

DELTA VIRTUAL AIRLINES

FLY!



FEBRUARY 2006 ISSUE

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1

Delta Fly FEBRUARY ISSUE

From the President's Desk

February 2006

It amazes me how quickly the time passes when there is so much to do. Our January was busy with new staff assignments and a major revision to our promotion policies.

Ralph Snyder resigned after almost 2 years of tireless daily work performing his Human Resource duties. Ralph, we are grateful for your dedication and commitment to managing our hiring and promotions. A staffing policy was created by Ralph to assure a fair approach to filling staff openings. We all look forward to working with David Keech, Ralph's replacement. David is knowledgeable and experienced in virtual aviation and human resource functions.

I thank Matthew Sisson for his leadership in the MD-88 program. Larry Foltran, Matt's Assistant stepped up and Tyrone Weston returned to the program as Larry's Assistant.

Appreciation goes to David Shartzler for leading the B757 side of the 757/767 split. David was a leveling force during the split making it all look simple. Craig Davidson, David's Assistant stepped up and Matthew Whitaker was appointed to assist Craig.

Matt Creed our Vice President of Operations and Chief Pilot DC-8 and -6 turned over the yoke(s) to Michael Evans, former Assistant Chief Pilot B767. Matt will have more time to attend to developing new programs. Michael has the challenge of developing

a fledgling DC-6 program and reenergizing the DC-8.

Will Chambers returns to our staff as Assistant Chief Pilot to support the B767 program by filling Michael Evans' position.

Congratulations go to our recently promoted Senior Captains:

Andrew Dalrymple
Stephen Faison
Christopher Gagnon
Eugenio Gomez
Oliver McRae
Joe Shikany
Chris Williams
Curtis Young

As our Flight Academy approaches the time of being a reality and in recognition of its importance to our future, George Lewis was appointed Vice President and Director of Training. As you've probably read in the *Flight Academy Newsletter*, several training modules are finalized, which will be ready shortly for instruction.

Our on-line group events under Andrew Dalrymple's direction continue to draw great participation and are a source of enjoyment. We receive compliments about our piloting abilities from ARTCC groups providing ATC service.

The First Race Across America was completed. The event proved to be a great source of discussion or posturing leading up to the event as teams were drawn up. Congratulations go to "Delta Soar" for winning the event. We had 5 teams with 5 members flying 5 legs

Delta Fly FEBRUARY ISSUE

across America. The flight time separating them was amazingly close.

Our Pilot Promotion manual was revised. If you did not read the NOTAM, I would urge that you do since it summarizes the main points in areas that were changed.

Our organization has a 5th year anniversary to celebrate next month on March 12th. Plans are underway to have a major all day group fly-in events to make a statement of our great organization's success by our presence all day. Look for further details, as we get closer to March.

Thank you for flying Delta Virtual Airlines,



**Terry Eshenour
President, Senior Captain 777
DVA057**

FROM THE EDITOR

Welcome to the February issue of Delta FLY! After a seemingly endless holiday season, we are returning to normal; and activity around DVA is starting to pick up again. It's good to see this.

As Terry mentioned in his address, Andrew has organized several events for us to participate in, and it's good to see that there are a lot of pilots from DVA online and flying. It's great to have several options from which to choose, and Andrew's given us several throughout the week to attend. Thanks go to Andrew for this.

I myself have recently rejoined the ranks of online flyers; for several months I was unable to do so. It is good to be able to have that interaction.

Luke's programming genius continues to amaze me as I see what new features he's adding to ACARS and site operability.

As you can see, I've made some changes to the cover of FLY! I will continue to experiment with the format of FLY! as we go along and as time allows. As always, you are more than welcome to offer ideas for things you'd like to see included in the newsletter.

While I will maintain the delta_fly_mag@hotmail.com email address, there has been a change in contacting Delta FLY! staff. The new email address to reach us is editor@deltava.org. I request that you do not send large files to this address as I



3

Delta Fly FEBRUARY ISSUE

continue to labor in the 20th century's form of internet connection: dialup. Please use the hotmail address for sending photos for submission. You'll find the guidelines for submission on the back page of the issue.

We've got a great issue for you. Flight Academy guru, George Lewis has stepped up the intensity the navigation series, moving from simple navigation concepts to intermediate.

Continuing with the Flight Planning series, I've gone into some tools of planning flights and editing the final product to suit your needs.

On behalf of the staff of Delta FLY!, I'd like to present well wishes to all the new and returning staff members here at DVA. The DVA staff is working hard to provide you all with excellent resources, utilities, support. Whenever it occurs to you, give them a hand.

Enjoy the friendly virtual skies.

**Matt Reamy
DVA1267, Senior Captain 777
Editor**



From the Flight Academy

Flying a specific VOR Course Radial

By George Lewis

When I first started writing for Delta Fly!, I gave an overview of navigation and why it was important that we learn the basics of radio navigation. These were NDB, DME and VOR. I then showed you how to fly to the NDB and last month we discussed how to fly direct to a VOR. With that, we have covered the basics of radio navigation. We will now turn our attention to intermediate navigation techniques: tracking a specific VOR course radial.

Why is that important? Once you learn how to fly a specific VOR course radial, you will have the ability to fly SIDS, Jet Airways, STARS and even instrument approaches. So say goodbye to VFR navigation techniques and welcome to the wonderful world of precision IFR flying. IFR flying requires that you be precisely where you should be, so you don't hit something. In bad weather you want to be able to descend into the clouds and pop out right where you are supposed to be. If you make a mistake it could cost your life and that of your passengers.

We know that when we fly direct to a VOR, that we tune the needle until we center the needle on an inbound course, then turn to that course number and fly basically that heading, give or take a few degrees for wind correction. So, if you are flying along heading 270 and you tune in a VOR and it centers on the 320 course, you know you have to turn to a heading of about 320 to fly direct to this VOR.

What you are really doing at this point is flying the 320 course radial. When you turned the needle and it centered, you were presently on that course. Imagine if you will a line projecting out from the VOR with a number 320 on it. This is where you presently are – regardless of your heading.

