Lost Communications: Explained

By: Jon Ingerson

Regulation

§ 91.185 IFR operations: Two-way radio communications failure.

(a) *General.* Unless otherwise authorized by ATC, each pilot who has two-way radio communications failure when operating under IFR shall comply with the rules of this section.

(b) *VFR conditions.* If the failure occurs in VFR conditions, or if VFR conditions are encountered after the failure, each pilot shall continue the flight under VFR and land as soon as practicable.

(c) *IFR conditions.* If the failure occurs in IFR conditions, or if paragraph (b) of this section cannot be complied with, each pilot shall continue the flight according to the following:

(1) *Route.*

(i) By the route assigned in the last ATC clearance received;

(ii) If being radar vectored, by the direct route from the point of radio failure to the fix, route, or airway specified in the vector clearance;

(iii) In the absence of an assigned route, by the route that ATC has advised may be expected in a further clearance; or

(iv) In the absence of an assigned route or a route that ATC has advised may be expected in a further clearance, by the route filed in the flight plan.

(2) *Altitude.* At the highest of the following altitudes or flight levels for the route segment being flown:

(i) The altitude or flight level assigned in the last ATC clearance received;

(ii) The minimum altitude (converted, if appropriate, to minimum flight level as prescribed in §91.121(c)) for IFR operations; or

(iii) The altitude or flight level ATC has advised may be expected in a further clearance.

(3) *Leave clearance limit.*

(i) When the clearance limit is a fix from which an approach begins, commence descent or descent and approach as close as possible to the expect-further-clearance time if one has been received, or if one has not been received, as close as possible to the estimated time of arrival as calculated from the filed or amended (with ATC) estimated time en route.

(ii) If the clearance limit is not a fix from which an approach begins, leave the clearance limit at the expect-further-clearance time if one has been received, or if none has been received, upon arrival over the clearance limit, and proceed to a fix from which an approach begins and commence descent or descent and approach as close as possible to the estimated time of arrival as calculated from the filed or amended (with ATC) estimated time en route.

[Doc. No. 18334, 54 FR 34294, Aug. 18, 1989; Amdt. 91–211, 54 FR 41211, Oct. 5, 1989]

Lost Communications Quick Reference

1. Trouble Shoot

A. Check:
   1. Headset mic/phone jacks.
   2. Headset volume setting.
   3. Both radio volume settings.
   4. Frequency tuning. (AT)

B. Tune/Select standby radio. (AT)
C. Tune previously assigned frequency, attempt both radios. (AT)
D. Repeat steps **A.** through **C.** with co-pilot mic/phone jack. (AT)
E. Select speaker ON, repeat steps **A.3.** through **C.** with hand held mic. (AT)
F. Attempt to contact the nearest FSS on the appropriate frequency, or other aircraft on the assigned frequency, previously assigned frequency, or known local common frequency.
   1. Have FSS/aircraft relay problem to ATC.
   2. Advise FSS/aircraft of position, altitude, last assigned frequency, and request further clearance.

G. Tune 121.5MHz. (AT)
H. Monitor voice feature of route/approach navaids for ATC instructions.
I. Exercise any available resources to reestablish communications with ATC.

(AT) = Attempt Transmission

2. Squawk 7600

3. Proceed VFR or IFR?

-Continue VFR when VFR conditions are encountered and land as soon as practicable.

4. Continuing IFR:

Route	Altitude - *Highest altitude for the route segment:*
Assigned	**M**inimum IFR
Vectored	**E**xpected
Expected	**A**ssigned
Filed	

Leaving Clearance Limit

Clearance Limit is:

	An IAF	**Not an IAF**
EFC	Leave the clearance limit as close as possible to the EFC and commence descent or descent and approach.	Leave the clearance limit as close as possible to the EFC and continue to an IAF (at the destination), then commence descent or descent and approach as close as possible to the ETA.
No EFC	Leave the clearance limit as close as possible to the ETA and commence descent or descent and approach.	Continue to an IAF (at the destination), then commence descent or descent and approach as close as possible to the ETA.

Purpose

The purpose of this document is to aid the pilot in fully understanding the regulatory requirements of lost communication operations. The document will provide examples to help explain the sometimes hard to understand aspects of the regulatory requirements. It will also provide some practical suggestions to better handle a potential loss of communications.

Background

While it is not always necessary, most aircraft certified to operate IFR are equipped with a minimum of two radios. While the potential for a complete loss of voice communications is possible and does occur, the probability is quite small. In most situations where a loss of communications is suspected, it can be attributed to pilot error or a simple failure of equipment which can be corrected or compensated for in flight. If a partial loss of radio communications is determined the pilot is required by § 91.187 to report the malfunction to ATC.

If only the transmitter is found to be inoperative, the pilot should continue to comply with instructions being provided by ATC. In this situation the pilot may be asked to use their transponder, IDENT, or make turns to acknowledge clearances and answer questions. In this situation the pilot would be in compliance with the first portion of § 91.185(a) which states:

§ 91.185(a) - *General.* Unless otherwise authorized by ATC…

The best method for preventing equipment failure is to thoroughly preflight the equipment for proper operations. In the case of voice communication equipment, all radios should be both transmitted and received through prior to flight to ensure proper operation. This could be accomplished by obtaining clearance on one radio, and contacting operations, ground, or tower on the other radio.

It is advisable that the pilot develop a methodical approach for dealing with a loss of communications. This will ensure the pilot thoroughly troubleshoots the problem and exhausts all resources prior to continuing with the regulatory guidelines laid out in § 91.185. Properly troubleshooting a suspected loss of communications will also help alleviate undue stress placed on the air traffic control system.

Method

The following recommended procedure will ensure all resources are exhausted prior to proceeding with the requirements of § 91.185. Once a loss of communications has been verified, this procedure will also provide a suggested course of action for complying with the regulatory requirements.

