiling.)
3. “**When a takeoff minimum is not published, the certificate holder may use the applicable standard takeoff minimum and any lower than standard takeoff minima authorized by these operations specifications.**” This means that if there is no published non-standard takeoff minimum for the runway you plan to use, you can either use that same familiar one statute mile / 5000 RVR value as your lower limit . . . *or* you can use a lower minimum derived from the next paragraph.
4. “**When takeoff minimums are equal to or less than the applicable standard minimum, the certificate holder is authorized to use a takeoff minimum equal to the lowest authorized straight-in Category I IFR landing minimum applicable to the certificate holder for that particular airport.**” We will go through this whole process together on the following page.

II. The Six Questions

Question #1.

What minimum weather conditions do I need *reported* at my airport of intended departure to be able to take off legally?

Reference - *Op Specs, C57*

Quick memory phrase: “Published, standard or landing.”

(1) *Published*. Check the approach plates for your airport of departure. Look for a black triangle with a white “T” inside it. This means that there is either a non-standard takeoff minimum or an obstacle departure procedure (ODP) published for one or more of that airport’s runways. Consult the “Takeoff Minimums and Departure Procedures” section published in the Terminal Procedures Publication (i.e., the “terps”) to find out what restrictions, if any, may exist for that runway. If there is a published ODP, then although we do need to be aware of it, it has no specific relevance to the question above. If there are published non-standard takeoff minimums, however, then you *must* abide by them.

Remember that published non-standard takeoff minimums are *always* runway-specific. If the published non-standard takeoff minimums are associated with a climb gradient, i.e.,

Rwy 5, 1000-3 or std. with min. climb of 300’ per NM to 1400

... then consult the Rate of Climb Table in the terps. Plug in your groundspeed and your rate of climb to determine if you can meet or exceed the gradient (altitude vs. distance). If you can, then the published non-standard takeoff minimums do *not* apply to you. If you can’t meet the gradient, or if the non-standard takeoff minimums are published without an associated climb gradient, as in,

Rwy 23, 400-2

... then you are stuck with those minimums (ceiling and visibility) *for that runway*.

(2) *Standard*. The standard takeoff minimum for aircraft with two engines or less is 1 statute mile or 5000 RVR. (There is no standard ceiling.) If you have that, *and* there are no published non-standard takeoff minimums which apply to you for that runway, you can take off.