So what we do is attempt to turn and stay on this course 320 by turning in the general direction of the course. If the needle stays centered and the course is 320, we are flying on the VOR course radial. If you have an inbound indicator, you are on the 320 inbound course radial. If you have an outbound indicator, you are on the 320 outbound course radial. This is still "Direct to the VOR" but really you are flying a specific course radial.

Flying a specific course radial is really not that much different than this, but what we are going to learn to do now is fly a **specific** course radial – not just the one you happened to be near. If the STAR you are flying says you have to fly the 325 course radial inbound, you will not want to fly on the 320 course radial. You now have to learn how to get to the specific course radial on the VOR, and we will work on that today.

We'll start with a break down of the Dreamfleet 727 HSI that we will be using in this article.

Dreamfleet B722 HSI

			
Inbound/Outbound (To/From) indicator – it currently points to From or Outbound	The CDI (Course Deviation Indicator) or simply – the needle. – to center on this course we would need to fly to the left some more	Course Indicator – current course is 011 – see picture directly below for the course arrow	Course Adjustment Knob – if we wanted to change our course to something else, click here.



5

Delta Fly FEBRUARY ISSUE

			
DME indicator – we are currently 8 nautical miles (NM) from the VOR	Heading Bug Adjustment Knob – if we wanted to adjust our heading bug – the heading bug itself is just above the course arrow as a yellow triangle.	Course Arrow - Course shows 011, but the course arrow shows you where on the gauge that this is in relation to everything else	Glideslope Indicator – because we are not on an instrument approach, it will show GS meaning there is no glideslope.

Tracking Inbound versus Outbound

These 2 shots show the difference between tracking outbound and inbound. Can you tell which is which? Notice that the little white triangle that was pointed out in the other screenshots are easy to see, but since we are now tracking a course heading, it can be a little difficult to spot. If you look closely however, you will notice the white triangle indicating the position. Also while in flight, the DME mileage will go up or down depending on which direction you are traveling. Note the “No VOR Localizer” picture – you will experience this anytime you are out of range of the VOR or you are over top of it. Recall that DME uses slant range, so if you are 5 NM high in altitude, the DME will never go below 5NM of the VOR.

		
Inbound	No VOR Localizer	Outbound

Situational Awareness using the HSI



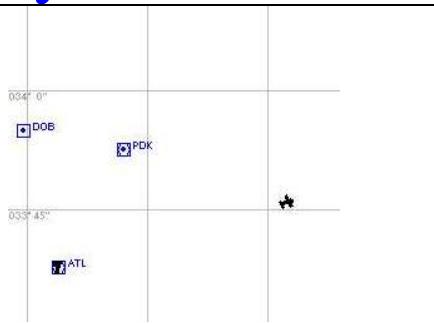
The hardest part about using the HSI is learning how to obtain situational awareness. With the glass cockpit airplanes with a moving map display, it is very easy to see where you are located because everything is drawn out for you nice and neat. This system using the HSI is harder at first – that is true, but it is nonetheless not impossible to learn and in fact once you learn how to have situational awareness using this system, you may even come to prefer it as I have.

As I have already mentioned, the VOR sends out a signal in all 360 degrees of direction. The signal may be TO (INBOUND) or it may be FROM (OUTBOUND). So what we have to figure out is “where the heck am I?” The following screenshots will hopefully give you some insight as to how the VOR gives information to the HSI that you can use to figure out “where the heck you are”. - don’t worry if these look confusing at first – but there is simply no better way to learn than to jump in with both feet – so here goes!



6

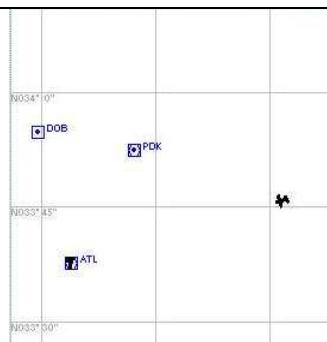
Delta Fly FEBRUARY ISSUE



HSI Situation 1 – we are tuned to 116.9, the ATL VOR – notice the white triangle shows we are FROM (Outbound) on about the 71 course and currently we are flying about heading 65. The heading bug is set for 340, which is not important unless you want to use the autopilot and fly by the heading.

Map of Situation 1 – We are heading away from the ATL VOR in the Mooney Bravo.

The HSI is displaying that we are flying 065 heading and on the 071 course, which this map also shows. Try to relate the map with the readout of the HSI to the left.



HSI Situation 2

In this shot we include the HSI and the NAV2 VOR – why? To cross reference our location in relation to the ATL VOR. The HSI is tuned to ATL VOR 116.9 while the VOR is tuned to 116.6 PDK VOR. Ignore the VSI and look at only the HSI and the VOR. We are heading 255 degrees and slightly to the right of the ATL VOR radial 253 TO (Inbound). However, how close are we to the ATL VOR? 50 miles? 20? 5? Who knows without the DME – that would be useful – but suppose the DME failed or we didn't have one? Simple – we can use the NAV2 VOR for cross-reference. What we did was tune the OBS (Omni Bearing Selector – means the same thing as COURSE tuning knob on the HSI) until it centered and showed TO (Inbound). So we can see that we are directly on the PDK VOR Radial of 292. If you were to take the sectional and draw a line from 292 on the VOR symbol on the sectional and draw another line from the ATL VOR on the 073 radial, where they intersect is where we are located presently!

NOTE: You may be confused about the PDK VOR Radial of 292 – keep in mind that this is on the OTHER side of the VOR – look at the reciprocal – which is 180 degrees less – or 112 degrees. If this makes more sense to you, then draw the line out from 112 degrees – it is the same thing.