1. **Trouble Shoot**
2. **Squawk 7600**
3. **Proceed VFR or IFR?**
4. **Continuing IFR:**
    a. **Route Sequence**
    b. **Altitude Sequence**
    c. **Clearance Limit Requirements**

Trouble Shooting

It is essential that the pilot develop a checklist for trouble shooting a suspected loss of communications that is appropriate for the particular aircraft they are flying. This will provide the highest potential for reestablishing communications. The following steps are recommended for the C172 NAV III and the DA42 L360, both equipped with Garmin G1000 avionics.

A. Check the following:
    1. Check headset mic/phone jacks for proper connection.
    2. Check that headset volume adjustments are adequate.

*****At this point, check your ability to hear yourself through the intercom. If you cannot hear yourself talking there is likely a problem with your headset.*****

    3. Check that both radio volume settings are adequate.
    4. Check that the active frequency is tuned correctly. (Attempt Transmission)

B. Tune and select the standby radio. (Attempt Transmission)
C. Return to the previously assigned frequency, attempt both radios. (Attempt Transmission)
D. Have co-pilot attempt steps **A.** through **C.** If no co-pilot then plug into the co-pilot side mic/phone jacks and repeat steps **A.** through **C.** using co-pilot side push to talk. (Attempt Transmission)
E. Select speaker ON through the audio panel and use handheld microphone. Repeat steps **A.3.** through **C.** (Attempt Transmission)
F. Attempt to communicate with the nearest FSS on the nearest FSS frequency, or other aircraft on the assigned frequency, previously assigned frequency or through known common frequencies in the area. 1.) Ask FSS/aircraft to relay your problem to ATC. 2.) Advise FSS/aircraft of your position, altitude, last assigned frequency, and request further clearance.
G. Attempt communications through 121.5MHz, VHF Guard frequency.

Continued

H. Monitor NAVAID voice feature of voice capable navigational aids potentially being used for the route of flight/approach being flown. Tune navigational aid frequency into navigation radio and select NAV1 or NAV2 on audio panel, as appropriate.
I. Exercise any and all other resources you see fit in an attempt to reestablish communications. This may be done through another communication device if available. Attempt to communicate in the blind if it is believed ATC/FSS can hear you.

*****Continue attempting to reestablish communications through the duration of the flight.*****

Squawk 7600

This should be performed once it is confirmed that communications have been lost. This will advise ATC of your situation so that they can take the necessary steps to ensure your aircraft receives the appropriate separation from other aircraft and so that they can anticipate your actions.

It should be understood that this does not provide the pilot authority to deviate from the regulations. The guidelines laid out in § 91.185 must be followed. This is outlined in § 91.185(a), which states:

> **§ 91.185(a) - *General.* Unless otherwise authorized by ATC, each pilot who has two-way radio communications failure when operating under IFR shall comply with the rules of this section.**

In the event emergency priority is required the pilot should squawk 7700. Once 7700 is squawked the pilot has the authority to deviate from any rule to the extent required to meet the emergency, in accordance with § 91.3(b), which states:

> **§ 91.3(b) - In an in-flight emergency requiring immediate action, the pilot in command may deviate from any rule of this part to the extent required to meet that emergency.**

Proceed VFR or IFR?

VFR

The primary objective of the regulations governing communication failures is to preclude extended IFR no-radio operations within the ATC system since these operations may adversely affect other users of the airspace. Upon confirming the loss of communications the pilot must evaluate the conditions and decide if it is appropriate to continue VFR. § 91.185(b) outlines this course of action as follows:

> **(b*) VFR conditions.* If the failure occurs in VFR conditions, or if VFR conditions are encountered after the failure, each pilot shall continue the flight under VFR and land as soon as practicable.**

If VFR conditions are not initially encountered the flight should continue IFR until suitable VFR conditions are encountered or the aircraft lands IFR. During preflight planning the pilot should evaluate the weather along the proposed route of flight and become familiar with areas of potential VFR conditions.

Simply exiting clouds may not constitute a situation in which the flight should continue VFR. The pilot should consider the time of day (which may affect the pilot's ability to see clouds once in VMC) and in-flight visibility, among other things. Unnecessarily continuing IFR operations in VFR is not appropriate, however. In addition, landing as soon as practicable does not imply the aircraft should land at the nearest possible airport, but rather the most suitable. A suitable airport needs to be able to accommodate your aircraft's performance requirements, at a minimum. To aid in this, preflight planning should include selecting suitable enroute airports that can be used in the event the pilot needs to deviate from the planned route. If a controlled airport is selected for landing the pilot should be familiar with and prepared to receive light gun signals in accordance with § 91.125.

IFR

If the flight cannot be continued VFR § 91.185(c) outlines the IFR route, altitude, and when to leave the clearance limit.

Route

§ 91.185(c)(1) outlines the routing sequence to be followed if the flight is continued IFR. An acronym which can be used to remember the sequence is AVEF which stands for:

Assigned
Vectored
Expected
Filed

The regulation, at first, may appear vague but is intended to be applicable in many different scenarios. The pilot needs to piece together the route portion as it applies to their specific situation. Unless the pilot encounters and continues VFR at some point during the flight (or exercises emergency authority and deviates to an airport other than the first point of intended landing), the aircraft will land at the first point of intended landing (i.e. filed destination) or an alternate airport, if filed. It is imperative that the pilot precisely write down clearances in the event they need to be reviewed later in flight.

Assigned:

§ 91.185(c)(1)(i) - By the route assigned in the last ATC clearance received

The assigned route will be the initial clearance received for the flight or an amended clearance received by ATC during the flight. Assigned routing takes first priority in the routing sequence and is the route the pilot should initially follow.

