
Delta

FROM THE PRESIDENT'S DESK
October 2005

I have the great pleasure of writing to you with exciting news about our virtual airline. Six weeks ago DVA2006 went live months earlier than planned thanks to the dedication and great talents of Luke Kolin.

Are you enjoying DVA2006 with all the new features, zippy response and new fleet?

Well, if you are not, many of your fellow pilots are! We had more than 1,000,000 server requests in September pushing out on average 2 gigabytes of data daily.

As cautioned before the cutover to the new system, there would be occasions when something would not function properly. Exams, ACARS, new hires and Schedule Search were areas that caused hiccups. Thank you for being patient and understanding. Behind the scenes, Luke dedicated himself to working endless hours to fine tune code and search out the bugs. The process also gave staff the opportunity to examine policy and the administration of promotions, check rides and Flight Report approval.

Another "wow" statement, the number of active pilots increased from 950 in August to over 1,030 now, the largest jump that I witnessed during my membership. We are the largest VA in the USA. Luke is always quick to remind me that our Water Cooler is the most active in the world judging from our competitor's message center activities. All are indicators of the health of our business.

Delta Virtual Airlines is a busy enterprise with many changes. We have new staff. Andrew Dalrymple took over as Director of Events replacing retiring David Schaum. We owe a deep round of gratitude to David Schaum who reinstituted Group Flight events over a two-year period. Notable was the Musketeer event series that attracted the attention of many as we worked through the chapters in the book. George Lewis took over as Director of Training from Geoffrey Smith. George will manage the introduction of a Flight Academy.

Senior Captain Roger Pilgrem, DVA1428, completed record making 1,400 flight segments. Roger joined us in December 2003 and obviously has been flying almost continuously since averaging two flight segments daily.

With all the new developments and new technologies some would say that DVA couldn't possibly come up with new services for its pilots. Wrong! We are not going to sit on our laurels since it is felt that to satisfy our mission of being as real as it gets and enhancing enjoyment of virtual aviation through knowledge and experience means that we must offer new and enhanced services.

Our next major initiative is the creation of a Flight Academy. The Flight Academy under George Lewis's direction will provide pilots with the opportunity to study and practice specific areas of aviation using a variety of materials and methods. Pilots will be able to become certified in specific areas. A mentoring program will be created to provide qualified assistance in

a variety of areas including online flying, operation of specific aircraft or features. This will require a great deal of time and effort to create, manage and implement. The Flight Academy will be phased in over a period of months.

Other significant changes occurred to assure that Delta Virtual Airlines will be independent regardless of individuals or organizations. DVA2006 was designed so that others can administer and maintain it. The site was moved to a commercial hosted service. A structure was created to fairly share in the payment for the hosting services and bandwidth. Global Virtual Airlines Group was created to accept voluntary contributions for paying DVA's expenses.

Our dedicated staff of volunteers makes Delta Virtual Airlines possible. They provide significant personal time, energy and resources to make our airline one of the best. Take a moment of your time to show your appreciation. A word of gratitude means a lot to our volunteers.

Your staff is working hard with the emphasis on enhanced enjoyment of virtual aviation. The key word is enjoyment. Please provide feedback as to how you would like your experience enhanced. If it fits our business model, we will do our best to incorporate your ideas.

I am asked what makes Delta Virtual Airlines such a great and successful VA. After working with staff and our pilots for more than two years, my answer is the giving and sharing characteristics that all our members have in common. We trust one another and go beyond the call of duty to help each other. This is what makes our community great. It is a pleasure and an honor to be a small part of such a fine organization.

Thank you for flying Delta Virtual Airlines,

Terry Eshenour
President, Senior Captain 777
DVA057

FROM THE EDITOR
Matt Reamy, acting

I'd like to take this opportunity to welcome you to the Delta Virtual Airlines November issue of Fly.

Lloyd Arms, along with Gaston Doval and myself, worked on our first edition of Fly early in 2005. So while this isn't a first issue, per se, it's probably the first issue a lot of our newer pilots have seen.

Let me take a minute to outline some of the goals I have in mind for Fly. Lloyd Arms is still the Editor In Chief, though in his absence I've resumed publication. Until he returns to continue overseeing this publication, I've got some ideas for Fly that I'd like to make happen.

First of all, I plan on making this a monthly publication. I believe there's enough going on that we can fill a monthly publication quite easily.

Secondly, I want to make it much more interactive. I've created an email address, delta_fly_mag@hotmail.com, and you can send your questions to that address. Following each article, there's a note that describes a subject that you should apply to your email to help us sort everything out.

Your questions are welcome. I'm hoping we get quite a few from you. If there's a demand for it, future editions will have a "Letters To The Editor" section where we'll print your comments (and respond if necessary).

Future editions will also include submissions from our pilot corps (that's you guys!) as long as they follow a few guidelines that will be outlined a bit later.

What's Included:
Terry Eshenour, our current President addresses the pilot corps, and outlines some upcoming features that will be added to DVA. Each month, Terry will address us, keeping us informed of what's in the works for DVA and sharing his thoughts with us.

We've got a couple of series starting in this issue. George Lewis will be writing a series regarding Navigation. It will cover the ins and outs of navigation. Navigation can be a bit intimidating, and George is going to do his best to demystify it for us.

I started a series about Flight Simulator flight planning. This month's article is an overview of the basics. We'll dig into how to plan flights, clarify segments of a flight, and work our way into modifying flight plans to suit your needs.

The article "From the AIM/FAR" is a section from the Aeronautical Information Manual/Federal Aviation Regulations. What does the real world aviation industry do? You'll find it in the AIM/FAR, and this column will accept question from you pilots out there who want to know what the AIM/FAR says about a topic.

I think we've got some great stuff, not only in this issue, but planned for future issues as well. I hope you find the articles informative. We also welcome your questions and comments.

Delta Virtual Aviation presents Delta Fly. Yet another way that we're "taking the VA world one step ahead."

Matt Reamy, DVA1267
Acting Editor, Delta Fly

FLIGHT ACADEMY
By George Lewis

Navigation is the ability to find your way to a predetermined place or point in the sky utilizing the aircraft systems available to you in your aircraft. Here at DVA we have a unique concept of flying laid back – just punch in the GPS direct and go, all the way to as real as it can possibly get – including flying the exact weather conditions, fuel planning, online air traffic control, reference charts and realistic navigation just as it is done in the real world.

Though some of us here at DVA are real-world pilots, the majority of us are not. We haven't been through ground school or flight training and therefore have never been shown the basics of navigation to the point that it would be helpful or beneficial to us in the cockpit of an airplane.