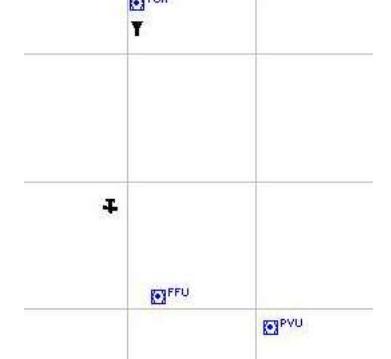
Map of Situation 2

This map shows that we are heading westbound – and that we are NORTHEAST of the VOR ATL and we are SOUTHEAST of the VOR PDK. If you look closely at the HSI and VOR, you can mentally picture this. Look at the bottom of the HSI and VOR to picture this. If you look at North and then mentally rotate the North side to the top, you can see that the direction on both of these match that of the map.



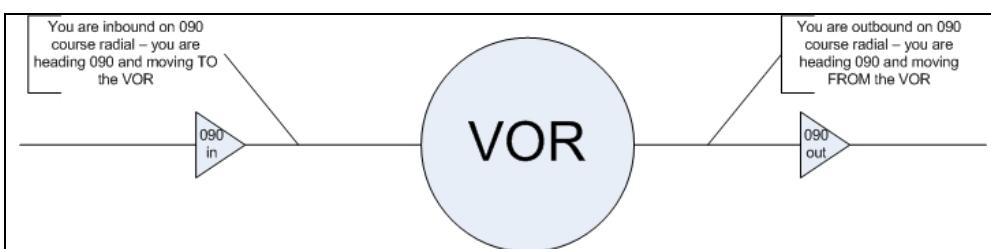
7

Delta Fly FEBRUARY ISSUE

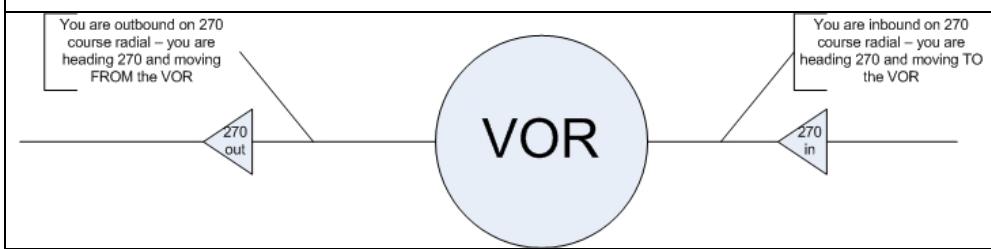
		
Situation 3 - We are flying in the DVA CRJ-200 south of Salt Lake City, Utah. Here we have the VOR of TCH tuned into the NAV1 on the DVA CRJ-200 and FFU on the 2 nd one. You can see that we are 24 NM from TCH and 12 NM from FFU. We are on the 170 course heading outbound (FROM) TCH and we are heading 169 degrees.	Map of the same situation on the VOR instrument. Here we see we are heading south. Again, try and visualize what the map is showing compared to what the instrument is showing us.	

I have discussed this before, but it bears repeating!

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.



Tracking a VOR Course

We never really discussed how to remain on course when tracking a VOR. We will do that now. There are a couple of factors which may throw you off course such as winds, inability to hold your heading, a misaligned directional gyro, etc.

To remain on course, we need to battle all of these factors. We need to figure out the wing correction angle, keep our eye plastered on the compass and a whole slew of other chores. While we could simply turn on the autopilot, don't give up yet – there is a simple way to do all of this with the flight director, which I'll cover shortly.

The basic technique without a flight director is that we keep the needle centered – so if the needle drifts to one side or the other, we simply fly in that direction until the needle centers and then return to the course heading. This is where the sayings of "fly the needle" and "keep the needle centered" come from.

Remember that just because the needle is centered doesn't mean we are tracking the course – it just means for that brief moment that we are on this radial course from the VOR. We could be heading in any direction, as indicated by this image:



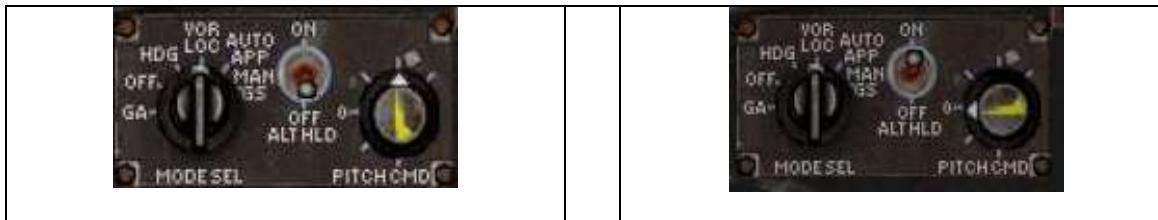
The HSI shown to the left displays the following information:

- We are heading 245 degrees
- We are 118.5 NM from whatever VOR we are tuned into
- We are on the outbound 340 course radial

We could use this information for several situations, including cross referencing and flying SIDs, STARs, jet airways, instrument approaches, etc.

Flight Director

The flight director is the secret to keeping the airplane on course in instrument conditions and also when flying with the VOR! You simply turn on the flight director and it will bring down a nice set of "wings" and you just follow the wings. If they bank, just follow them. If they go up or down, climb or descend as necessary to keep your orange airplane in line with the wings. It's pretty straight forward. You can set the flight director for heading VOR/localizer and even approaches.





9

Delta Fly FEBRUARY ISSUE



Here is the Dreamfleet 722 Flight Director and the HSI together as they appear in the cockpit. If your flight director is set to OFF, the yellow wings won't appear. You have to turn on the flight director for this function to work.

We have recently taken off from KEVV and have picked up course 162 direct to the BNA VOR and we are about 116 ½ NM from the VOR.

You can see that we are maintaining a 10 degree pitch, as depicted in the flight director settings, but more important, notice that our course here is 162 and our heading is 155. The flight director is telling us what heading to fly for wind correction so we don't have to worry about it.



Here we are on the Rome2 STAR outbound on the 148 course radial – 14NM outbound in fact from the BNA VOR.

Note that we are banked and that the "wings" are centered and they are level with the horizon. The ALT HLD function is to keep the wings at a pitch that will maintain level flight.

The little ball in the center that looks like a carpenter's level indicates a coordinated turn.