Vectored:

§ 91.185(c)(1)(ii) - If being radar vectored, by the direct route from the point of radio failure to the fix, route, or airway specified in the vector clearance

This aspect of the regulation is likely to be applied as a segment in either the assigned, expected, or filed portion of the route sequence. As stated in the regulation, the pilot is to proceed direct to the fix, route, or airway that is specified in the vector clearance. Upon arrival at the fix, route, or airway the pilot will continue with the assigned, expected, or filed aspect of the route sequence.

Expected:

§ 91.185(c)(1)(iii) - In the absence of an assigned route, by the route that ATC has advised may be expected in a further clearance

On longer routes the aircraft is typically not cleared to the destination initially and may be given a route or procedure (i.e. STAR or IAP) to expected at a future time, fix or distance. In some scenarios the clearance limit is the point at which the expected route or procedure begins. In this case the pilot should determine when to leave the clearance limit and continue on with the expected clearance (See *Leaving Clearance Limit* below). When entering the terminal area the pilot may be advised to expect a specific approach, in this case the pilot should plan for the stated approach.

Filed:

§ 91.185(c)(1)(iv) - In the absence of an assigned route or a route that ATC has advised may be expected in a further clearance, by the route filed in the flight plan.

This aspect of the route sequence is used as a last case scenario if no assigned or expected clearance is provided by ATC. It is recommended that the pilot keep available the route that was filed with ATC for reference in this situation. If the previously assigned route and the filed route do not coincide the pilot should attempt to rejoin the filed route, if practical. If this is not practical the most direct route to the destination via airway, navaid direct (if determined to be within the navaid service volume(s)), or RNAV direct should be made.

Altitude

§ 91.185(c)(2) outlines the altitude sequence to be followed for flights continued under IFR. The acronym MEA can be used to aid in remembering the altitudes to consider when selecting the appropriate altitude for the route segment being flown. The pilot is expected to select the highest of these altitudes for the route segment being flown.

Minimum IFR Altitude
Expected
Assigned

Minimum IFR Altitude:

§ 91.185(c)(2)(ii) - The minimum altitude (converted, if appropriate, to minimum flight level as prescribed in §91.121(c)) for IFR operations

In evaluating the minimum IFR altitude, depending on the route and phase of flight, the pilot should consider the Minimum Enroute Altitude (MEA), Minimum Obstruction Clearance Altitude (MOCA), Off Route Obstruction Clearance Altitude (OROCA), and Minimum Safe/Sector Altitude (MSA). The pilot first needs to consider if they are established on a published route or not. If established on a published airway or route typically the MEA will be followed for that segment being flown. Only in rare instances will the MOCA be applied. For example, if the pilot is within 22 NM of a VOR defining the approach that is to be flown the MOCA is the minimum IFR altitude for that segment being flown. The pilot needs to take into consideration Minimum Crossing Altitudes (MCA), Minimum Reception Altitudes (MRA), and Maximum Authorized Altitudes (MAA), if applicable.

During flight when not established on a published airway or route segment the pilot should use the OROCA and MSA in evaluating the minimum IFR altitude for that segment. No preference is given between these altitudes. However, the pilot should take into consideration the phase of flight (i.e. terminal operations vs. enroute) and which altitude can be referenced the quickest and easiest.

The pilot/controller glossary defines the term ***established*** as: To be stable or fixed on a route, route segment, altitude, heading, etc. In addition, the "on course" concept for IFR is explained in § 91.181, which states that the course to be flown on an airway is the centerline of the airway, and on any other route, along the direct course between the navaids or fixes defining that route. The pilot should use this guidance to determine if the aircraft is established on or off route for the route segment being flown.

§ 91.177 states that if no minimum altitude is prescribed in part 95 (IFR Altitudes) or part 97 (Standard Instrument Procedures) then the pilot should select an altitude 2,000 feet above the highest obstacle, if in an area defined as mountainous, or 1,000 feet above the highest obstacle in all other areas within a horizontal distance of 4NM from the course to be flown. Part 95 should be referenced to determine if the route segment being flown is in mountainous terrain.

Expected:

§ 91.185(c)(2)(iii) - The altitude or flight level ATC has advised may be expected in a further clearance

Clearances which incorporate an expected altitude will include either a time, fix, or distance at which to expect the higher or lower altitude. The pilot should maintain the highest of the last assigned altitude or the minimum IFR altitude for the route segment being flown until the specified time, fix, or distance is reached. If the radio failure occurs after the time, fix, or distance specified, the altitude to be expected is not applicable and

the pilot should maintain the highest of the last assigned or the minimum IFR altitude for the route segment being flown.

Assigned:

§ 91.185(c)(2)(i) - The altitude or flight level assigned in the last ATC clearance received

Until a time, fix, or distance is reached where ATC has advised the pilot to expect a higher or lower altitude, the pilot will use the altitude assigned in the last ATC clearance received in determining the highest altitude to fly. Upon arriving at the expected time, fix, or distance the pilot can look at the expected altitude as the "new" assigned altitude when evaluating further route segments for the highest altitude. If no altitude is expected then the pilot will simply compare the altitude assigned in the last ATC clearance received with the minimum IFR altitude for the route segment to determine the highest altitude to fly.

Leaving Clearance Limit

The clearance limit is the first piece of information the pilot is given when receiving an IFR clearance from ATC. The clearance limit can be the destination airport or an enroute navaid, fix, or waypoint. It is vital that the pilot understands the purpose of the clearance limit and understands what course of action to take upon reaching the clearance limit in the event of lost communications.

Determining when to leave the clearance limit can be complex. To help simplify this decision the pilot only needs to consider two pieces of information, was an Expect Further Clearance (EFC) time given and is the clearance limit a fix from which an approach begins. The term "fix from which an approach begins" is referenced in the Instrument Procedures Handbook as being the Initial Approach Fix (IAF). The following table will aid the pilot in evaluating this information and provide the appropriate course of action reaching the clearance limit.

