

# What is on my charts?

How to get around with charts?





## 1. Introduction

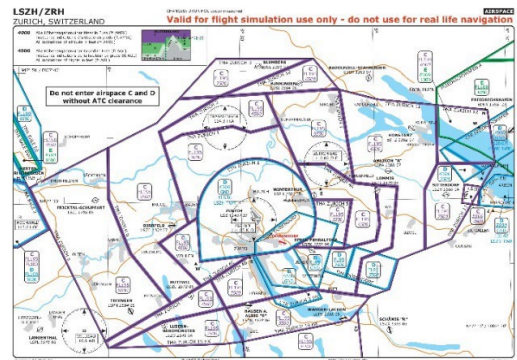
Understanding aeronautical charts is an essential skill for any aspiring pilot, but with so many types of charts available, it can feel overwhelming to know where to start. This newsletter is based on "[Pilot Tips and Tricks - A Guide to Charts](#)" and is designed to simplify the process by focusing on the different types of charts and what they contain. We strongly recommend that you read the previous newsletter, as this guide is based on it.

## 2. IFR

### 2. A. General/Reference charts


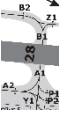
General/Reference charts provide information on airspace, radio stations, nearby aerodromes and general operating rules at and around a specific airport.

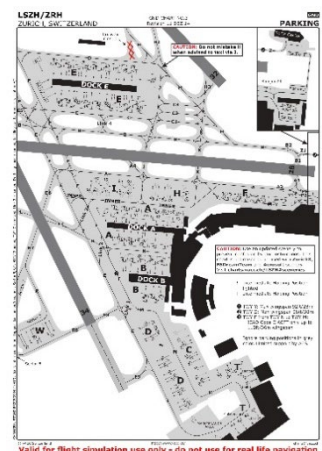
	This box indicates the band between which you will find an airspace. The airspace class is indicated by the colour and letter at the top of the box.
	The circles symbolise airfields. The letters above and to the side show the name and ICAO code of the airfield. The elevation and longest runway of the airfield is also shown.
	The lines with small letters to the side show us the airspace. The different colours indicate which class of airspace we are in.
	These compass roses are nav aids (in this case a VOR). They are often important navigational aids for our SID and STAR. Their names and frequencies are shown in an inset box.



### 2. B. Ground Charts

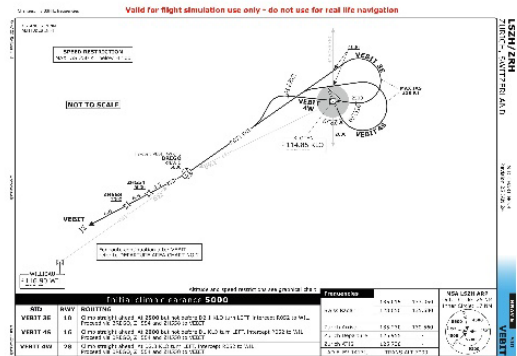
Ground charts are divided into two different types, the focus being on the so-called "parking chart" which contains the same symbols as the regular "ground chart". As the name suggests, this type of chart lists gates, taxiways and gates/stands. This chart is largely self-explanatory.


	The black lines with letters and numbers on a grey background show us the names and locations of taxiways. They contain important information such as closed taxiways and restricted taxiways.
	There are several important pieces of information on this snippet. Firstly, you can see small, dotted lines with a letter on the side (e.g. A2). These are called holding positions and are not holding points like the lines in front of the runway. If you would like to know more about the markings around runways, please read our newsletter about <a href="#">vacating and holding short a runway</a> .



## 2. C. Departure charts




The departure chart shows the route of the SID issued to you during your IFR clearance. An SID is mostly runway specific. It also shows the restrictions (speed or altitude), the frequencies of the corresponding stations, the transition altitude and the navaids. Finally, you will find the Minimum Sector Altitude (MSA) and Initial Climb, which you should check before requesting your clearance.