The flight director is indicating the amount of bank and attitude to maintain a level turn to track the 148 outbound course radial from the BNA VOR.

Situational Awareness – determining our position on the SID chart

To depart Atlanta, chances are you will have to fly a departure procedure (DP, or SID). SID stands for Standard Instrument Departure but it is the same meaning as the Departure. 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
<p>05076 ATLANTA FIVE DEPARTURE (ATL5.ATL) SI-26 (FAA) ATLANTA, GEORGIA</p> <p>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)</p> <p>NOTE: Chart not to scale.</p>	<p>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.</p>	
<p>The map shows the Atlanta Five Departure SID. Key points include:</p> <ul style="list-style-type: none"> NOONE: N34°12.11' W84°34.45' L-20, H-9 NOTWO: N34°12.17' W84°18.10' L-20, H-9 EAONE: N33°52.47' W83°48.01' L-20, H-9 EATWO: N33°37.02 W83°44.20' L-20, H-9 WEONE: N33°31.54' W85°07.34' L-14-20, H-9 SOTWO: N33°02.68' W84°25.39' L-20, H-9 SOONE: N33°04.64' W84°12.31' L-20, H-9 ATLANTA: 116.9 ATL Chan 116 N33° 37.74' W84° 26.10' L-20, H-9 <p>NOTE: Chart not to scale.</p>		

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.

Theory note: We are now starting to realize where we are in the sky. This is very important to flying cross country on the VOR system. Note – some airplanes do not have DME equipment, including many real world Cessna 172 type aircraft. If you are flying in an airplane without a DME, you simply tune in either your 2nd VOR or if you only have a single VOR, change the frequency, to a VOR on the VFR sectional and then center the needle and you can then draw a line on the sectional out on that radial to where it intersects with the VOR course you are flying on. This intersection is where you are at the moment.

Tracking a specific VOR course

I am sure you are wondering how we get to the 011 or 091 radial in the first place? Now that you realize where you have to be, let’s demonstrate how it gets done. First, you have to have an idea of where you need to go. We know by looking at the SID



11

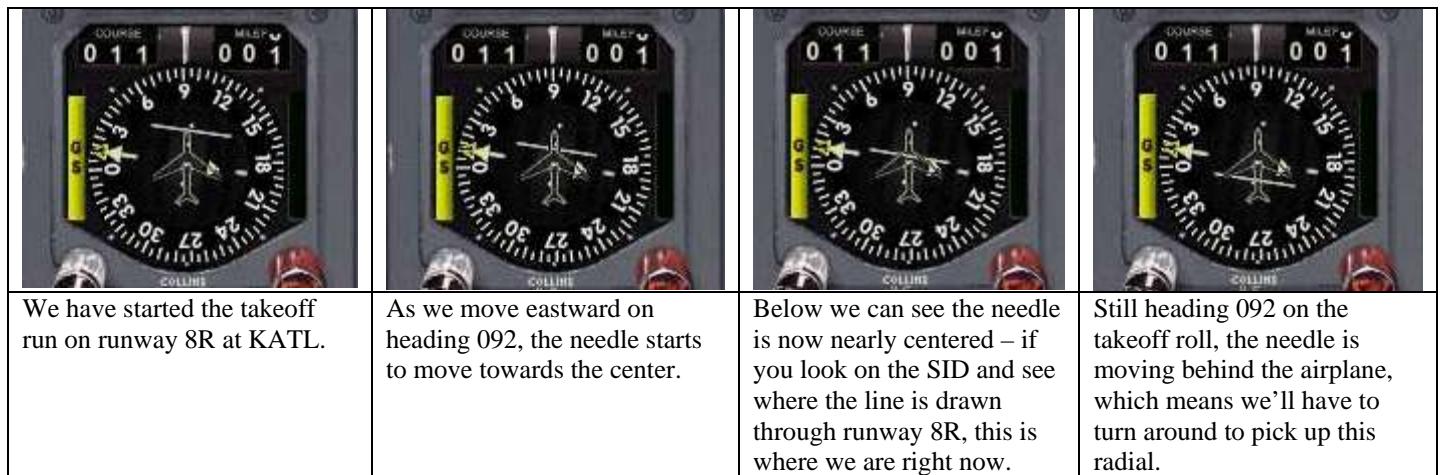
Delta Fly FEBRUARY ISSUE

that the VOR is southwest of the airport – you can see the runways on the SID. Looking at the picture, we are departing KATL on runway 8R. Notice that on the SID, runway 8R is the 2nd runway from the top, and we will be taking off from the left side and moving right.



We can get to NOTWO a couple of different ways here – first, ATC can vector us to the intersection – in which case they may simply turn you towards the intersection and the needle will not center on course 011 until you are at about 35NM on the DME, or they may tell you to resume own navigation immediately after takeoff. You may be on Unicom or flying offline without using the ATC, in which case you will need to know how to find the 011 radial on your own. This is what we will demonstrate next.

First, notice closely on the SID, that the VOR is stationed about straight south from the end of the 8R runway, so the needle will probably move as we takeoff. In fact, here are 4 shots of the VOR/HSI on the Dreamfleet B722 during the takeoff roll – the airplane has never even left the ground yet, but as we move, the direction to 011 changes and updates on the HSI.



Now we'll follow the VOR/HSI as we takeoff and turn back and track down the 011 radial off of the ATL VOR 116.9.



12

Delta Fly FEBRUARY ISSUE

		
We have departed 8R now and are stabilizing our departure	We now start to turn and track 011 – note the heading we are flying will change	We are really close to flying heading 011 now but the needle is still way to the left so we will fly further in that direction, about 45 degrees difference, to intercept the VOR 011 radial.
		
Now heading 326, about 45 degrees difference in heading and course heading, nearly 8NM from the ATL VOR	We stay on this heading for a bit and let the needle come to the center.	Now the needle is centered – we have found the 011 course heading. On the SID, you can look at the line going from the VOR past the runways to the NOTWO spot. We are 9NM from the VOR on this line.