VOR, NDB and DME are fundamental navigation skills when flying. They don't require any special skills or anything – all private pilots know how to fly via the NDB and VOR. RNAV (area navigation) is a method of navigation that is in use, and GPS is a newer form of navigation that is nice to have – it increases situational awareness. However, since all pilots already know how to fly via VOR, it's not a big deal for them to use a GPS – they can go back and forth. The problem here in the virtual world is that not all virtual pilots know how to fly using NDB and VOR. I personally think that a good understanding of how the VOR system works will take a virtual pilot a long way in this hobby when it comes to navigation.

SIDs and STARs and jet airways are pretty much based upon VOR course radials. Learn to fly VORs and you will easily pick up the SIDs and STARs and jet airways because of this knowledge. Not all SIDs and STARs and approaches are VOR based – there are many that are RNAV and a few that are GPS based. The FMC systems will work with RNAV, GPS, VOR and NDB systems.

If you interested in learning the fundamentals of radio navigation then please read on, because I intend on covering it all – eventually.

Here is the link for the official website for the Aeronautical Information Manual (AIM) – The Official Guide to Flight Information and ATC Procedures: http://www.faa.gov/atpubs/AIM/ - it is really worth taking a look-see if you are interested in learning.

We will start out with an overview of the typical flight as it relates to aircraft radio navigation. I will leave the other aspects such as fuel planning, weather conditions, etc. to others for the moment and concentrate on the navigation portion of real world flying. I'll then leave you with brief look at the VOR system. In upcoming issues of Delta Fly, we will go into more detail on specific parts of navigation and other basic skills.

You are free to email Delta Fly with questions and we will do our best to answer them. We may even print your question in an upcoming issue of Delta Fly so if you prefer to have your name withheld, please state so at the end of your question.

The Overview

It is very important to have an overview of the big picture in order to understand why some concepts are important to learn. If you don't understand some of the terminology, please keep reading, as we will explain it all eventually. As you will see, the underlying concept here is knowledge of the VOR.

The typical commercial airline flight is going to involve a few steps

1. flight planning
2. pre-flight
3. execution of the flight plan
4. post-flight

To properly plan a flight, one must know what goes into the flight. The execution of the flight plan is just that – an execution of the flight *plan* – if there is no plan, there is nothing to execute.

The flight plan will consist of many factors, but the one we will concentrate on is getting from point A to point B.

The execution of an IFR flight plan usually uses this pattern

1. Clearance Delivery (approval of the flight plan and departure instructions)
2. Engine start, pushback and taxi to the runway
3. Takeoff and departure via a SID
4. Enroute flight – leaving the SID to entering the STAR
5. Arrival via the STAR
6. Approach and landing
7. Taxi to the gate and shutdown

Terminology used:

SID – Standard Instrument Departure -
STAR – Standard Terminal Arrival – the purpose is to simplify clearance delivery procedures and facilitate transition between en route and instrument approach procedures.
Transition Point – for a SID, this is the exit. For a STAR, this is the entry. Usually a transition point is a VOR, but not always.

So, to properly plan flights on your own, a pilot should possess knowledge of SIDs/STARs and jet airways. As previously mentioned, the basis for most SIDs and

STARs and Jet Airways is the VOR, so it is important to learn this concept. If you fly with an FMC, it is also important to know how to program this information into the FMC.

The approach and landing are generally going to be instrument approaches – you never know what kind of weather you will get – if it is low visibility or low ceilings, you cannot rely on visual approaches to get the job done. To perform instrument approaches, you need to understand the concept of the NDB, VOR and DME. If you use an FMC system aboard your aircraft, you should know how to program this information into the FMC.

With *any* aircraft you fly, you need to be familiar with the systems aboard that aircraft – that is a given, but independent of any particular aircraft is the basic foundation, the concept of basic radio navigation will always be the same.

A basic flight route can be performed with any aircraft, providing it has the range to do so – but actual execution of the flight route will require that the pilot knows his aircraft systems and how to use them in order to execute the flight route with accuracy, precision and confidence. If you do not have the basics of navigation concepts down, it doesn't matter what aircraft system you use – you will never really be in control of the situation.

So to summarize, you need to understand the *VOR concept* to learn how to navigate cross country flights from point A to point B like the real world pilots do.

The power to make your own flight plan

I have seen many posts of users requesting better websites to build routes. They say that the site they use for flight plans always results in their flight plan being changed by ATC. When you learn the fundamentals – NDB, VOR and DME, you then have the basic foundation to easily learn SIDs and STARs and jet airways, thereby making your own flight planning possible. This will alleviate the problems with ATC changing your flight plan.

You shouldn't underestimate the power of learning the SID/STAR system. Take the Delta hub of KATL for example: KATL airspace has 4 STARs (non-RNAV). There is one for every quadrant of airspace:

- Rome2
- Macey2
- Sinca3
- LaGrange1

These are very simple to understand and plan your flights with, but without this basic knowledge you are just shooting in the dark.

If you have basic knowledge of SIDs and STARs, you can plan flights very simply and quickly. I'll give some examples – things might get a little technical here, but bear with me – this will all be very easy to follow once you learn SIDs and STARs.

1. **KDFW-KATL** – the flight plan is simply DALL7.MEI.LGC1 – this is the Dallas7 SID out of KDFW to the MEI transition point (exit) which is also the transition point (entry) to the STAR into KATL. It is easy to build on your own in about 3-5 minutes if you take the time to do so. You fly the SID and you fly the STAR – it can't get any easier than this – *if* you understand SIDs and STARs.
2. **KATL-KCVG** – the flight plan is simply ATL5.NOTWO VXV.SWEED7 – this is the Atlanta 5 SID to the NOTWO transition point then direct to the VXV VOR which is the entry point to the SWEED7 STAR into KCVG. The route can't get much simpler than this.
3. **KSLC-KSFO** – very simple flight. SEVYR1.OAL.MOD2 – you fly the SEVYR1 SID to OAL transition point and enter the Modesto 2 arrival via the OAL transition point. How did I come up with this? I simply pulled down the SIDs and STARs and looked at them.

I could go on and on… the point here is that you can do a lot of the shorter flights without any need to do major flight planning navigation wise – you fly the SID, then you fly the STAR.

For longer flights, you fly the SID and then you fly the enroute flight portion which consists of jet airways, which are really VOR course radials, so in effect you are flying from VOR to VOR all the way to the STAR.

