HOW TO FLY A VOR DME ARC

EXPLAINING THE BASICS

This tutorial has been created for free by

British Avgeek

https://youtube.com/britishavgeek

It is to be used for simulation purposes only and is linked to the VOR Radial Tutorial on the channel to supplement the information demonstrated there

Introduction

You're flying into an airport that requires you to fly a VOR DME Arc to final approach with a visual landing.

What do you need to do to fly that Arc as accurately as possible?

https://youtu.be/Y8VbAPTP_sg

The video tutorial on my channel shows and explains it and this document builds on that explanation a bit further.

You will need access to the relevant charts to fly this procedure. If you have Navigraph then great, use that – if you're however looking for a free option then head to Chartfox and log in using your VATSIM account:

https://chartfox.org

In this example, we are flying into Rhodes Diagoras International Airport (LGRP). The charts I used in the video can be found here:

https://vau.aero/navdb/chart/LGRP.pdf

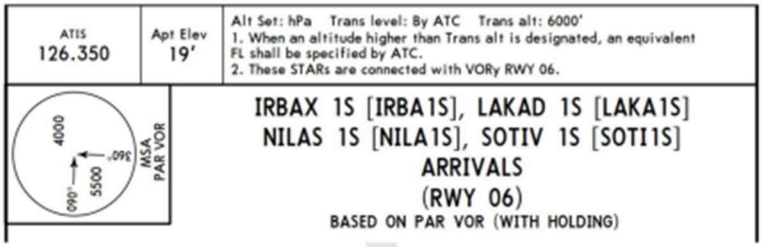
(note: they are the same as Navigraph but free, using the bot in my discord server!)

You will need to know what arrival route (STAR) you are going to be using too, to plan the entry accordingly to help you fly that radial nicely.

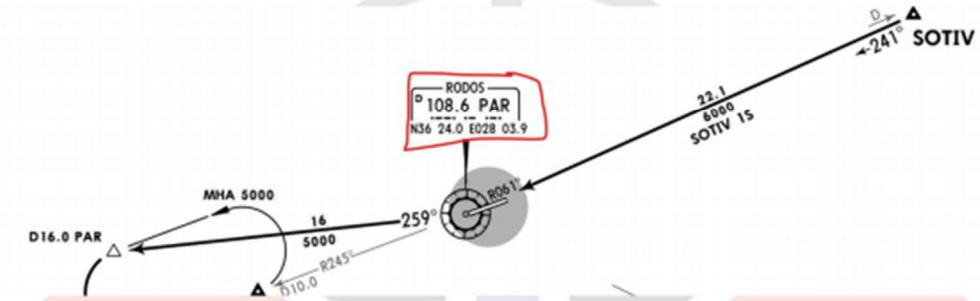
For this example we are using the NILAS1S Arrival based on the PAR VOR but I will explain at the end of the document, what to expect if you are using a STAR that is approaching the airport from another angle/route and what we need to consider.

Where's the VOR Frequency information?

Knowing we will be using the NILAS1S arrival in our example, we can check that chart and see this will use the PAR VOR – frequency of 108.6



We can see from the above image that the NILAS1S arrival is for Runway 06 and "based on PAR VOR (with holding)".

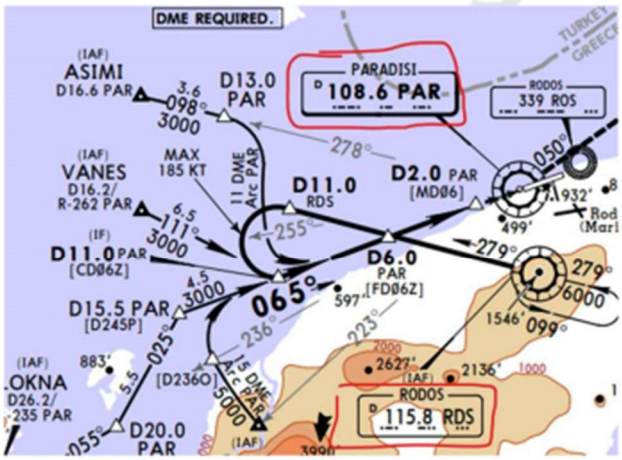


That same chart shows us that the PAR VOR at the airport itself is using the frequency **108.6**

STAR	ROUTING
IBRAX 1S	Intercept PAR R-132 inbound to D17.0 PAR, turn LEFT, along D15.0 Arc, when passing PAR R-236 turn RIGHT, intercept PAR R-245 inbound to ERIBA.
LAKAD 1S	Intercept PAR R-110 inbound to D17.0 PAR, turn LEFT, along D15.0 Arc, when passing PAR R-236 turn RIGHT, intercept PAR R-245 inbound to ERIBA.
NILAS 1S	On 273° track, intercept PAR R-132 inbound to D17.0 PAR, turn LEFT, along D15.0 Arc, when passing PAR R-236 turn RIGHT, intercept PAR R-245 inbound to ERIBA.
SOTIV 1S	Intercept PAR R-061 inbound to PAR VOR, PAR R-259 to D16.0 PAR, turn LEFT, intercept PAR R-245 inbound to ERIBA.

and the page also tells us routing information for the NILAS1S arrival too.