Ok, so now we have found the 011 radial, now what? Now we turn and fly the 011 course radial. For purpose of this tutorial, I have purposely flown “past” the point that I would normally turn to intercept the VOR course 011 so we will have to do some zigzagging to reign in the VOR.

			
We have started to turn back towards heading 011	We are now heading 011, the same as the course heading, however, the needle is still to the right, but not way out there, so we turn a few degrees to the right	we have turned about 10-15 degrees to the right to help reign in the VOR course 011 radial	we are now about 20 degrees to the right, and the VOR course 011 is coming towards the center



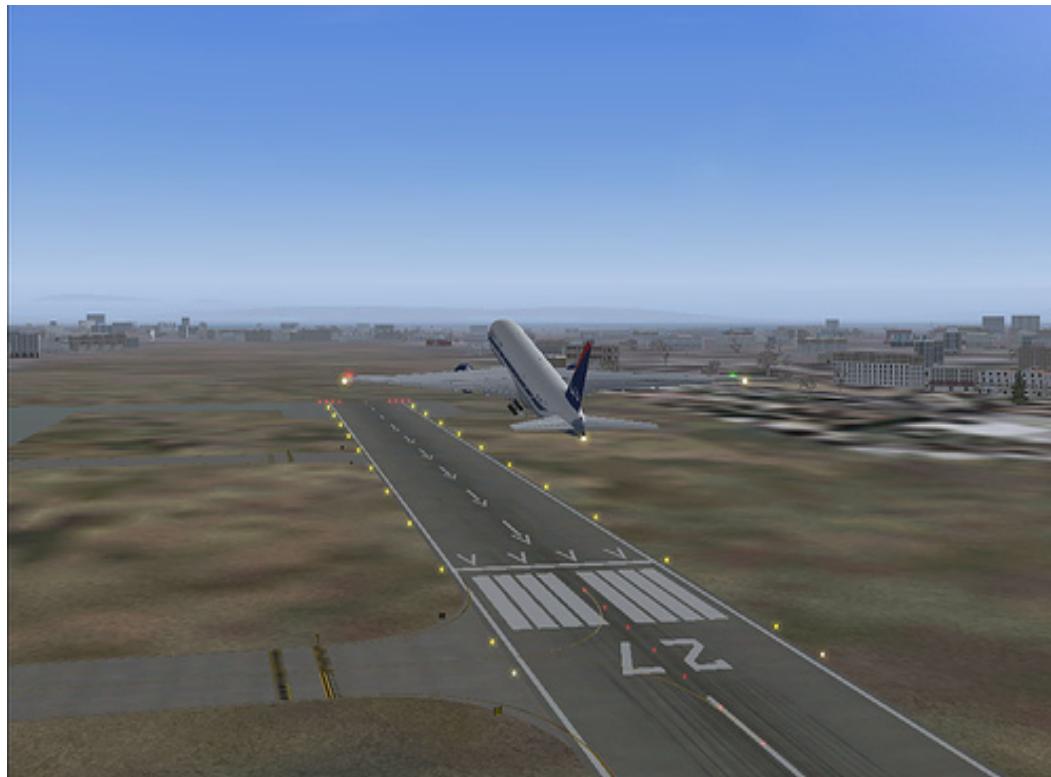
we have turned slightly more, about 20 degrees from 011 and the needle is now starting to center	we start turning towards the left to bring the heading back towards the course heading with the needle centered	we are now flying the 011 radial outbound and we are 18 miles out on the DME. We have 17 miles to go until we hit NOTWO.	We are on the 011 radial at 35 on the DME outbound – this is NOTWO.

We have now successfully taken off and turned to intercept the 011 radial and captured it. We are now flying on the 011 VOR outbound to our designated spot; NOTWO.

That's it for now folks! I've discussed an overview of basic radio navigation fundamentals – NDB, VOR and DME. I have shown you how to use all 3 systems and in this article we have moved on from the basics to the intermediate navigation techniques. Next month we'll cover flying a SID and a STAR in great detail in regards to radio navigation.

I highly encourage everyone to take up the EMB-120 Flight Academy airplane and try these same techniques – see if you can takeoff and nail the 011 course radial and fly it to 35 on the DME. When you can do it with no looking at the map, GPS, FSNAV or ATC vectors, you will have a lot to be proud of!

Happy Flying!



*Delta Airlines Boeing 777-200 pulling in the gear as she lifts off from VABB.
Photo by Matt Reamy*



Flight Planning for Flight Sim

By Matt Reamy

In the last three issues, we've covered the aspects of the flight plan: SIDs, STARs, and the enroute portion of the plan.

This article is going to deal with a couple of tools that are extremely useful in planning flights for flight simulator.

Everyone has his or her own opinion on which tool is the best for planning flights. I'm not interested in changing your mind about your own piece of flight planning software. If you've got a system that works for you, more power to you.

I mention this because I use FSBuild and NAT Plot to plan my flights. I don't have anything against FS Navigator, but I don't use it. Therefore my examples will not entail use of FSNav.

Now that we've got that out of the way, I'm going to start with a flight planner that is available to all of us: the FS Flight Planner.

Flight Planner

The default FS Flight Planner is far more useful than is often thought. While the planner doesn't have SID/STAR implementation in and of itself, it contains a wealth of information.

Looking at the toolbar, you have a wide range of information available with a few clicks. For obvious reasons, I won't cover the zoom features or the print option. These should be self explanatory to you. If you need these explained to you, please consult your FS9 manual.

Here's the toolbar for the FS Flight planner.



Toggle on/off:

- Airports
- VOR stations
- NDB stations
- ILS feathers
- Airway intersections
- Victor Airways
- Jet Airways
- Airspace boundaries
- Flight route
- Weather Stations (real world weather feature)
- Weather fronts (real world weather feature)
- Data tags
- Terrain shading

As you can see, you have access to a lot of information right here in the FS flight planner. Most of us take it for granted, and a lot of us look at it with disdain; but it's actually got a use.