	Clearance Limit is:	
	An IAF	**Not an IAF**
EFC	Leave the clearance limit as close as possible to the EFC and commence descent or descent and approach.	Leave the clearance limit as close as possible to the EFC and continue to an IAF (at the destination), then commence descent or descent and approach as close as possible to the ETA.
No EFC	Leave the clearance limit as close as possible to the ETA and commence descent or descent and approach.	Continue to an IAF (at the destination), then commence descent or descent and approach as close as possible to the ETA.

The IAF is in reference to an IAF for an approach at the first point of intended landing (i.e. destination airport). If the clearance limit is not an IAF at the destination airport the route and altitude sequences should be consulted to get to an IAF at the destination airport.

The Estimated Time of Arrival (ETA) should be determined by taking the time off at the departure airport plus the estimated time enroute filed on the FAA flight plan or as amended with ATC. It is essential that the pilot accurately write down the time off, for this purpose.

Approach Selection:

If the pilot was not given an approach to expect, the recommended approach would be a vertically guided approach (i.e. ILS, some LPV and LNAV/VNAV). This provides two benefits: (1) the pilot has a method of cross-checking the altimeter through the use of the glide slope/path altitude at the non-precision final approach fix, and (2) the lowest minimums are usually achievable. Preflight planning should include analysis of the most likely runways/approaches in use at the ETA.

Destination Airport is the Clearance Limit:

More times than not the clearance limit given in an IFR clearance is the filed destination airport. In this situation the airport is not "a fix from which an approach begins" and the pilot should evaluate the right-hand column of the clearance limit decision making table above. If RNAV equipped, the pilot should consider the airport waypoint as being another fix along the route and once crossing the airport waypoint continue to an IAF. If the aircraft is not RNAV equipped the pilot should select the most appropriate method for transitioning from the enroute structure to the IAF. See the attached letter of interpretation for more information.

Holding at the Clearance Limit:

Prior to arriving at the clearance limit the pilot needs to determine if holding is required in accordance with the clearance limit decision making table above. If holding is required then the hold should be conducted either (1) as published if there is a published hold at the clearance limit fix, or if no hold is published then (2) on the course the pilot arrives to the fix and make right turns, in accordance with the guidance provided in AIM 5-3-7(c). The pilot should attempt to adjust the holding pattern as necessary to leave the clearance limit "as close as possible" to the EFC or ETA.

"Commence Descent or Descent and Approach":

The regulation uses the phrase "commence descent or descent and approach" at the specified time. The pilot should interpret this in accordance with their specific situation. If the pilot feels that, at the specified time, the aircraft will not be able to continue on the approach in a stabilized manner they may elect to perform additional circuits in the hold to descend further. Once descent to a more appropriate altitude is

completed the pilot may begin the approach. Alternatively, if the pilot feels that the approach can be continued in a stabilized manner at the specified time, the approach may be started at that time without additional circuits in the hold.

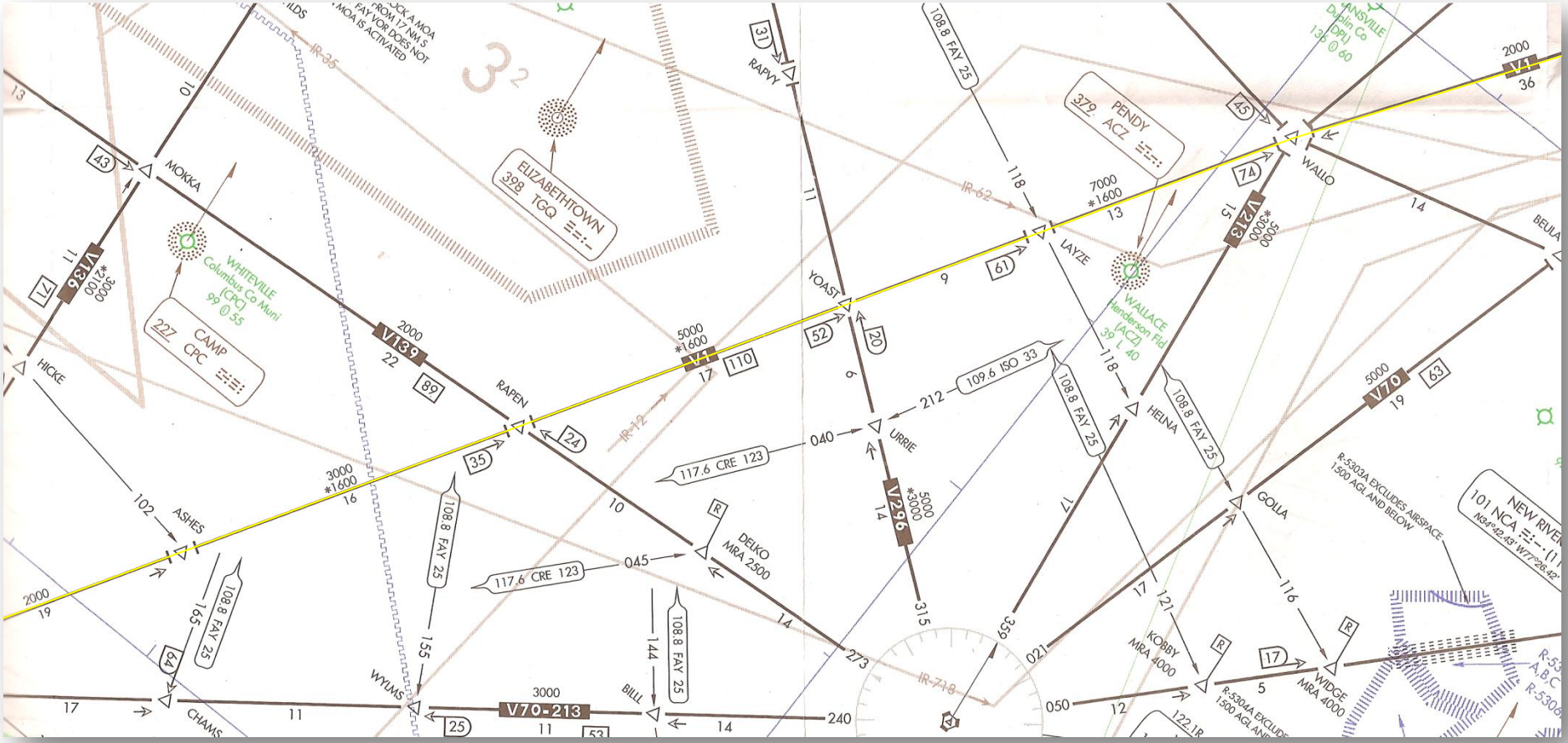
If the EFC or ETA, as appropriate, has passed prior to reaching the IAF but the pilot needs to lose excess altitude a hold may be executed. Descent should not begin until reaching the IAF and passage of the EFC or ETA, except in accordance with the altitude sequence.