An example would be KATL-KSLC - We go from the SID and STAR transition points – i.e. ATL5.WETWO and EKR.SPANE4. WETWO by the way is a course radial off of the ATL VOR. The transition point EKR on the SPANE4 STAR is a VOR.

Let me point out a constant in all 4 of these examples – *VOR*. MEI is a VOR. VXV is a VOR. OAL is a VOR. EKR is a VOR. WETWO and NOTWO are not VORs but are course radials off of a VOR. If you don't know how to fly using the VOR, these SIDs and STARs are almost totally useless to you.

Basic VOR navigation is taught in private pilot ground school and you cannot get your pilot's license without the ability to use the VOR; and in fact, you have to demonstrate the ability to use it during your private pilot check ride.

So if you would like to learn these basic fundamental radio navigation skills and haven't yet had the opportunity to do so, now is your chance.

NDB, VOR and DME

Due to space restraints, the following is merely a brief look at the NDB, VOR and DME systems. There will be full NDB and VOR tutorials coming from me in the near future. In the upcoming issues of Delta Fly we will go into further detail on how to fly these systems.

There are 3 navigation systems we want to learn – NDB (non-directional beacon), VOR (very high omnidirectional range) and DME (distance measuring equipment). The big difference between NDB and VOR systems is that NDB is non-direction and VOR is directional. DME simply gives out the distance you are from where it is located.

A brief look at how NDB works
You use the ADF (automatic direction finder) receiver in the airplane to tune in the NDB station. The ADF always points to the NDB station, so you can simply turn your airplane until the needle points forward in the direction you are heading until you fly over the NDB, at which point the needle swings around backwards, as it points back to the NDB you just flew past.

There will be a forthcoming article on flying the NDB complete with screenshots.

A brief look at how VOR works
VOR is a concept that seems difficult to those who don't understand it, but once you understand how it works, you realize it is very simple after all.

The VOR beams a signal in all 360 degrees of direction. Each signal is unique – this means that you can tell, from this signal and a VOR receiver, where you are in the sky.

There are different ways we use the VOR as a navigation tool:

1. Flying direct to a VOR – simply put, we find out where the VOR is and turn and fly directly to it.
2. Track an inbound or outbound course – we fly a specific course or radial on either side of the VOR. We use these for SIDs and STARs and cross country flying.
3. Cross reference our position – we check our position by tuning in another VOR station and noting where we are in relation to this other VOR to double check our position.
4. Fly cross country from VOR to VOR – we fly to one VOR then tune to the next and fly to that one – we have an idea of the course heading but we can fly direct to each one if we like.
5. Fly to intersections using the VOR – this requires flying a precise course and using cross-reference and/or the DME to know your exact position. Very useful for SIDs, STARs and instrument approaches.

A Brief look at how DME works

DME is Distance Measuring Equipment - If you were to tune in the VOR and the mileage on the DME says 25, you are 25NM away from the DME. This is a very useful piece of equipment that we will utilize on nearly every flight we fly. Please keep in mind that not all VORs are created equal – some are not equipped with a DME – this is more common in Europe than in the USA. Another thing you should know is that the DME gives its distance in slant range – meaning it is the distance from the airplane to the DME station, not the ground distance. So as you fly near the DME, the mileage indicator will slow down. If you fly over the DME at 30,000 ft, you are approximately 6NM high, or 6NM from the DME, so the distance given will be 6NM and it will never go any lower.

VOR or HSI – which is better and what is the difference?

A VOR simply gives you the position in relation to the VOR. If you don't have DME, you have no idea of how far away you are from the VOR. You can cross check with another known VOR but you would need charts to determine your position using this method.

The HSI (Horizontal Situation Indicator) is a better choice. As the name implies, it is a Horizontal Situational Indicator – it indicates your position horizontally. It can give you not only the CDI, but also the DME and your heading. You can see the airplane on the gauge and its horizontal relationship with the course you wish to fly using the VOR. For advanced aircraft beyond the Cessna 172, we prefer to use the HSI, which incorporates the VOR with the other instruments. Keep in mind that each HSI is different – some are nicer than others, but generally speaking, the more expensive or newer the airplane, the nicer the HSI it will have.

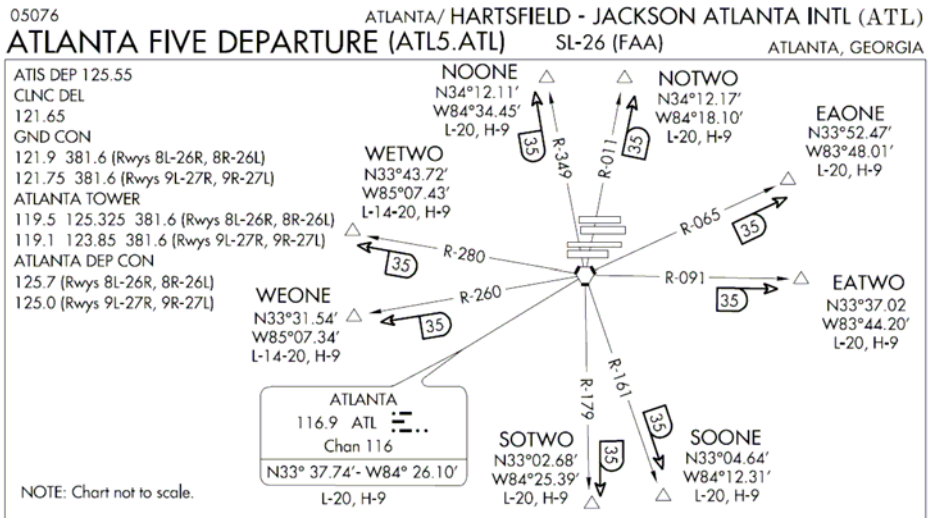
				
VOR	**VOR with ILS**	**Basic HSI**	**Better HSI**	**EFIS HSI**
This is your plain old basic VOR	This VOR also has a glideslope used for making ILS approaches	The Basic HSI has VOR, ILS and Compass functions	This HSI also has DME readout and an analog Course readout.	Your glass cockpit variation of the HSI here has info on both VORs and says "TO" or "FROM"

Situational Awareness – determining our position on the SID chart

To depart Atlanta on an IFR flight plan, chances are you will have to fly a SID. To fly to any of the transition points to exit the SID, we will need to track a VOR radial or course heading to a specified distance.

To track a VOR radial you must attempt to get on the course radial and this requires a little bit of situational awareness and pre-planning. What we want to do now is fly this departure from Atlanta – the Atlanta5 SID – to the NOTWO transition point. Notice on the SID that NOTWO is R-011 from the ATL VOR 116.9 and is 35NM on the DME.