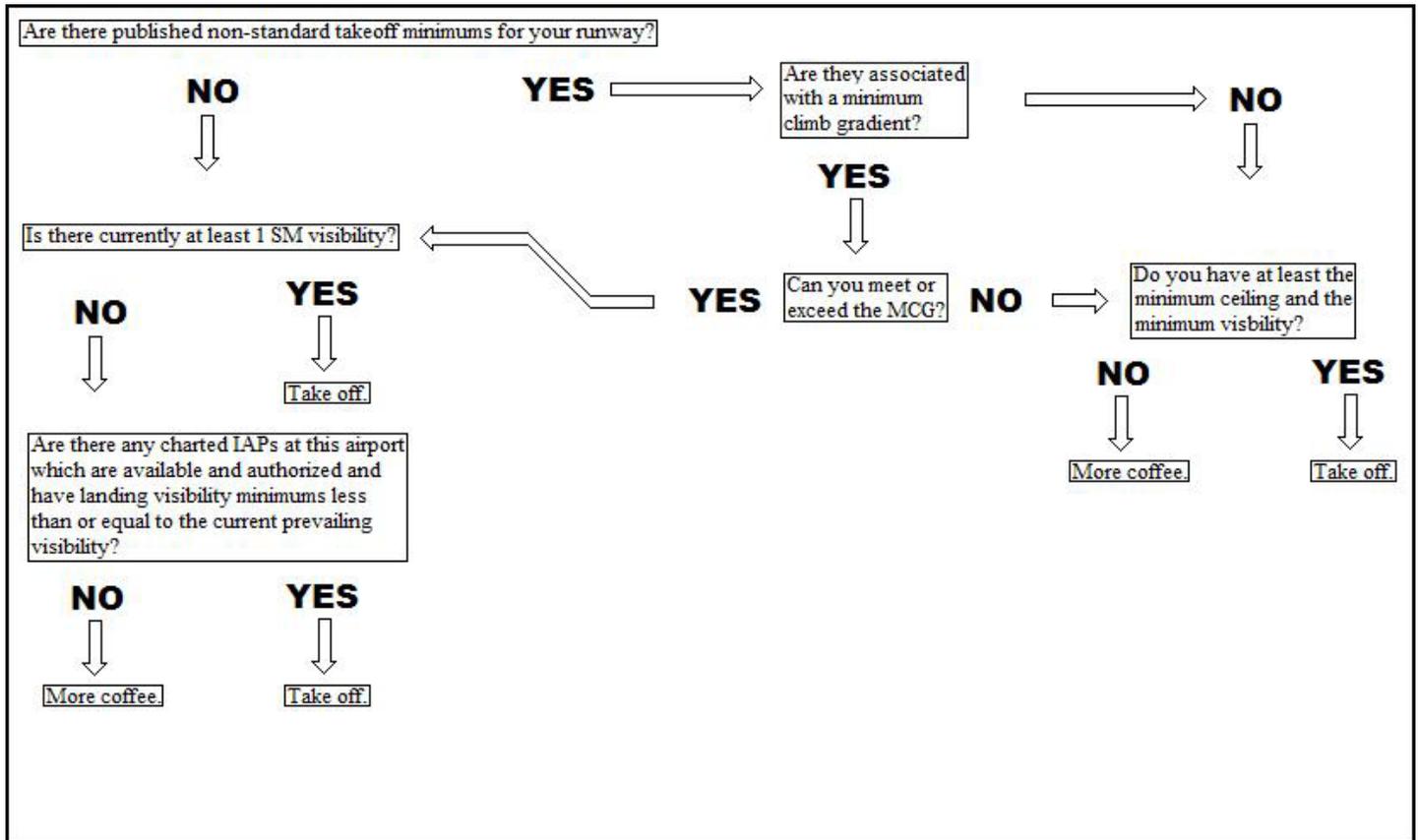
(3) *Landing*. Page C57 of the Austin’s Air Service, LLC. Operations Specifications allows you to use the lowest *applicable* landing visibility minimum of any *available* and *authorized* IAP on the airport as your takeoff minimum on any runway at the airport – as long as that runway does not have its own published non-standard takeoff minimum which does apply to you. Thus your landing minimum effectively becomes your takeoff minimum.

GENERAL INFORMATION ONLY – CHECK YEAR AND REVISION NUMBER

What does “available and authorized” mean? “Authorized” means that it is one of the approved approaches listed on page C52 of our Op Specs. §135.225(h) clarifies that we can only use our landing minimum as our takeoff minimum when “the wind direction and velocity at the time of takeoff are such that a straight-in instrument approach can be made to the runway served by the instrument approach” and “the associated ground facilities upon which the landing minimums are predicated and the related airborne equipment are in normal operation.”

As I stated previously, if there is any reason at all why any given runway would not be safe or suitable – *any reason at all!* – then that runway and any approaches associated with it cease to exist for all practical flight planning purposes.

Or, to express it in the form of a flow chart:



EXAMPLE #1

- An airport has four runways: 7, 25, 31 and 13.
- There is a published takeoff minimum of **500-3** for runway **13**.
- There is also a published takeoff minimum for runway **31**. It says “**300-2 or std. with min. climb of 389’ per NM to 1100.**”
- There are two instrument approach procedures published for the airport – an ILS to runway 7 with a decision height of 200 feet and a minimum landing visibility of $\frac{1}{2}$ **SM** and a VOR to runway 25 with a height above touchdown (HAT) of 624 feet and a minimum landing visibility of $1\frac{1}{2}$ **SM**.