It's a painfully slow process, but all the waypoints you'd use with any other flight planning software can be accessed in the Flight Planner by clicking and moving the map around.

NAT Plot

NAT Plot is a little-known piece of freeware that has been instrumental in my flight planning process since I discovered how useful it is. As it's freeware, I recommend you download it and check it out. You can find it here <http://ourworld.cs.com/bobraemer/ownnav/id18.htm?f=fs>. Be sure to download all the waypoints and other files on that page, you may need them.

Despite its name, it's far more useful than for just displaying NATs or PACOTs. You can load an FS default .pln file and display your flight route, measure distances, and a few other features we'll get into more deeply in the future. It's customizable as well, but a little knowledge of VB is handy for that.

Loading a flight plan file into NAT Plot is as simple as opening the plan from the Flight Simulator Files folder in the My Documents folder.

As with anything else that is new to you, it's advisable to read the manual. In the case of NAT Plot, at least browse through it. It's thorough, and I'll admit I haven't read the whole thing.

FSBuild

FSBuild is a nice piece of payware that has far too many features to list here. From SID/STAR lists to aircraft performance, FSBuild has just about everything you need. The website is <http://www.fsbuild.com>.

Again, there is extensive documentation on how to use all the features of FSBuild in the manuals for the program. The extent that I'll cover is only the basics: generating a flight plan.

FSBuild can export to a number of add-on aircraft, but we're mainly concerned about the FS9 .pln format for now. In the end, this is the one format that we all encounter at one time or another.

The interface for FSBuild is simple, despite the amount of information you can get from it. Enter a departure airport, a destination airport and hit auto generate.

Using The Tools

We'll look at a domestic route first, and we'll cover an international, overseas

route when we dive deeper into NAT Plot.

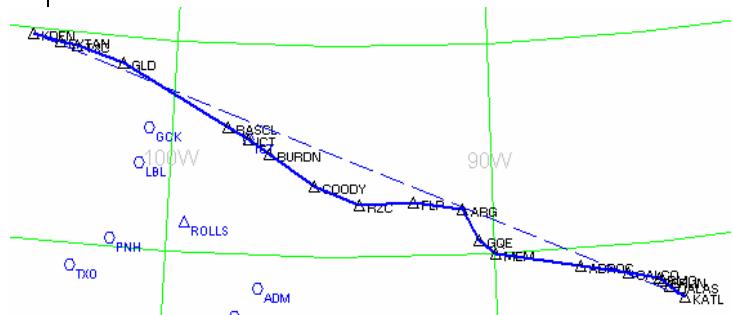
For now, let's pick a couple of airports and create a flight plan. I start with FSBuild and enter a departure and destination airport, let's say Denver to Atlanta. Enter the ICAO codes for these airports and hit auto generate.

We're given this route: KDEN PLAIN3.GLD J182 RZC FLP ARG GQE MEM.RMG2 KATL. Compare this to the route given in the Flight Planner:

Type	ID
Airport	KDEN
VOR	FQF
Intersection	QUAIL
VOR	HGO
VOR	LAA
Intersection	DRAWL
VOR	LBL
VOR	GAG
VOR	IRW
Intersection	DWINE
Intersection	KLUBB
Intersection	KOMMA
VOR	LIT
VOR	VUZ
VOR	ATL
Airport	KATL

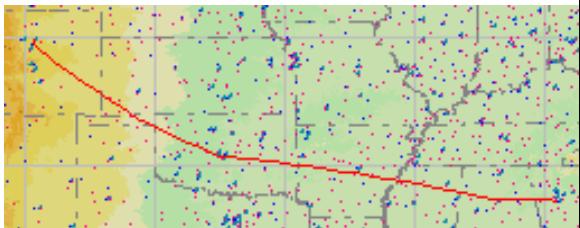
This isn't meant to reflect poorly on the Flight Planner; remember that there's a lot of useful information in there. But the FSBuild flight plan definitely is more concise and useful, especially when flying online.

FSBuild generates a Flight Simulator flight plan file, a .pln file, that we can load into NAT Plot. Here's what we get:





Again, for comparison, we'll look at the route from the flight planner:



You can see that there's a distinct difference. FSBuild will automatically incorporate preferred routes, and SID/STARs, while the Flight Planner incorporates neither on its own.

Default Flight Plans

Of course, since FSBuild is a payware program, there will be those that wish to incorporate SIDs and STARs into their flight plans who may not be able to afford the fancier programs.

There is the click and drag method in the flight planner that will allow the addition of waypoints, and that will certainly work. But as I mentioned, it can be time consuming and even frustrating. There's a simpler method.

The default Flight Planner flight plans, .pln files, can be edited with Notepad. Right click and select "Open With," and open with Notepad.

At first glance, it looks scary in there, I know. But the flight plan can be amended through here in a manner that lends itself to adding waypoints in a much quicker fashion than clicking and dragging the route in the Flight Planner.

What you'll need is the chart for the SID or STAR you're adding. I get my charts from <http://www.myairplane.com>, but as long as you have it, you can do this.

Here's the flight plan as seen in Notepad:

```
waypoint.0= KDEN, A, N39* 51.12', W104* 41.81', +005430.99,  
waypoint.1= FQF, V, N39* 41.41', W104* 37.26', +35000.00,  
waypoint.2= QUAIL, I, N39* 15.57', W104* 7.64', +35000.00, J52  
waypoint.3= HGO, V, N38* 49.05', W103* 37.28', +35000.00, J52  
waypoint.4= LAA, V, N38* 11.83', W102* 41.25', +35000.00, J52  
waypoint.5= DRAWL, I, N37* 29.12', W101* 37.04', +35000.00, J52  
waypoint.6= LBL, V, N37* 2.66', W100* 58.27', +35000.00, J52  
waypoint.7= GAG, V, N36* 20.62', W99* 52.81', +35000.00, J98  
waypoint.8= IRW, V, N35* 21.52', W97* 36.55', +35000.00, J98  
waypoint.9= DWINE, I, N35* 12.48', W96* 12.98', +35000.00, J6  
waypoint.10= KLUBB, I, N35* 7.22', W95* 28.01', +35000.00, J6  
waypoint.11= KOMMA, I, N35* 0.88', W94* 40.66', +35000.00, J6  
waypoint.12= LIT, V, N34* 40.66', W92* 10.83', +35000.00, J6  
waypoint.13= VUZ, V, N33* 40.21', W86* 53.99', +35000.00, J14  
waypoint.14= ATL, V, N33* 37.74', W84* 26.10', +35000.00, J52  
waypoint.15= KATL, A, N33* 38.43', W84* 25.62', +001025.99,
```