Atlanta 5 SID showing NOTWO



HSI showing us at NOTWO

We have our NAV1 tuned to 116.9 and are on 011 COURSE and the DME reads 35. We are at NOTWO as depicted on the SID to the left of us.

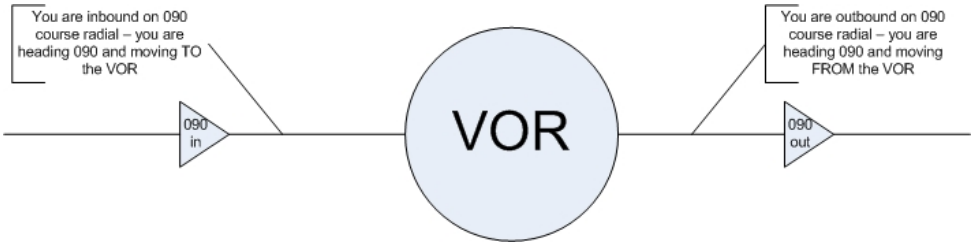
The key here is to visualize what the VOR/HSI shows you against what the SID shows you for the same location. You have to learn to trust your VOR/HSI – when you fly the course radial you know you're on it, and you know that at 35NM on the DME, you are where the SID says you should be. It is not that NOTWO just so happens to be at R-011 at 35NM. It happens to be that R-011 at 35NM is named NOTWO. So as long as you fly the VOR to this position in the sky, you will be at the proper location.

Here is EATWO on the VOR – same situation, only we are on the 091 outbound course at 35NM on the DME of VOR 116.9. Notice the outbound triangle. If this were an inbound course 091, we would not be at EATWO, but rather west of the ATL VOR on course 271 outbound, or slightly south of WETWO. It is critical that you understand the difference between inbound and outbound.

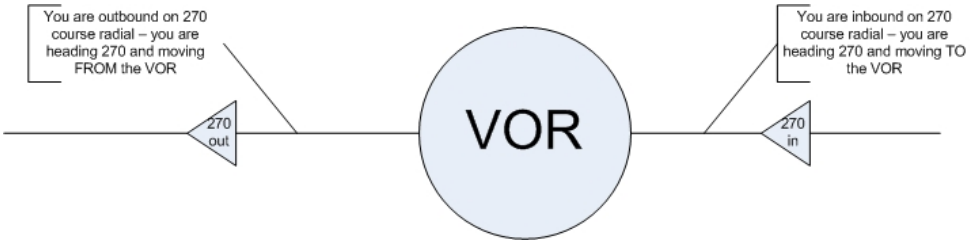
If you compare this VOR to the NOTWO and the SID, you can see that the only difference is that we are on the 091 course. If you look on the SID, you will see that course 091 at 35 on the DME is EATWO intersection.

Inbound and Outbound Concept

Inbound and Outbound concepts are important to understand. Here are a couple of drawings to hopefully better illustrate this concept.



Here we see the inbound and outbound relationship. As we fly towards a VOR, the imaginary line going through the center of the VOR is inbound – the flag on the VOR will show TO or point upwards towards the VOR. As we pass over the VOR, there is no signal and we are neither inbound nor outbound. As we fly away from the VOR, we are flying outbound. This is still the same course radial, but depending on which side of the VOR you are on, you are inbound or outbound.



To add more clarity and to clear up some potential confusion, compare this illustration with the one above. Here you see that we are flying on the same line – the above illustration showed the course radial as 090 however in this example we are on course radial 270. Study these 2 illustrations for a better understanding of inbound and outbound.

As I mentioned previously, there will be a full VOR tutorial being released very soon, possibly by the time you read this, that will teach you all about the basics of flying using the VOR. I recommend that all DVA pilots that are interested in learning the basics of radio navigation read this tutorial.

If you've got questions for George please feel free to email him at delta_fly_mag@hotmail.com with the subject Navigation.

MD-11 on approach at London-Gatwick
Photo by Gaston Doval

Planning Flights For Flight Simulator
By Matt Reamy

This is the first in a series of articles that deal with planning and executing flights in flight simulator. The purpose of this series is to inform and educate DVA pilots about options for flight planning that they may not know about.

There are several different methods of planning flights for flight sim. From the basic Flight Planner utility that comes with MSFS to add-on utilities like FSBuild or FSNav. Don't worry if you're not equipped with either of these addons. When we're finished with this series, you won't need them.

While George Lewis's upcoming articles and tutorials will educate pilots about in depth workings of the navigation system, this series deals more with flight plans themselves. So let's get started, shall we?

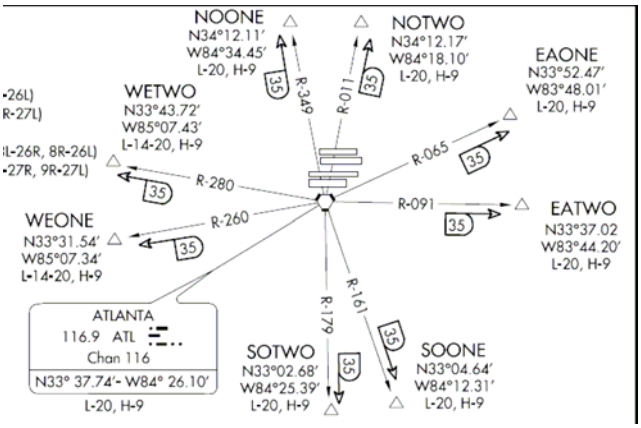
There are many factors in planning flights, but where we're going to start is with the basics of a flight plan. We're going to use an example flight from Atlanta to New York (KATL-KJFK). The DVA Pilot's Center has many resources for use in flight planning. Before going anywhere else for a flight plan, check to see if there's a Preferred Route from the departure airport to the arrival airport. There are three Preferred Routes in the database, so we'll use this one: KATL-EATWO-GRD-J209-ORF-J121-SIE.CAMRN4-KJFK.

Let's break this down to basic components. KATL is the departure airport, which makes sense since this is the point from which your flight starts. EATWO is a component of the Atlanta Five Departure, Standard Instrument Departure, or SID. GRD J209 ORF J121 SIE is the actual route. GRD is a VOR from which the Jet Airway J209 starts. ORF is another VOR that, for this route, terminates our use of J209. Since J209 and J121 intersect at ORF, that VOR becomes the beginning waypoint of Jet Airway 121. We follow J121 to SIE.