1A – What minimum weather conditions do I need *reported* at this airport to be able to take off legally on runway 13 under Part 135?

Since runway 13 has a published non-standard takeoff minimum of 500-3, you need at least a 500 foot ceiling and at least 3 statute miles visibility in order to legally depart from that runway under Part 135.

1B – What minimum weather conditions do I need *reported* at this airport to be able to take off legally on runway 31 under Part 135?

Runway 31 has a published non-standard takeoff minimum associated with a minimum climb gradient. Assuming that a 210 can easily climb faster than 389 feet per nautical mile up to an altitude of 1100 feet, the published non-standard takeoff minimum *does not apply*. (If for some reason we could not meet or exceed that minimum climb gradient, then we would be stuck with 300 and 2.) Therefore, we revert to the standard takeoff minimum of 1 statute mile (for aircraft with two engines or less). Now we look to see if there are any available, authorized instrument approach procedures on the airport that have less than 1 mile minimum landing visibility. In this case there is one: the ILS to runway 7. The minimum landing visibility for that approach is $\frac{1}{2}$ statute mile. Paragraph (3) of page C57 in our company Op Specs tells us that “the certificate holder [Austin’s Air Service, LLC] is authorized to use a takeoff minimum equal to or greater than the lowest authorized straight-in Category I IFR landing minimum applicable to the certificate holder for that particular airport.” Pay attention to that last word – “airport.” Not “runway,” but “airport.” That means you can use the $\frac{1}{2}$ -mile *landing* minimum for the ILS as your *takeoff* minimum on any runway at the airport . . . as long as the ILS is in service, the winds are favorable and there is not an applicable published non-standard takeoff minimum for the runway that you plan to use for departure. (In this situation the published non-standard takeoff minimum is not applicable because we can beat the minimum climb gradient.)

1C – What minimum weather conditions do I need *reported* at this airport to be able to take off legally on runway 7 or runway 25 under Part 135?

Neither 7 nor 25 has a published non-standard takeoff minimum. So we jump straight to the standard takeoff minimum of 1 statute mile (for aircraft with two engines or less). Now using the same procedure that we followed in example 1B, we refer to the ILS and use the ½-mile *landing* minimum for the ILS as your *takeoff* minimum.

1D – What if the ILS is unavailable?

The answer to example 1A would not change; you would still need the published non-standard takeoff minimum of 500-3 for runway 13. But to take off on 7, 25 or 31 you would need at least 1 statute mile . . . the standard takeoff minimum. (Although if you could not climb at a rate of at least 389 feet per nautical mile up to an altitude of 1100 feet, then you would still need 300-2 or better to take off from runway 31.)

1E – What minimum weather conditions do I need *reported* at this airport to be able to take off legally on runway 7, 25, 31 or 13 under Part 91?

Nothing; FAR §91.175(f) tells us that only pilots operating under Parts 121, 125, 129 or 135 must abide by standard or non-standard takeoff minimums. Part 91 pilots have no takeoff minimums.

Suppose you are about to take off on a Part 91 flight. Now suppose there is a dense but shallow layer of fog at your airport of departure. It's only about ten to fifteen feet deep; you can look straight up and see clear blue sky. All the surrounding airports are reporting CAVU. The official weather report would, of course, say zero-zero due to the fog layer. You have a lot of time in type and you are highly familiar with the area. Many pilots would consider this a perfectly safe operation and the FAA will allow you to take off – it's your call. Of course, you might decide not to go, but that would be a matter of your own judgment, not a legal issue.

If this were a Part 135 leg, it would ***not*** be legal to take off, period!

NOTE: Some operators may require you to operate under Part 135 at all times. If so, the less restrictive provisions of Part 91 are not pertinent and must be disregarded.

Question #2.

What minimum weather conditions do I need *forecast* for my intended destination to be able to take off legally (from somewhere else)?