The columns don't line up exactly even from line to line, but it's easy to break

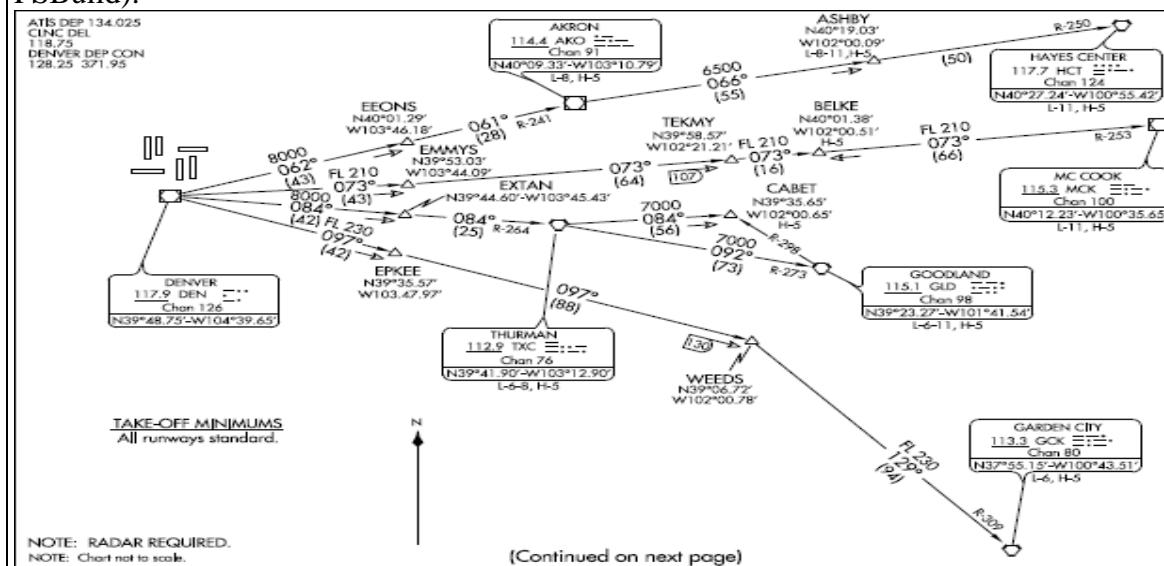
down the lines and keep track of what is what. Here's what you're looking at:

- **Waypoint**, tells the file that this is a waypoint.
 - **.0=** is the number of the waypoint; that is, the first second or third waypoint.
 - **KDEN, FQF**, etc. These are the names of the waypoints
 - **V, A, I**: the type of waypoint, VOR, Airport, Intersection.
 - **N39° 51.12'** is the longitudinal coordinates of the waypoint in degrees, minutes, seconds.
 - **W104° 41.81'** is the latitudinal coordinates of the waypoint in degrees, minutes, seconds.
 - **+005430.99** is the altitude or elevation (in the case of the airports) of the waypoint.
 - **J52** is the airway on which the waypoint is located, if applicable.

I'd like to point out a couple of things before moving on. The first waypoint *must be 0*. Flight Sim is written in C programming language; and in the C programming language, 0 is the first element. In the Long/Lat coordinates, if you do not have the six-digit coordinate, you can use four-digit coordinates, but ensure that you add .00' to the end of it. Also, as we add waypoints to the flight plan, remember to insert the proper sequential waypoint number. It's a good idea to erase all the numbers following the first insertion and add the numbers after you've finished inserting waypoints. This way you'll avoid duplicating or skipping numbers entirely.

Please keep these things in mind if you edit your flight plans this way.

Here we have our SID, KDEN's PLAINS THREE. Perhaps this is the departure listed in an event's flight plan (remember, we're using this procedure to edit a flight plan because we don't have FSBuild):





We're mainly interested in our departure route and transition, so we look at it on the chart: PLAIN3.GLD. The first waypoint is the intersection EXTAN, which is located, according to the chart, at N39° 44.60' / W103°45.43'. So we go to the end of the first line in our flight plan:

```
waypoint.0= KDEN, A, N39° 51.12', W104° 41.81', +005430.99,
```

Enter a new line and put in the new waypoint:

```
waypoint.1= EXTAN, I, N39° 44.60', W103°45.43', +8000.00, PLAIN3,
```

Do the same for each additional waypoint in the SID:

```
waypoint.2= TXC, V, N39°41.90', W103°12.90', +13000.00, PLAIN3,  
waypoint.3= GLD, V, N39°23.27', W101°41.54', +30000.00, PLAIN3,
```

So, now we have to adjust the other waypoints in the flight plan so that we're not back-tracking anywhere along our route of departure. You can create a completely new plan from there, or use the same waypoints in the flight plan. The altitudes given here are for example only. You are familiar with the climb characteristics of your aircraft, and should insert altitudes you have a reasonable hope of obtaining in that distance. The exception to this is when there's a *cross at or below or above* and an altitude given. You must comply with crossing restrictions.

As long as you can see how the flight plan is put together so that Flight Simulator can read it, you can edit any flight plan and add any thing you're missing from a flight plan.

I plan on getting into international, overseas routes in the next article, but I want to outline how this method may be useful to anyone who needs to edit a flight plan.

I had been using the original FSBuild, and it was giving me fits with

the PACOTs I tried to enter. For some reason I couldn't get it to accept any variation of six-digit format. Using this method, I was able to manually modify the flight plan and fly the route accurately.