Leaving for the Alternate:

If, upon reaching the missed approach point, the pilot is unable to meet the requirements of § 91.175(c) a missed approach must be executed and the pilot should divert to the alternate airport. It is recommended that the pilot continue with the missed approach procedure until reaching an altitude suitable for meeting the requirements laid out in the altitude sequence. This may require continuing to the missed approach fix and entering a hold while the climb is continued. Routing to the alternate airport is not filed in the flight plan so the pilot should proceed to the alternate by the most direct means possible along airways, navaid direct (if determined to be within the navaid service volume(s)), and/or RNAV direct routing. Upon arrival at the alternate airport begin an approach, utilizing the "commence descent or descent and approach" guidance, if necessary. It is advisable that the pilot complete a separate navigation log for the alternate to determine information such as fuel requirements, distance, and estimated time enroute.

If, in accordance with § 91.169, an alternate was not required at the time of initial planning but the pilot is unable to meet the requirements of § 91.175(c), continue with the missed approach, as stated above. At this point it is recommended the pilot declare an emergency and proceed accordingly to the most suitable airport.

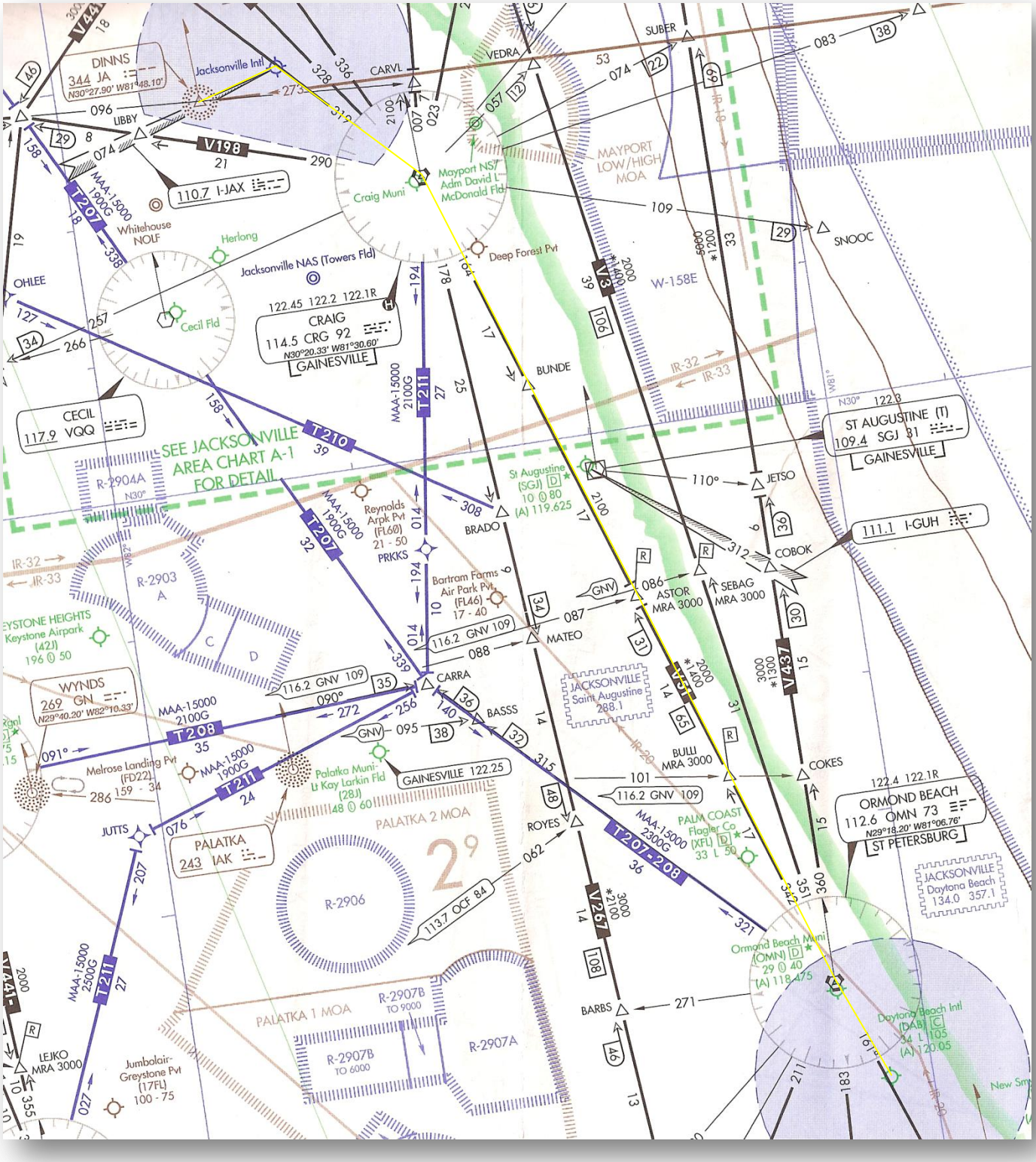
Example: Altitude Sequence

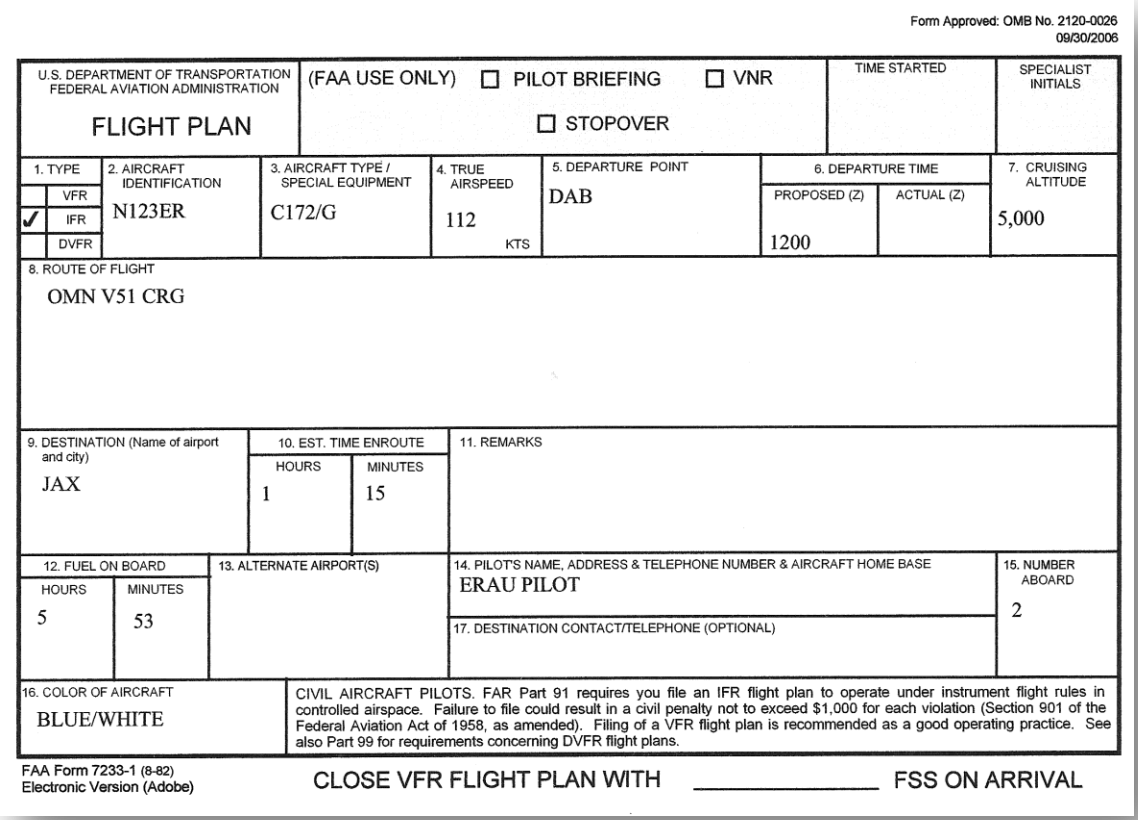


In this example the aircraft has been cleared northeast bound along V1 and told to climb and maintain 2,000’ and expect 4,000’ crossing ASHES intersection. Following the guidance outlined in § 91.185(c)(2) the aircraft should continue as follows for the respective segments along the route:

-Initially, climb and maintain 2,000’ (M = 2,000’, E = N/A for this segment, A = 2,000’)
-Crossing ASHES climb to 4,000’ (M = 3,000’, E = 4,000’, A = 4,000’ could be seen as the new assigned altitude for this segment onwards)
-Crossing RAPEN climb to 5,000’ (M = 5,000’, E = N/A for this segment, A = 4,000’)
-Crossing LAYZE climb to 7,000’ (M = 7,000’, E = N/A for this segment, A = 4,000’)
-Crossing WALLO descend to 4,000’ (M = 2,000’, E = N/A for this segment, A = 4,000’)

Example: Route Sequence / Altitude Sequence / Leaving Clearance Limit





Form Approved: OMB No. 2120-0026
09/30/2006

U.S. DEPARTMENT OF TRANSPORTATION
FEDERAL AVIATION ADMINISTRATION

FLIGHT PLAN

(FAA USE ONLY) ☐ PILOT BRIEFING ☐ VNR ☐ STOPOVER

TIME STARTED | SPECIALIST INITIALS

1. TYPE	2. AIRCRAFT IDENTIFICATION	3. AIRCRAFT TYPE / SPECIAL EQUIPMENT	4. TRUE AIRSPEED	5. DEPARTURE POINT	6. DEPARTURE TIME		7. CRUISING ALTITUDE
☐ VFR ☑ IFR ☐ DVFR	N123ER	C172/G	112 KTS	DAB	PROPOSED (Z) 1200	ACTUAL (Z)	5,000

8. ROUTE OF FLIGHT
OMN V51 CRG

9. DESTINATION (Name of airport and city)	10. EST. TIME ENROUTE HOURS	MINUTES	11. REMARKS
JAX	1	15	

12. FUEL ON BOARD HOURS	MINUTES	13. ALTERNATE AIRPORT(S)	14. PILOT'S NAME, ADDRESS & TELEPHONE NUMBER & AIRCRAFT HOME BASE	15. NUMBER ABOARD
5	53		ERAU PILOT 17. DESTINATION CONTACT/TELEPHONE (OPTIONAL)	2

16. COLOR OF AIRCRAFT
BLUE/WHITE

CIVIL AIRCRAFT PILOTS. FAR Part 91 requires you file an IFR flight plan to operate under instrument flight rules in controlled airspace. Failure to file could result in a civil penalty not to exceed $1,000 for each violation (Section 901 of the Federal Aviation Act of 1958, as amended). Filing of a VFR flight plan is recommended as a good operating practice. See also Part 99 for requirements concerning DVFR flight plans.