Reference - FAR §135.219

Reports, forecasts or any combination of them must indicate that weather conditions will be at or above the lowest applicable minimum landing visibility at your ETA. The forecast ceiling is *not* a factor in this case because technically the FAA does not actually publish minimum ceilings in Part 97 – they publish minimum descent altitudes and decision altitudes, which are absolutely *not* the same thing as a minimum ceiling! (A ceiling is defined as the lowest forecast or reported broken or overcast layer. Understandably, this often causes a lot of confusion when it comes to flight planning.)

EXAMPLE #2

- An airport has two runways: 15 and 33.
- There are two instrument approach procedures published for the airport – an ILS to runway 15 with a decision height of 200 feet and a minimum landing visibility of ½ SM and a localizer back course to runway 33 with a height above touchdown (HAT) of 437 feet and a minimum landing visibility of 2 SM.

2A – What minimum weather conditions do I need *forecast* for this airport to be able to take off legally (from somewhere else) with this airport filed as my destination under Part 135?

Runway 15 has an ILS approach with a minimum landing visibility of ½ statute mile. Accordingly, you would need at least ½ statute mile forecast to exist at your ETA at this airport – assuming that the ILS is available.

2B – What minimum weather conditions do I need *forecast* for this airport to be able to take off legally (from somewhere else) with this airport filed as my destination under Part 135 if only the back course is being used?

Since the localizer back course to runway 33 has a minimum landing visibility of 2 statute miles, you would need at least 2 statute miles forecast to exist at your ETA at this airport.

2C – What minimum weather conditions do I need *forecast* for this airport to be able to take off legally (from somewhere else) with this airport filed as my destination under Part 91?

There is no such rule. Under Part 91 you can depart even if your destination is forecast to be a quarter-mile in fog at your ETA – or zero-zero, for that matter.

Question #3.

What minimum weather conditions do I need *reported* at my airport of intended departure to be able to depart legally without having a takeoff alternate available?

Reference - FAR §135.217

If you can legally take off from but *not* return to land at the airport, then there must be a suitable takeoff alternate within one hour's flying time at normal cruising speed. If there is not one, then you may not depart. (This could happen when the only IAPs available to you and authorized for your use have landing minimums greater than the standard takeoff minimum of one statute mile or 5000 RVR.) The takeoff alternate requirement kicks in whenever you have the "One-Way Ticket" – you can leave, but you can't come back.

EXAMPLE #3

- An airport has two runways: 9 and 27.
- There is only one instrument approach procedure published for the airport – a VOR to runway 9 with a height above touchdown (HAT) of 622 feet and a minimum landing visibility of 1½ SM.

3A – What minimum weather conditions do I need *reported* at my airport of intended departure to be able to depart legally without having a takeoff alternate available under Part 135?

You can depart from this airport with the standard visibility – 1 statute mile. You couldn't shoot the approach, however, unless you have the minimum landing visibility for the approach – 1½ statute miles. So you would need to have a takeoff alternate available if you had less than 1½ statute miles.

3B – What minimum weather conditions do I need *reported* at my airport of intended departure to be able to depart legally without having a takeoff alternate available under Part 91?

There is no requirement for a takeoff alternate under Part 91.

Question #4.

What minimum weather conditions do I need *forecast* at my intended destination in order to legally depart *without* designating an IFR landing alternate?

Reference - FAR §135.223

(STEP ONE) Look at all the published IAPs at your destination which are available to you and which you are authorized to use.

(STEP TWO) Find the *lowest* applicable circling minimum. Look for the AGL number (the HAA) *not* the MSL number (the MDA), because ceilings are always reported and forecast in AGL and we have to make sure we are adding apples to apples and oranges to oranges. There is no such thing as an MSL ceiling; that wouldn't make any sense. This is the most common mistake people make when attempting to apply §135.223.

(STEP THREE) Round that number *up* (never down) to the nearest flat 100 feet. (Ceilings are always reported in hundreds of feet.) If it's already a flat 100 you can leave it alone.