A final thing to remember about manually editing the flight plans: FS does not like the latitude W180°00.00' or E180°00.00' because they are the exact same latitude. The trick to getting around this should be obvious, but here's what you do. Instead of making it 180° 00min 00sec, make it 179° 59min 59sec: W179°59.59', or E179°59.59'. This is but a second off the actual location and you won't know the difference anyway.

For questions or comments, send me an email with the subject Flight Planning to editor@deltaya.org.

**Race Across America Results**

By Andrew Dalrymple

Delta's 1st Annual Race Across America was a great success with a total of 25 pilots in 5 teams signing up for the event. With a total time of 13:07:34 Delta Soar completed the race with the fastest time. Below are the Teams and their pilots.

Delta Soar: 13hr 07min 34 sec			1 st Place
DVA Number	Pilot	Aircraft	Race Leg
DVA2350	Martin Garner	737-800	KBOS-KCVG
DVA2238	Peter Evers	CRJ-200	KCVG-KATL
DVA2667	Lance Andrus	727-200	KATL-KDFW
DVA822	Trevor Fenimore	777-200	KDFW-KSLC
DVA2728	Shane Olglin	L-1011	KSLC-PANC

DVA Mentor: 13hr 31min 16 sec			2 nd Place
DVA Number	Pilot	Aircraft	Race Leg
DVA2614	Vince Carlo	737-800	KBOS-KCVG
DVA1690	Trevor Bair	CRJ-200	KCVG-KATL
DVA2086	Chris Williams	767-300	KATL-KDFW
DVA2253	George Lewis	727-200	KDFW-KSLC
DVA2482	Oliver McRae	777-200	KSLC-PANC

Delta Phoenix: 13hr 38min 42 sec			3 rd Place
DVA Number	Pilot	Aircraft	Race Leg
DVA2015	Sean Mullan	CRJ-200	KBOS-KCVG
DVA2026	William Larkin	737-800	KCVG-KATL
DVA1044	Lloyd Arms	727-200	KATL-KDFW
*DVA1760	Stephen Faison	727-200	
DVA1763	Steve Pickle	767-300	KDFW-KSLC
DVA1892	Gaston Doval	MD-11	
*DVA2082	Chris Robeson	777-200	KSLC-PANC

*Denotes pilot change from original sign up.

Delta Destroyers: 13hr 38min 47 sec			4 th Place
DVA Number	Pilot	Aircraft	Race Leg
DVA2535	Greg Sumner	CRJ-200	KBOS-KCVG
DVA2759	Jayson Hinton	MD-88	KCVG-KATL
DVA1129	Craig Davidson	727-200	KATL-KDFW
DVA1899	Josh Drummond	757-200	KDFW-KSLC
DVA1855	Andrew Rogers	777-200	KSLC-PANC

Delta Force: 14hr 48min 08 sec			5 th Place
DVA Number	Pilot	Aircraft	Race Leg
DVA2688	TJ Escontrias	CRJ-200	KBOS-KCVG
DVA177	Tyler Dumont	777-200	KCVG-KATL
AVF011	Michael Carter	727-200	KATL-KDFW
*DVA2761	Gary Faver	737-800	KDFW-KSLC
DVA1855	Chris Palmer	767-300	KSLC-PANC

*Denotes pilot change from original sign up.

Fastest Leg Times			
Pilot	Time	Aircraft	Race Leg
Vince Carlo	2:30:07	737-800	KBOS-KCVG
William Larkin	1:20:44	737-800	KCVG-KATL
Stephen Faison	1:57:13	727-200	KATL-KDFW
Steve Pickle	2:13:26	767-300	KDFW-KSLC
Oliver McRae	4:30:04	777-200	KSLC-PANC

While I could list more statistics than anyone could really care about I thought that the fastest route legs and the aircraft used would be the best to publish. These times also reflect the weather we had during the race weekend.

Once again I would like to thank all the pilots who participated in this event. A special thanks to George Lewis for putting together the 727 flight plans. I would also like to thank the judges for their help and to all the pilots who stepped in to help the teams out.

Cheers,

Andrew Dalrymple
Director of Events
Senior Captain 767-300

EDITORIAL**Show Appreciation for ATC**

By Matt Reamy

Editor Delta FLY!

“Delta1234, you are leaving my airspace, next sector not online, frequency change approved, good day.”

“Going to UNICOMM, thanks for the ATC, Delta1234.”

This is a typical thing to hear when logged into VATSIM. It's a rare thing to travel continually through controlled airspace while making use of VATSIM's services.

While it can be intimidating at first to deal with our Virtual Air Traffic Controllers, it quickly becomes second nature as we learn the systems from Clearance Delivery to any given Center Facility. These controllers spend their time providing us with Air Traffic Control services on a volunteer basis.

It behooves us as pilots to really appreciate the ATC services provided to us by these people.

I certainly understand that pilots become complacent on VATSIM, that it's easy to take for granted all they do for us. It only goes to show how good the VATSIM controllers usually are when we come across the odd sour experience.

When you *do* come across a controller who is not performing as you'd expect, it's a good idea to remember that he doesn't have to be there. You could be thinking *if he's having a bad day, he shouldn't be controlling*, and you may have a point. But the fact is, he *is* controlling and you're in his airspace. You've got the option to either log off or deal with it. If you choose to deal with it, do so in a

professional and respectful manner. These people do not have to be there; they are there for you.

It's in poor taste to denigrate the controllers and the service they provide. When you do this, it severely undermines your professionalism. I'm quite familiar with the concept of 'blowing of steam,' and we all need to do this on occasion.

In order to keep any professionalism you may have intact, I suggest you blow your steam in private and not in the Water Cooler or on ACARS. We have several controllers among the ranks of DVA; and to express dissatisfaction publicly shows – whether you intend to or not – that you are totally unappreciative of the time and effort that the controller has put into providing you with ATC services.

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On the Cover: Delta Airlines Boeing 737-800 climbing over the Nevada desert out of Las Vegas. Cover Photo by Andrew Harris.

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