Additionally, the Approach Charts for VOR Z 06 also show the VOR frequency as shown below:



Note in the above diagram, there is a SECOND VOR used by Rhodes Airport too – and your STAR may require you to use this instead, but the same principles apply. It will usually tell you which VOR the STAR is using. Be sure to use the right one.

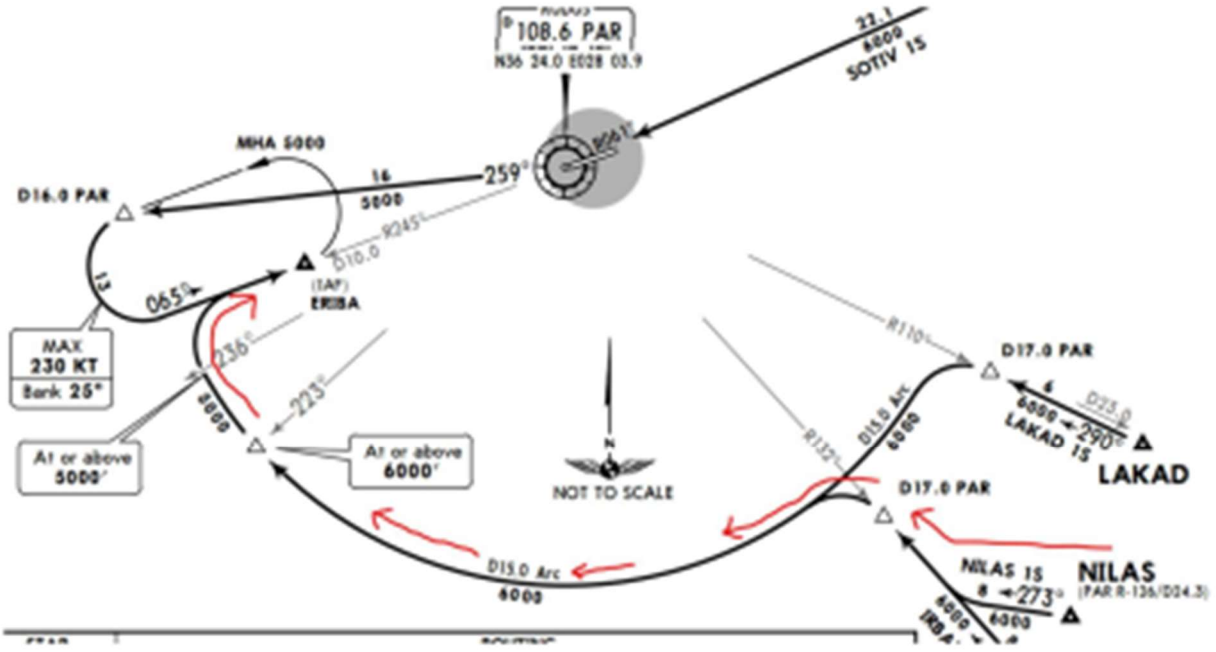
As the video showed us, we took the Paradisi "PAR" VOR frequency, and input that into the MCDU's RADNAV page in the VOR1 box **and** the course for final approach. We then also flicked the VOR1 switch near the Flight Director button to VOR to activate that on the Nav Display too.

At the bottom of the Nav Display you will now have a VOR reading appear with a distance to that VOR station you have tuned in to. That number is what we use.

How do we fly the arc?

In the diagram below, look for the entry point. In this case, it is the point on the radial of 132° labelled D 17.0 PAR along the route highlighted with the red arrows.

At 17nm range from the VOR station, have the turn started aiming to fly the ARC at exactly 15nm all the way round to finals



Keep flying the arc – taking into account any altitude or speed constraints along the procedure. Monitor the ND to keep the range from the VOR as close to 15nm as you can. Consider terrain around you – especially in bad weather. Use the terrain radar.

Look for the runway, and begin to turn onto finals. The chart above indicates that at a radial of 236 – when you're visual with the runway, continue the approach with the approach course of 065° for final approach.

The descent is down to us to manage and will require manual landing.

What is a Radial?

Take the PAR VOR as the example here and imagine that VOR station at the centre of a compass. A radial is simply the heading out from the centre of the compass

i.e. the VOR station we are using

In the chart diagrams on the above page, entering the arc at 17 DME and a radial of 132° is the direction OUT from the VOR station to that 17 DME point.