(STEP FOUR) Add 1,500 feet to this figure. That resulting sum, or 2,000 feet (whichever is *greater*) is the minimum ceiling which must be forecast to exist at your destination from at least one hour before until at least one hour after your ETA in order to avoid having to file a landing alternate.

(STEP FIVE) Now look at all the published IAPs again. Find the lowest applicable visibility minimum. (It *doesn't* have to be a circling minimum this time.)

(STEP SIX) Add 2 statute miles to this figure. That resulting sum, or 3 statute miles (again, whichever is *greater*) is the minimum visibility you need forecast to exist from at least one hour before until at least one hour after your ETA in order to avoid having to file a landing alternate.

Here's a hint: the "magic numbers" that get you off the hook *will never be less than 2,000 and 3 . . . but they may sometimes be greater than that!*

In other words, just because you have 2,000 and 3 forecast to exist during that 2-hour period from an hour before until an hour after your ETA, it doesn't automatically or necessarily always mean that you don't still have to designate an IFR landing alternate.

EXAMPLE #4

- An airport has two runways: 36 and 18.
- There are two instrument approach procedures published for the airport – an ILS to runway 36 and a VOR to runway 36. The category A and B minimums for those approaches are published as shown below:

<u>ILS RWY 36</u>	
S-36	953- $\frac{1}{2}$ 200 (200- $\frac{1}{2}$)
CIRCLING	1345-1 $\frac{1}{2}$ 592 (600-1 $\frac{1}{2}$)
<u>VOR RWY 36</u>	
S-36	1223-1 470 (500-1)
CIRCLING	1397-1 $\frac{1}{2}$ 644 (700-1 $\frac{1}{2}$)

4A – What minimum ceiling do I need *forecast* at this airport to be able to depart legally (from somewhere else) without designating an IFR alternate under Part 135?

The lowest circling minimum is 592 feet. (Remember that we want the AGL figure, *not* the MSL figure, because ceilings are always reported and forecast in AGL.) Round that up to 600 feet. Add 1,500 feet to get 2,100 feet. Therefore you need at least a 2,100-foot ceiling forecast to exist from at least 1 hour before until 1 hour after your ETA in order to avoid having to designate an IFR alternate.

4B – What minimum visibility do I need *forecast* at this airport to be able to depart legally (from somewhere else) without designating an IFR alternate under Part 135?

The lowest applicable landing visibility minimum is $\frac{1}{2}$ statute mile. Add 2 statute miles to that to get $2\frac{1}{2}$ – 3 is greater, so you need at least 3 statute miles forecast to exist from at least 1 hour before until 1 hour after your ETA in order to avoid having to designate an IFR alternate.

4C – What minimum ceiling and visibility do I need *forecast* at this airport to be able to depart legally (from somewhere else) without designating an IFR alternate under Part 91?

§91.167(b) tells us that you need at least 3 statute miles and at least 2,000 feet forecast to exist from at least 1 hour before until 1 hour after your ETA in order to avoid having to designate an IFR alternate.

Question #5.

What minimum weather conditions do I need *forecast* at my intended IFR landing alternate to be able to actually *file* it as my IFR landing alternate?

Reference - *Op Specs, C55*

First, make sure that the airport and approach or approaches you are considering are authorized for designation as an IFR alternate; not all of them are.

Assuming that the airport and approach or approaches are authorized, apply the “one-nav / two-nav” rule. Begin by looking at all the available and authorized IAPs published for your intended landing alternate.

- You can use the “one-nav” rule any time you have *at least* one suitable IAP. (You can still use it if you have multiple approaches; just consider one of them and ignore the others.)
- You can use the “two-nav” rule only if you have *at least* two suitable *straight-in* IAPs (no circling!) involving *separate* navaids going to *different* runways. (For some extended-range operations, however, separate runways must be used. For our purposes, we will assume we do *not* do ER ops.)

“Separate” vs. “Different”

A VOR and an NDB are *separate* navaids. An ILS approach and a localizer approach going to the same runway, however, do *not* use *separate* navaids. (They both use the localizer antenna.)