FAA Form 7233-1 (8-82)
Electronic Version (Adobe)

CLOSE VFR FLIGHT PLAN WITH _____ FSS ON ARRIVAL

ATC Clearance

Clearance Limit – BUNDE
Route – Radar Vectors to OMN then join V51
Altitude – Climb and maintain 3,000' expect 5,000 10 minutes after departure

Scenario

In this example let us presume that there is a loss of communication experienced in the process of switching to Daytona departure. The trouble shooting procedures are followed and 7600 is squawked on the transponder. At this point, the pilot needs to determine if the flight can be continued under VFR to a suitable airport. If not, the following example will demonstrate the appropriate course of action when operating IFR in accordance with § 91.185(c)(1). It should be understood that this is just one scenario and its associated application of the regulations and does not represent the course of action that should be taken in all situations.

Route

Since the aircraft is being radar vectored to OMN VOR the pilot should proceed direct from the point of radio failure to the OMN VOR in accordance with the Vector portion of the route sequence. From there the pilot should join V51 to BUNDE intersection in compliance with

the Assigned portion of the route sequence. Arriving at BUNDE, the clearance limit, the pilot needs to follow the "Leaving the Clearance Limit" requirements outlined below.

In continuing past the clearance limit the route sequence needs to be reevaluated to determine the route to be flown. In this scenario nothing further was Assigned and no further routing or procedures were told to be Expected. The last aspect of the route sequence then is Filed. Referencing the FAA flight plan above the pilot should continue to CRG VOR, then direct to the airport waypoint, if RNAV equipped, and then continue to an IAF for an approach into JAX. The approach may be chosen in accordance with weather information gathered during preflight, information received by ATC, and/or the potential use of a traffic avoidance system to see what runway other aircraft may be using.

For the example, let us presume the preferred runway is runway seven and we choose the ILS or LOC RWY 7. After crossing the airport waypoint the pilot should continue to the most suitable IAF; preferably the nearest IAF. In this case DINNS intersection would be most appropriate. Reference "Leaving the Clearance Limit" below for when to leave DINNS intersection on the approach.

If VFR conditions are encountered during any portion of the flight the pilot should 1.) decide if the flight can continue under VFR and if so 2.) land the aircraft at the nearest suitable airport as soon as practicable.

Altitude

The initial ATC clearance assigns 3,000' as the initial altitude with an expected altitude of 5,000' 10 minutes after departure. While proceeding with the vector portion of the route sequence to OMN VOR the OROCA for the defined area is 2,900' and the MSA within 25NM of the OMN VOR is 2,800' (Referenced on VOR 16 into Daytona Beach). In this situation the pilot should continue climbing to 3,000', the highest for the route segment. Along V51 the MEAs are 2,000 and 2,100 respectively for the two route segments between OMN and CRG VORs. Upon joining the airway the pilot should continue to maintain the assigned altitude of 3,000' until 10 minutes after departure and then continue to the expected altitude of 5,000'. In this scenario 5,000' will be maintained for the remainder of the flight until descent is made at the IAF. See "Leaving the Clearance Limit" below for guidance on when to begin descent at the IAF.

Leaving the Clearance Limit

The clearance limit provided in the initial ATC clearance is BUNDE intersection. In this case the pilot needs to determine 1.) is BUNDE an IAF for an approach at JAX and 2.) was there an EFC given. In the example BUNDE is not an IAF nor was there an EFC given. Then, upon reaching BUNDE intersection the pilot should immediately continue with the route sequence to an IAF for JAX, as explained above. Reaching the IAF the pilot should begin descent if significant altitude loss is required or descent and approach as close as possible to the ETA.

JACKSONVILLE, FLORIDA

AL-5570 (FAA)

11237

ILS or LOC RWY 7

JACKSONVILLE INTL (JAX)

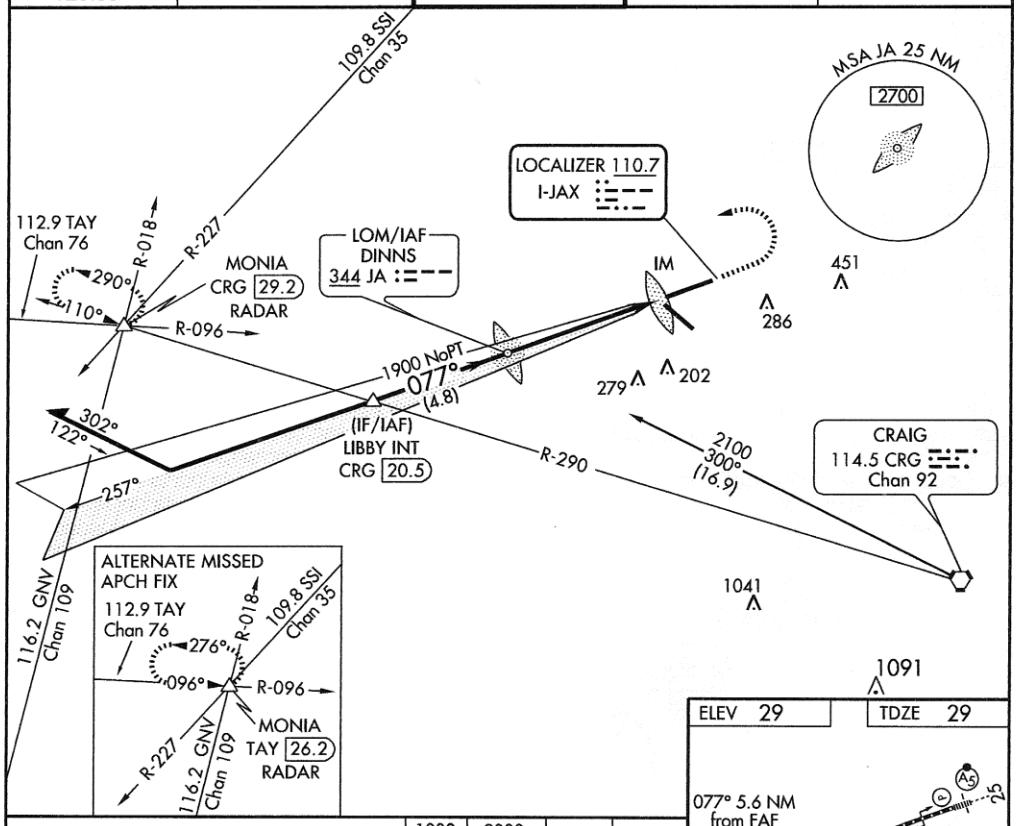
LOC I-JAX	APP CRS	Rwy Idg	10000
110.7	077°	TDZE	29
		Apt Elev	29