At SIE we enter the Standard Terminal Arrival Route, or STAR. The STAR is called CAMRN4. A STAR is like a SID in reverse; that is, instead of showing you how to leave an airport terminal environment, it's an arrival. The final portion of our Preferred Route is the destination airport, in this case KJFK.

So that's the basic overview of our flight plan. We'll dig a little deeper now into the sections.

Atlanta Five Departure, or ATL5, has to be one of the simplest SIDs in existence. It consists of 8 intersections each of which are 35 nautical miles from the ATL VOR. Each intersection corresponds with the area toward your destination. Take a look:



I've included the entire STAR chart else where in this issue, if you'd like to see the whole thing. Also, you can download US Charts for free from http://www.myairplane.com.

Our first waypoint is EATWO. From the chart, we see that EATWO is on the 091 radial 35nm from the ATL VOR. If our first waypoint had been EAONE, we'd fly along the 065 radial for 35nm. It's as simple as that.

Back to our Preferred Route, you may be asking yourself how do I know when I've arrived at EATWO?

Simply tune your NAV radio to the ATL VOR frequency, conveniently listed right on the chart (116.9). When you take off, fly heading 091 until your DME reads 35. When it does, you'll be over EATWO.

It's good practice to have the next way point already tuned into your NAV radio. The way you do this is up to you, whether you use the Standby Frequency or the other NAV radio if your aircraft is equipped with such; it's your choice. I like to have the next one tuned to my standby frequency, since I only have to switch to the standby to be ready to go. This is a hectic time in the flight, so make things as easy on yourself as you can.

In your flight planning process, you should look up each navigation aid frequency you're going to use. There's a link in the pilot center that makes this easy for you to do. Enter the Navaid you need to look up and hit 'Search'. It will bring up the information you need.

Our next waypoint is GRD, or Greenwood VOR. GRD's frequency is 115.5, and this is the frequency that you should have dialed into your NAV radio, ready to go. GRD is where we enter the J209 Jet Airway. The J-Routes are like interstates that aircraft should follow. You'll typically find yourself flying along J-Routes. Area Navigation, or direct to routing, can be requested but keep in mind that your request is just that: a *request.* A controller can deny you an RNAV clearance.

One more thing to remember about way points. While you have to tune your NAV radio to receive the proper guidance, you should also set your Course knob to the direction of flight. This keeps you oriented properly, and will eliminate confusion. I'm not going to go into that right here, but we'll discuss it at length in the future. Here, we'll fly the 069 radial *toward* GRD.

So now we're on J209. A J-Route consists of several waypoints between two, usually, VOR stations. These waypoints can be other VOR stations, or Intersections, or an NDB. For our purposes, the intermediate waypoints along J209 are: GRD-DARRL-BEAUU-RDU-FRANZ-TYI-ORF. You can think of it as mini-routes if you want to. It's much easier to submit a flight plan that says GRD-J209-ORF than to type out each of those waypoints.

As we pass GRD, we'll be outbound, that is flying *away* from the VOR station along the 065 radial. DARRL is 116nm from GRD along this radial. We track this the same way we left Atlanta.

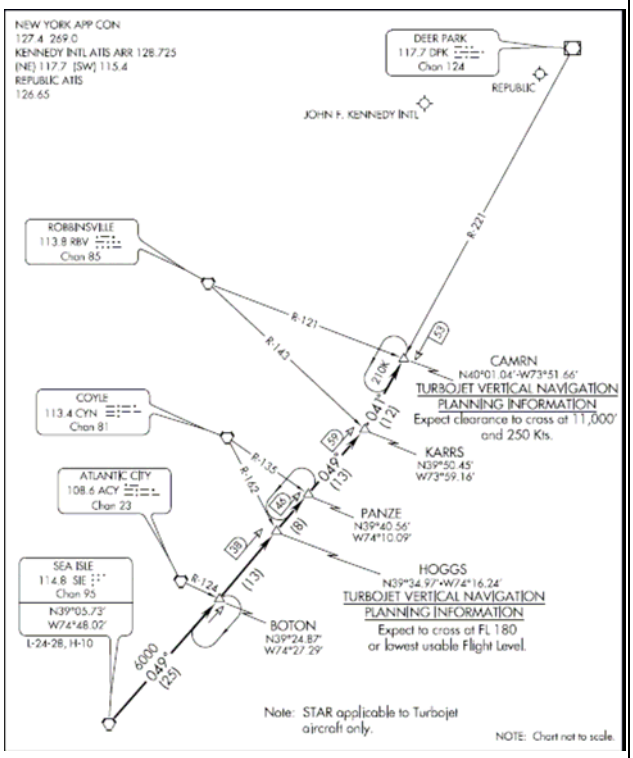
Here is a fundamental premise of flight planning: it is a series of small stages that come together to comprise a whole. These short segments combine to make a route.

Since this is merely an overview, we won't go into each segment now, just keep in mind that these are fundamental steps in creating and flying a flight plan.

At ORF, we leave J209 and join J121. Again, J121 is a series of waypoints that go from station to station: ORF-SAWED-KALDA-SWL-RADDS-SIE.

Flying this is no different from flying J209, and again, you can see the mini-plan that comprises J121.

So we've flown to SIE, the VOR station that begins our Standard Terminal Arrival Route, or STAR. In our flight plan, it's listed as SIE.CAMRN4. This is because we transition from the J-Route system to the STAR at SIE. Take a look at the STAR chart:



Again, I've included a full-sized chart for you to use at the end of this article.

CAMRN4 is a simple STAR. If there is any difficulty with this STAR it's the final turn after the Deer Park VOR. It depends on what vectors you are given once you exit the STAR.

This STAR consists of several waypoints and crossing altitudes. Look at the chart, it's basically self-explanatory. We'll get into SIDs and STARs in depth in a later article. For now, we're almost there. Following the STAR brings us to the Deer Park VOR. Once there, online with VATSIM or IVAO or in real life, you can expect vectors to whichever runway is in use. If you're flying offline, you will have to direct yourself to the runway. If you're flying offline, you can even cheat and leave the STAR early, but it's not good practice. Be patient and fly the whole procedure.

Now, you've successfully planned and executed a flight from KATL to KJFK. The scope of this series will look at each segment individually to allow for maximum space for each part of the flight plan. Future articles will talk about modifying flight plans, NATs, PACOTs, as well as some tools that you can use to plan your flights.

The techniques discussed in this basic overview can be implemented with only the flight planner utility in Flight Simulator if you have the patience to drag the line to each waypoint. It even has J-Routes.

While the flight planner isn't the most convenient tool to use, don't overlook its usefulness.