Reciprocal runways 7 and 25 are considered *different* even though they aren’t *separate*. (If the wind favors landing on 7, it may preclude landing on 25. But if an airplane crashes in the middle of 25, 7 becomes unusable as well.) Runways 9L and 9R are *separate* but *not different*. (If the wind precludes landing on 9L, it also precludes landing on 9R. On the other hand, an airplane could crash in the middle of 9L and 9R would still be usable.)

For the “**one-nav**” rule: Add 400 feet to the lowest applicable Category I HAT or HAA. The result is the minimum ceiling you need forecast at your ETA at your alternate in order to be able to legally file it as such. Now add 1 statute mile to the lowest applicable Category I landing minimum. The result is the minimum visibility you need forecast at your ETA at your alternate in order to be able to legally file it as such. (***Don’t forget to round UP to the next 100 feet!***)

The “One-Nav” Rule: ADD 400 and 1 to the approach mins.

For the “**two-nav**” rule: Of the two IAPs with the lowest minimums, you must select the one with the *higher* HAT and *higher* minimum landing visibility. (You will criss-cross with two different approaches if one has a higher HAT and the other has a higher minimum landing visibility.) Then add 200 feet to the higher HAT and ½ statute mile to the higher minimum landing visibility. The results are the minimum ceiling and visibility you need forecast at your ETA at your alternate in order to be able to legally file it as such. (***Don’t forget to round UP to the next 100 feet!***)

The “Two-Nav” Rule: ADD 200 to the HIGHER HAT; ADD ½ to the HIGHER vis.

EXAMPLE #5

- An airport has four runways: 3, 21, 18 and 36.
- There are four instrument approach procedures published for the airport – an ILS to runway 3, a localizer to runway 21, a VOR to runway 18 and an NDB to runway 36. The category A and B minimums for those approaches are published as shown below:

<u>ILS RWY 3</u>	
S-3	275-1/2 200 (200-1/2)
CIRCLING	620-2 545 (600-2)
<u>LOC RWY 21</u>	
S-21	498-1 423 (500-1)
CIRCLING	620-2 545 (600-2)
<u>VOR RWY 18</u>	
S-18	545-1 1/2 470 (500-1 1/2)
CIRCLING	620-2 545 (600-2)
<u>NDB RWY 36</u>	
S-36	711-1 3/4 636 (500-1 3/4)
CIRCLING	620-2 545 (600-2)

5A – What minimum ceiling and visibility do I need *forecast* at this airport to be able to designate it as my IFR alternate under Part 135?

First, try using the “1-nav” rule with the single lowest approach, which in this case would be the ILS. Add 400 feet to the HAT (200 feet) to get 600 feet and then 1 mile to the visibility (1/2 mile) to get 1 1/2 miles. Thus, the answer is 600 and 1 1/2.

Next, try using the “2-nav” rule. The two lowest approaches are the ILS and the localizer. Add 200 feet to the *higher* HAT (423, rounded up to 500) to get 700 and then add 1/2 mile to the *higher* visibility (1 mile) to get 1 1/2 miles. Thus the answer is 700 and 1 1/2. (In this case, the “1-nav” rule works more to our advantage.)

5B – What minimum ceiling and visibility do I need *forecast* at this airport to be able to designate it as my IFR alternate under Part 135 if the ILS is completely out of service?

Try using the “2-nav” rule. The two lowest remaining approaches are the localizer and the VOR. Add 200 feet to the *higher* HAT (470, rounded up to 500) to get 700 and then add ½ mile to the *higher* visibility (1½ miles) to get 2 miles.

Now let’s look at a different airport, one with two approaches, both using the same VOR:

<u>VOR RWY 2</u>	
S-2	609-1½ 450 (500-1½)
CIRCLING	847-2 688 (700-2)
<u>VOR RWY 20</u>	
S-20	619-1½ 460 (500-1½)
CIRCLING	858-2 699 (700-2)

5C – What minimum ceiling and visibility do I need *forecast* at this airport to be able to designate it as my IFR alternate under Part 135?