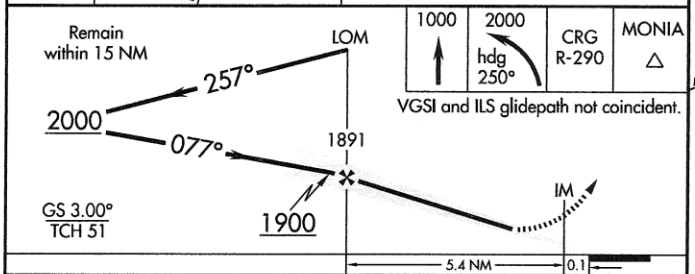
For inoperative ALSF, increase S-ILS 7 Cat E visibility to RVR 4000. For inoperative ALSF, increase S-LOC 7 Cat E visibility to 1½ .

ALSF-2

MISSED APPROACH: Climb to 1000 then climbing left turn to 2000 on heading 250° and CRG VORTAC R-290 to MONIA INT/CRG 29.2 DME/RADAR and hold.

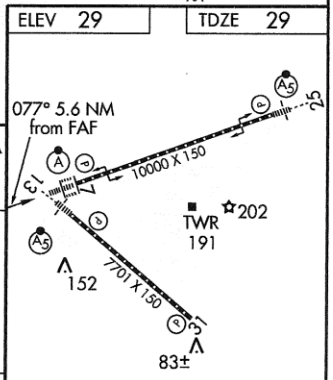
ATIS	JACKSONVILLE APP CON	JACKSONVILLE TOWER	GND CON	CLNC DEL
125.85	119.0 335.6	118.3 317.7	121.9 348.6	119.5 290.275





1000	2000	CRG	MONIA
↑	hdg 250°	R-290	△

VGSI and ILS glidepath not coincident.



CATEGORY	A	B	C	D	E
S-ILS 7	229/18 200 (200-½)				
S-LOC 7	480/24 451 (500-½)		480/40 451 (500-¾)	480/50 451 (500-1)	
CIRCLING	520-1 491 (500-1)		520-1½ 491 (500-1½)	640-2 611 (700-2)	820-2¾ 791 (800-2¾)

REIL Rwy 31
TDZ/CL Rwys 7, 25, and 13
HIRL Rwys 7-25 and 13-31

FAF to MAP 5.6 NM

Knots	60	90	120	150	180
Min:Sec	5:36	3:44	2:48	2:14	1:52

SE-3, 25 AUG 2011 to 22 SEP 2011

SE-3, 25 AUG 2011 to 22 SEP 2011

JACKSONVILLE, FLORIDA

Amdt 12D 07APR11

30°30'N-81°41'W

JACKSONVILLE INTL (JAX)

ILS or LOC RWY 7

U.S. Department
of Transportation
**Federal Aviation
Administration**

Office of the Chief Counsel

800 Independence Ave., S.W.
Washington, D.C. 20591

MAR 16 2010

John G. Olshock
Director of Training
TransPac Aviation Academy
530 W. Deer Valley Road Ste. 300
Phoenix, AZ 85027

Dear Mr. Olshock,

This is in response to your request for a legal interpretation submitted on December 7, 2009, regarding procedures following loss of communications for flights under instrument flight rules. Specifically, you posit the following hypothetical scenario:

> Flight 123 has received a clearance prior to departure with the phraseology, 'Flight 123 cleared to KXYZ airport as filed, climb and maintain five-thousand, expect one-zero thousand 10 minutes after departure. Departure frequency 135.25, squawk 1072.' Shortly after departure and after receiving clearance to climb to ten thousand feet, Flight 123 loses radio communications while in IMC. According to § 91.185, Flight 123 will continue on the appropriate filed route and appropriate altitude. As the flight nears the destination airport, the flight crew notices that they are 25 minutes earlier than their planned ETA.

You then ask, under 14 C.F.R. § 91.185, whether the pilot may "begin an instrument approach into the destination airport and land regardless of the early arrival because the airport was given as a clearance limit in the initial ATC clearance."

We recently addressed this issue in a legal interpretation. In that response (a copy of which is attached), we noted that when the clearance limit is not a fix from which an approach begins and no expect-further-clearance time is given, the pilot would proceed to the destination airport, and, upon arrival over it, proceed to a fix from which an approach begins. The pilot would then commence descent and approach as close as possible to the estimated time of arrival. *See* Legal Interpretation to Buster W. Desselles Jr., from Rebecca B. MacPherson, Assistant Chief Counsel for Regulations (July 31, 2009). Should the pilot arrive over the approach fix earlier than the estimated time of arrival, the pilot would need to hold at the approach fix until such time as to commence descent and approach as close as possible to the estimated time of arrival.

We appreciate your patience and trust that the above responds to your concerns. If you require further assistance, please contact my staff at (202) 267-3073. This response was prepared by David Pardo, attorney for the Operations Law Branch of the Regulations Division of the Office of the Chief Counsel, and coordinated with the General Aviation & Commercial Division of Flight Standards Service.