When we're done with this series, you'll be flight-planning pros. You'll understand how to get from point A to point B with minimum fuss, and you'll even be able to write your own flight plans from scratch if you decide to do that.

Enjoy, and we'll see you in the air!

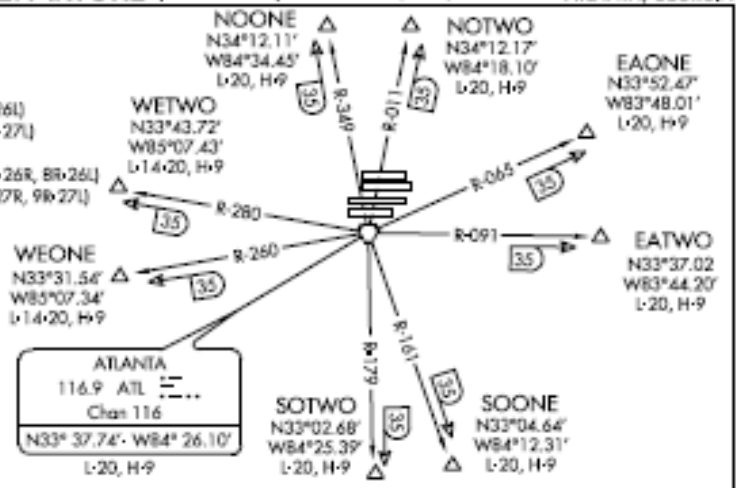
If you've got flight planning questions, feel free to email the Delta Fly staff at delta_fly_mag@hotmail.com *with the subject Flight Planning.*

05076 ATLANTA/ HARTSFIELD • JACKSON ATLANTA INTL (ATL)

ATLANTA FIVE DEPARTURE (ATL5.ATL)

SL-26 (FAA) ATLANTA, GEORGIA

ATIS DEP 125.55
CLNC DEL
121.65
GND CON
121.9 381.6 (Rwys 8L•26R, 8R•26L)
121.75 381.6 (Rwys 9L•27R, 9R•27L)
ATLANTA TOWER
119.5 125.325 381.6 (Rwys 8L•26R, 8R•26L)
119.1 123.85 381.6 (Rwys 9L•27R, 9R•27L)
ATLANTA DEP CON
125.7 (Rwys 8L•26R, 8R•26L)
125.0 (Rwys 9L•27R, 9R•27L)



NOTE: Chart not to scale.

TAKE-OFF MINIMUMS: RWY 8L, 8R, 9L, 9R, 26L, 26R, 27L, 27R, STANDARD.

NOTE: Monitor tower frequency when advised by ground control.

NOTE: Use departure frequency depicted unless otherwise assigned.

NOTE: NOISE ABATEMENT DEPARTURE TRACKS (NADTs): Following this procedure minimizes deviation from the idealized track. TURBOJETS ONLY: Anticipate the following NADT no wind heading: RWY 8R heading 070°, RWY 9L heading 090°, RWY 26L heading 275°, RWY 27R heading 250°. ATC will issue a wind corrected heading prior to takeoff. Fly assigned heading at the point instructed by ATC.

NOTE: TURBOJETS: Accelerate to 250 KIAS immediately until reaching 10,000 MSL, if unable, advise ATC.
TURBOPROPS: Operate in a manner that will result in best forward speed and climb rate.

DEPARTURE ROUTE DESCRIPTION

Turbojets maintain 10,000 (or requested altitude if lower), props maintain 4,000. Expect further clearance to filed altitude 10 minutes after departure. Maintain heading as assigned until vectored to appropriate VOR, airway, or jet route. Unless otherwise assigned, departure frequency for North runways (8L-26R and 8R-26L) - 125.7, South runways (9L-27R and 9R-27L) - 125.0. Transponder code will be issued via PDC or Atlanta Clearance Delivery.

SPECIAL INSTRUCTIONS: Midfield aircraft at ramps 1, 2, 3, 4, 5, and 6 will advise ramp towers of vector areas prior to pushback. The vector areas are associated with the depicted intersections as follows:

INTERSECTION	VECTOR AREA
EAONE	EAST-ONE
EATWO	EAST-TWO
NOONE	NORTH-ONE
NOTWO	NORTH-TWO
SOONE	SOUTH-ONE
SOTWO	SOUTH-TWO
WEONE	WEST-ONE
WETWO	WEST-TWO

Any aircraft receiving clearance via PDC may monitor Atlanta departure ATIS for departure runway.
Upon receipt of ATC, clearance (from Atlanta Clearance Delivery), read back only your call sign and transponder code, unless you have a question.