We can’t use the “2-nav” rule because both approaches use the same ground facility, the VOR. So we have to use the “1-nav” rule. It doesn’t matter which approach you use because 450 and 460 both round up to 500 and both approaches have the same minimum landing visibility, 1½ miles. Add 400 feet to 500 feet to get 900 feet and then add 1 mile to 1½ miles to get 2½ miles.

5D – What minimum ceiling and visibility do I need *forecast* at this airport to be able to designate it as my IFR alternate under Part 91?

Part 97 tells us that the standard IFR alternate minimums are 600-2 for airports with precision approaches or 800-2 for airports with only non-precision approaches . . . *unless* non-standard alternate minimums are published for that airport. It is the pilot’s responsibility to check. If the airport above does not have published non-standard alternate minimums but is still authorized for designation as an alternate, then you would need at least 800-2 forecast to exist at your ETA at that airport in order to designate it as your IFR alternate under Part 91.

Question #6.

What minimum weather conditions will I need *reported* at any airport in order to be able to commence or continue any instrument approach?

Reference - FAR §135.225

Prior to commencing the final approach segment, the *visibility* must be at or above the published landing minimum. If it is below, or if it drops below, you must refuse the clearance and break off the approach. Once established on the final approach segment, however, you may elect to continue with the approach even if the airport goes below, but you still can't descend below DA or MDA unless you find that at least the minimum landing visibility exists. RVR, when installed and operational, is always controlling.

Paragraph (a) of FAR §135.225 specifies that no pilot may begin an instrument approach procedure to an airport unless that airport has a weather reporting facility operated by the U.S. Weather Service, a source approved by it or a source approved by the FAA. Again, only OFFICIAL weather will have any LEGAL value if you have to defend your decision in front of an FAA or NTSB administrative law judge!

It also specifies that no pilot may begin an instrument approach procedure to an airport unless the latest weather report issued by that facility indicates that weather conditions are at or above the authorized IFR landing minimums for that airport.

You are never allowed to descend below MDA or DH and land when the visibility is below minimums – regardless of whether you are flying under Part 91 or Part 135. Some pilots are misled by the phrasing of §135.225 and §91.175. If a pilot *claims* that he or she had the required visibility but official weather contradicts that claim, the FAA does have grounds to investigate and potentially pursue a violation. The language “the pilot finds” and their use of the term “flight visibility” does *not* constitute a “blank check” or a “get out of jail free card,” as some seem to think – the FAA does not see it that way, as the case law has often shown.

Some pilots believe that all they have to do is CLAIM that they had the required visibility (regardless of the actual visibility) and that inoculates them against being violated. Well, think about this: if that were true, how would anyone ever get busted on §135.225 and §91.175? If that legal theory were true, all any accused pilot would ever have to do is say, “I had the required visibility” and the violation would instantly be dropped. The reality is, you must be able to PROVE it. Sorry to rain on the parade, but these violations DO happen.

Let's say you decide to land when the ASOS is reporting a quarter mile or the RVR is reporting 1,600 feet and an FAA inspector is standing there on the ramp watching as you taxi in. That inspector absolutely can (and might) initiate an investigation by starting an EIR – an Enforcement Investigative Report. In short, you're busted. It's time to get an aviation attorney to represent you. The typical penalty for landing below minimums is a 90-day suspension, although it could be more or less depending upon the circumstances. (The FAA has prosecutorial discretion.) You might appeal the certificate action by arguing before an administrative law judge that the weather reporting facility was actually *wrong* and that your own observation of the conditions at the time you landed was correct. If you have an abundance of evidence to support your claim (i.e., reliable witness testimony, official reports from other nearby facilities etc.) then you could potentially win this appeal. Then again, you could just as easily lose. Either way, it's going to be very expensive and very time-consuming and meanwhile you have no pilot certificate and therefore no job. Do you really want to spend all that time and money gambling in a courtroom with your career at stake? Here is the bottom line: if it *really is* below minimums and you know it – go missed. (This is further discussed at the end of example 6.)