We would be flying in the opposite direction of course – with a heading of 312° as the diagram below shows

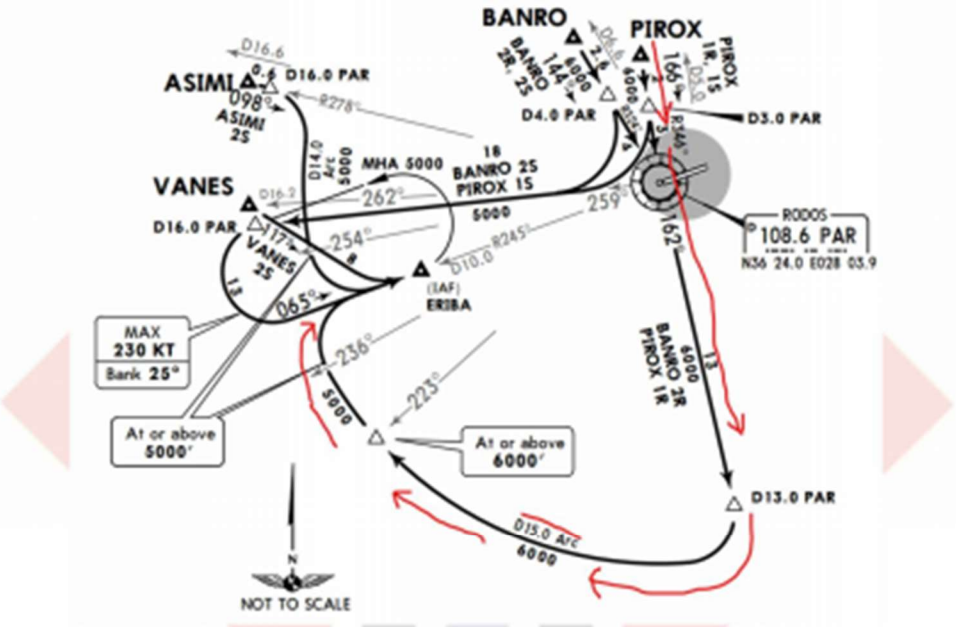
Note the Radial heading of 132° is labelled R132°

The next pages highlight some other considerations if arriving on other routes

What if we were flying in via PIROX on a PIROX1R arrival, or BANRO on a BANRO2R arrival?

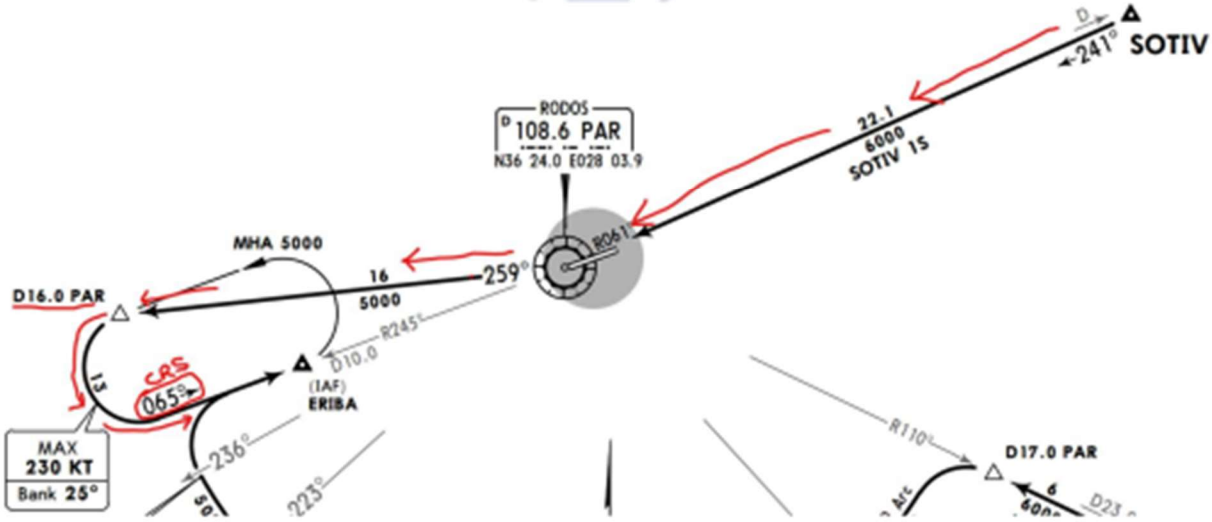
As the diagram shows below, we overfly Rhodes Airport and the Rodos "PAR" VOR station and fly a Radial of 162° from it, tracking our distance from the PAR VOR station the entire time.

At 13 DME, we then make a right turn to fly the Arc as demonstrated in the video keeping that 15 mile Arc all the way round to finals.



What if we were flying in via SOTIV on a SOTIV1S arrival?

Same principles already discussed, but we can see on the charts we overfly the Rodos PAR VOR and fly out on a radial of 259° to 16DME before turning left (max speed of 230kts and 25° Bank Angle) to then fly the visual approach in using a course of 065°



I hope you found both the video tutorial and the accompanying document useful and informative.

Be sure to consider the approach charts and the minimum's required for each approach you fly – and set them accordingly. Make sure you brief the missed approach instructions for each arrival as well in case you are not visual with the runway at minimums, or have to Go Around for traffic.

Be sure to subscribe to my YouTube channel for all of the latest tutorials and as always, if there is anything you wish to see covered just let me know!

If you found this guide helpful and wish to donate, you can do so here:

https://paypal.me/britishavgeek