ATLANTA FIVE DEPARTURE (ATL5.ATL) ATLANTA, GEORGIA
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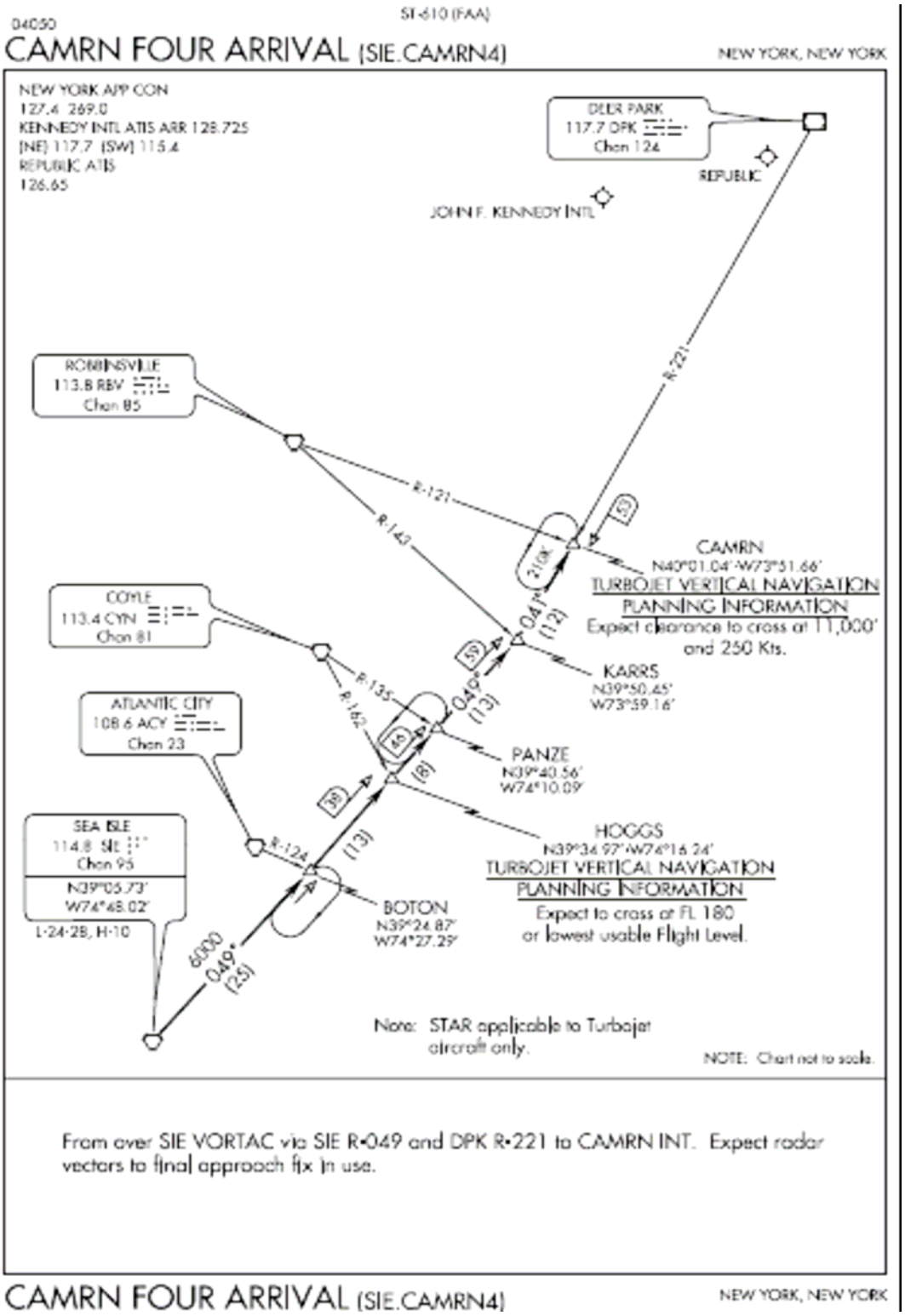

ST-610 (FAA)
04050
CAMRN FOUR ARRIVAL (SIE.CAMRN4)
NEW YORK, NEW YORK
NEW YORK A/P CON
127.4 269.0
KENNEDY INTL ATIS ARR 128.725
(NE) 117.7 (SW) 115.4
REPUBLIC ATIS
126.65
DEER PARK
117.7 DPK
Chan 124
REPUBLIC
JOHN F. KENNEDY INTL
ROBBINSVILLE
113.8 RBV
Chan 85
COYLE
113.4 CYN
Chan 81
ATLANTIC CITY
108.6 ACY
Chan 23
SEA ISLE
114.8 SIE
Chan 95
N39°05.73'
W74°48.02'
L-24-28, H-10
R-221
R-121
R-143
R-135
R-142
R-124
59
2100
046°
(12)
049°
(13)
46
(8)
38
(13)
6000
049°
(25)
CAMRN
N40°01.04' W73°51.66'
TURBOJET VERTICAL NAVIGATION
PLANNING INFORMATION
Expect clearance to cross at 11,000'
and 250 Kts.
KARRS
N39°50.45'
W73°59.16'
PANZE
N39°40.56'
W74°10.09'
HOGGS
N39°36.97' W74°16.24'
TURBOJET VERTICAL NAVIGATION
PLANNING INFORMATION
Expect to cross at FL 180
or lowest usable Flight Level.
BOTON
N39°24.87'
W74°27.29'
Note: STAR applicable to Turbojet
aircraft only.
NOTE: Chart not to scale.
From over SIE VORTAC via SIE R-049 and DPK R-221 to CAMRN INT. Expect radar vectors to final approach fix in use.
CAMRN FOUR ARRIVAL (SIE.CAMRN4)
NEW YORK, NEW YORK

4-3-11. Pilot Responsibilities When Conducting Land and Hold Short Operations (LAHSO)

a. LAHSO is an acronym for "Land and Hold Short Operations." These operations include landing and holding short of an intersecting runway, an intersecting taxiway, or some other designated point on a runway other than an intersecting runway or taxiway. (See FIG 4-3-4, FIG 4-3-5, FIG 4-3-6.)

b. Pilot Responsibilities and Basic Procedures.

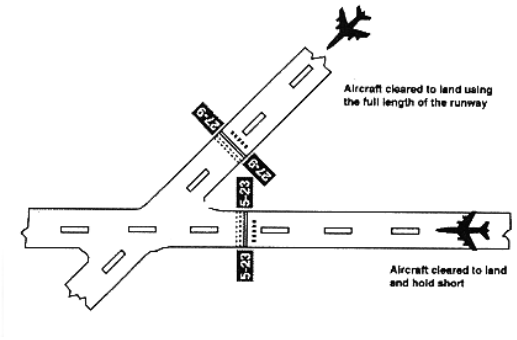
1. LAHSO is an air traffic control procedure that requires pilot participation to balance the needs for increased airport capacity and system efficiency, consistent with safety. This procedure can be done safely provided pilots and controllers are knowledgeable and understand their responsibilities. The following paragraphs outline specific pilot/operator responsibilities when conducting LAHSO.

2. At controlled airports, air traffic may clear a pilot to land and hold short. Pilots may accept such a clearance provided that the pilot-in-command determines that the aircraft can safely land and stop within the Available Landing Distance (ALD). ALD data are published in the special notices section of the Airport/Facility Directory (A/FD) and in the U.S. Terminal Procedures Publications. Controllers will also provide ALD data upon request. Student pilots or pilots not familiar with LAHSO should not participate in the program.

3. The pilot-in-command has the final authority to accept or decline any land and hold short clearance. The safety and operation of the aircraft remain the responsibility of the pilot. Pilots are expected to decline a LAHSO clearance if they determine it will compromise safety.

4. To conduct LAHSO, pilots should become familiar with all available information concerning LAHSO at their destination airport. Pilots should have, readily available, the published ALD and runway slope information for all LAHSO runway combinations at each airport of intended landing. Additionally, knowledge about landing performance data permits the pilot to readily determine that the ALD for the assigned runway is sufficient for safe LAHSO. As part of a pilot's preflight planning process, pilots should determine if their destination airport has LAHSO. If so, their preflight planning process should include an assessment of which LAHSO combinations would work for them given their aircraft's required landing distance. Good pilot decision making is knowing in advance whether one can accept a LAHSO clearance if offered.