EXAMPLE #6

- An airport has two runways: 4 and 22.
- There is one instrument approach procedure published for the airport – an ILS to runway 4 with a decision height of 200 feet and a minimum landing visibility of ½ SM.

6A – What minimum weather conditions do I need *reported* at this airport to be able to accept an approach clearance under Part 135?

Runway 4 has an ILS approach with a minimum landing visibility of ½ statute mile. So you would need at least ½ statute mile currently reported there by an official source.

6B – What minimum weather conditions do I need *reported* at this airport to be able to accept an approach clearance under Part 91?

Nothing; there is no such rule.

6C – What minimum weather conditions do I need to *find* at this airport to be able to descend below DH or MDA and land under Part 91 or Part 135?

At least ½ SM. §135.225(c) says that “the approach may be continued and a landing made if the pilot finds, upon reaching the authorized MDA or DH, that actual weather conditions are at least equal to the minimums prescribed for that procedure.” §91.175(c), on the other hand, says that “no pilot may operate an aircraft at any airport below the authorized MDA or continue an approach below the DH unless the flight visibility is not less than the visibility prescribed in the standard instrument approach being used.”

This is an often-misapplied regulation. Some pilots try to be clever by pointing out, perhaps with a sly wink, that no one can know for sure what they were seeing in terms of flight visibility at the moment they made the decision to continue the approach and land – apparently thinking that this fact protects them against being violated by an FAA safety inspector who catches them doing it. The FAA’s use of the phrase, “the pilot *finds*” [emphasis added by me] is an especially appealing element of this position.

Well, good luck using that argument in court. I hope you have a good lawyer and an excellent pilot legal services insurance plan to pay for him. Who knows? You might win your case. But if the RVR was reporting 1600 and the tower was calling it a quarter mile and you claim you had a mile out the window . . . well, I probably wouldn’t want to put a coin in that slot machine.

(continued)

GENERAL INFORMATION ONLY – CHECK YEAR AND REVISION NUMBER

Landing below minimums can lead to a violation, a fine and/or a certificate action by the FAA. True, you might be able to overturn it on appeal. But then again, you might not. Do you want to take that chance? If the answer is no, don't land below minimums.

Suppose, to use a legal analogy, you get pulled over by a state trooper with a radar gun. He writes you a ticket for doing 60 in a 55 zone.

“But officer,” you protest, “I was only doing 55!”

“Tell it to the judge,” he responds with a shrug, giving you the ticket.

You decide to fight the ticket, because you believe you really were only doing 55. When you show up at traffic court, the judge looks at the state trooper and asks, “what is your case against this man?” The state trooper shows the judge the radar gun showing that you were doing 60. Then the judge turns to you and asks, “what is your defense?” You reply, “your honor, I swear to you as a gentlemen of honor that I was only doing 55!”

It's basically your word against the radar gun at that point, isn't it? If you try to convince an FAA inspector (or an administrative law judge working for the FAA or the NTSB) that the RVR (or ASOS or AWOS or tower reported visibility or whatever) was *wrong* and that your own observation was *right*, it poses a similar challenge. You might succeed (particularly if you are represented by competent counsel), but it could be a very tough sell. And regardless of how the case ultimately comes out, nothing will stop the investigation or enforcement action from going forward in the first place.

One final note on this: the FAA operates under a body of law known as administrative law, similar to the IRS or the EPA. It is *not* the same thing as civil law (which is all about suing people for monetary damages) or criminal law (which is all about prosecuting people for wrongful acts).

Under administrative law, much-venerated concepts such as the Presumption of Innocence (i.e., “innocent until proven guilty”) and the standard of proof (i.e., “beyond all reasonable doubt” under criminal law or “an abundance of evidence” under civil law) simply do not exist. The FAA can and does interpret the FARs however the Administrator feels best serves the public interest.