FIG 4-3-4



Land and Hold Short of an Intersecting Runway

EXAMPLE-

FIG 4-3-6 - holding short at a designated point may be required to avoid conflicts with the runway safety area/flight path of a nearby runway.

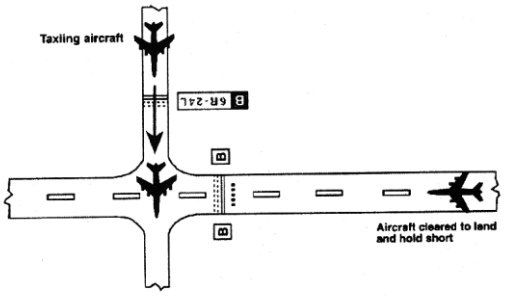
NOTE-

Each figure shows the approximate location of LAHSO markings, signage, and in-pavement lighting when installed.

REFERENCE-

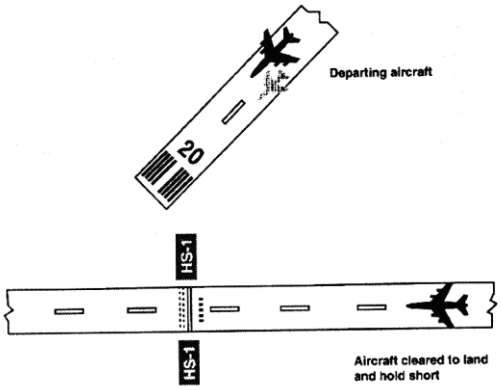
AIM, Chapter 2, Aeronautical Lighting and Other Airport Visual Aids.

FIG 4-3-5



Land and Hold Short of an Intersecting Taxiway

FIG 4-3-6



Land and Hold Short of a Designated Point on a Runway Other Than an Intersecting Runway or Taxiway

5. If, for any reason, such as difficulty in discerning the location of a LAHSO intersection, wind conditions, aircraft condition, etc., the pilot elects to request to land on the full length of the runway, to land on another runway, or to decline LAHSO, a pilot is expected to promptly inform air traffic, ideally even before the clearance is issued. A LAHSO clearance, once accepted, must be adhered to, just as any other ATC clearance, unless an amended clearance is obtained or an emergency occurs. A LAHSO clearance does not preclude a rejected landing.

6. A pilot who accepts a LAHSO clearance should land and exit the runway at the first convenient taxiway (unless directed otherwise) before reaching the hold short point. Otherwise, the pilot must stop and hold at the hold short point. If a rejected landing becomes necessary after accepting a LAHSO clearance, the pilot should maintain safe separation from other aircraft or vehicles, and should promptly notify the controller.

7. Controllers need a full read back of all LAHSO clearances. Pilots should read back their LAHSO clearance and include the words, "HOLD SHORT OF (RUNWAY/TAXIWAY/OR POINT)" in their acknowledgment of all LAHSO clearances. In order to reduce frequency congestion, pilots are encouraged to read back the LAHSO clearance without prompting. Don't make the controller have to ask for a read back!

c. LAHSO Situational Awareness

1. Situational awareness is vital to the success of LAHSO. Situational awareness starts with having current airport information in the cockpit, readily accessible to the pilot. (An airport diagram assists pilots in identifying their location on the airport, thus reducing requests for "progressive taxi instructions" from controllers.)

2. Situational awareness includes effective pilot-controller radio communication. ATC expects pilots to specifically acknowledge and read back all LAHSO clearances as follows:

EXAMPLE-
ATC: "(Aircraft ID) cleared to land runway six right, hold short of taxiway bravo for crossing traffic (type aircraft)."
Aircraft: "(Aircraft ID), wilco, cleared to land runway six right to hold short of taxiway bravo."
ATC: "(Aircraft ID) cross runway six right at taxiway bravo, landing aircraft will hold short."
Aircraft: "(Aircraft ID), wilco, cross runway six right at bravo, landing traffic (type aircraft) to hold."

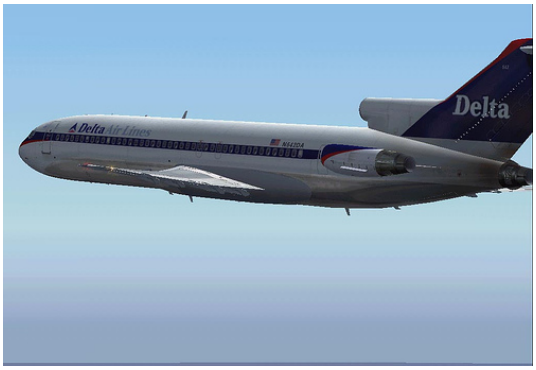
3. For those airplanes flown with two crewmembers, effective intra-cockpit communication between cockpit crewmembers is also critical. There have been several instances where the pilot working the radios accepted a LAHSO clearance but then simply forgot to tell the pilot flying the aircraft.

4. Situational awareness also includes a thorough understanding of the airport markings, signage, and lighting associated with LAHSO. These visual aids consist of a three-part system of yellow hold-short markings, red and white signage and, in certain cases, in-pavement lighting. Visual aids assist the pilot in determining where to hold short. FIG 4-3-4, FIG 4-3-5, FIG 4-3-6 depict how these markings, signage, and lighting combinations will appear once installed. Pilots are cautioned that not all airports conducting LAHSO have installed any or all of the above markings, signage, or lighting.

5. Pilots should only receive a LAHSO clearance when there is a minimum ceiling of 1,000 feet and 3 statute miles visibility. The intent of having "basic" VFR weather conditions is to allow pilots to maintain visual contact with other aircraft and ground vehicle operations. Pilots should consider the effects of prevailing inflight visibility (such as landing into the sun) and how it may affect overall situational awareness. Additionally, surface vehicles and aircraft being taxied by maintenance personnel may also be participating in LAHSO, especially in those operations that involve crossing an active runway.

If you have a question about what the Aeronautical Information Manual or the Federal Aviation Regulations say about a topic, email the Delta Fly staff at delta_fly_mag@hotmail.com. We'll look up the questions and provide answers in future issues.

777 Over Scandinavia
By Matt Reamy



727 Over the Atlantic
By Matt Reamy

Delta Fly Staff:
Lloyd Arms – Editor In Chief
Matt Reamy – Editor
Gaston Doval – Editor
George Lewis – Editor

Contact Delta Fly Staff:
delta_fly_mag@hotmail.com
Subject: To The Editor

On The Cover:
Dusk is just starting to set in over the SoCal area as Delta 435 from GDL approaches LAX, and the SLI VOR for the ILS 25L. Photo by Trevor Fenimore

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