<table border="1"> <tr><th>SID</th><th>ROUTING</th></tr> <tr><td>VERBIT 36</td><td>Clear straight ahead, at 2000 feet below DA, 1.00 turn LEFT, intercept RWY to RWL, Proceed via BRBGO, 24034 and 24150 to VERBIT</td></tr> <tr><td>VERBIT 46</td><td>Clear straight ahead, at 2000 feet below DA, 1.00 turn LEFT, intercept RWY to RWL, Proceed via BRBGO, 24034 and 24150 to VERBIT</td></tr> <tr><td>VERBIT 49</td><td>Clear straight ahead, at 2000 feet below DA, 1.00 turn LEFT, intercept RWY to RWL, Proceed via BRBGO, 24034 and 24150 to VERBIT</td></tr> </table>	SID	ROUTING	VERBIT 36	Clear straight ahead, at 2000 feet below DA, 1.00 turn LEFT, intercept RWY to RWL, Proceed via BRBGO, 24034 and 24150 to VERBIT	VERBIT 46	Clear straight ahead, at 2000 feet below DA, 1.00 turn LEFT, intercept RWY to RWL, Proceed via BRBGO, 24034 and 24150 to VERBIT	VERBIT 49	Clear straight ahead, at 2000 feet below DA, 1.00 turn LEFT, intercept RWY to RWL, Proceed via BRBGO, 24034 and 24150 to VERBIT	This box contains the routing of the SID in written form. This allows you to compare the route you entered in the aircraft with the actual route.										
SID	ROUTING																		
VERBIT 36	Clear straight ahead, at 2000 feet below DA, 1.00 turn LEFT, intercept RWY to RWL, Proceed via BRBGO, 24034 and 24150 to VERBIT																		
VERBIT 46	Clear straight ahead, at 2000 feet below DA, 1.00 turn LEFT, intercept RWY to RWL, Proceed via BRBGO, 24034 and 24150 to VERBIT																		
VERBIT 49	Clear straight ahead, at 2000 feet below DA, 1.00 turn LEFT, intercept RWY to RWL, Proceed via BRBGO, 24034 and 24150 to VERBIT																		
<p><b>SPEED RESTRICTION</b> MAX IAS 250 KT below FL100</p>	SID and STAR charts contain important limitations and restrictions in highlighted boxes. They indicate speed and/or altitude limitations which must be observed unless otherwise instructed.																		
<table border="1"> <tr><th colspan="3">Frequencies</th></tr> <tr><td>Swiss Radar</td><td>135.015</td><td>133.050</td></tr> <tr><td>Zurich Arrival</td><td>135.230</td><td>130.560</td></tr> <tr><td>Zurich Departure</td><td>125.955</td><td>-</td></tr> <tr><td>Zurich ATIS</td><td>125.730</td><td>-</td></tr> <tr><td>AD ELEV 1417ft</td><td>TRANS ALT 7000</td><td>-</td></tr> </table>	Frequencies			Swiss Radar	135.015	133.050	Zurich Arrival	135.230	130.560	Zurich Departure	125.955	-	Zurich ATIS	125.730	-	AD ELEV 1417ft	TRANS ALT 7000	-	Here you will find your most important frequencies, aerodrome altitude and transition altitude.
Frequencies																			
Swiss Radar	135.015	133.050																	
Zurich Arrival	135.230	130.560																	
Zurich Departure	125.955	-																	
Zurich ATIS	125.730	-																	
AD ELEV 1417ft	TRANS ALT 7000	-																	
<p><b>MSA LSZH ARP</b> Outer Circle: 25 NM Inner Circle: 17 NM</p> 	This circle shows the minimum sector altitude (MSA) around a station (mostly close to the airfield). The MSA is the minimum safe altitude between two bearings leading to the station and can be significantly off the position of the correspondent airfield.																		
<p><b>Initial climb clearance 5000</b></p>	This is the initial climb clearance. This is the altitude you'll be given during your IFR clearance, and you're not allowed to climb above this altitude on departure.																		

## 2. D. Enroute charts high/low


Enroute charts are used to provide an overview of your enroute navigation, mainly waypoints and airways. They will help you navigate after leaving an SID or before entering a STAR/Approach.

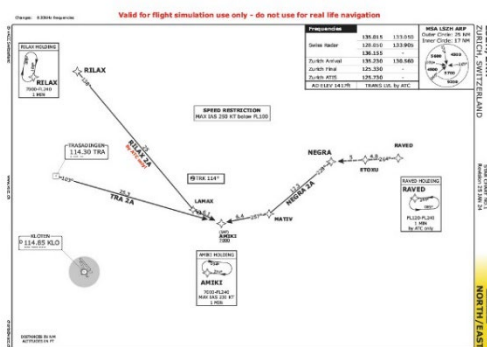
	Various symbols can denote different types of significant points both along airways and off route.
	The blue lines symbolize RNAV-airways, black boxes are conventional-airways and brown airways are based on an NDB. They can be either multidirectional (boxes like in the picture) or unidirectional (boxes shaped like arrows).
	This shows the FIR boundary between Switzerland (LSAS) and Paris (LFFF). The line between the texts is the actual border between the FIRs, and the texts indicate which FIR borders are shown.



## 2. E. Arrival charts


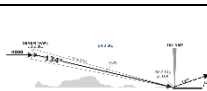
The arrival chart gives us information about our Standard Instrumental Arrival (STAR). This type of chart includes published holdings, nav aids, the MSA, restrictions, important frequencies and routing.

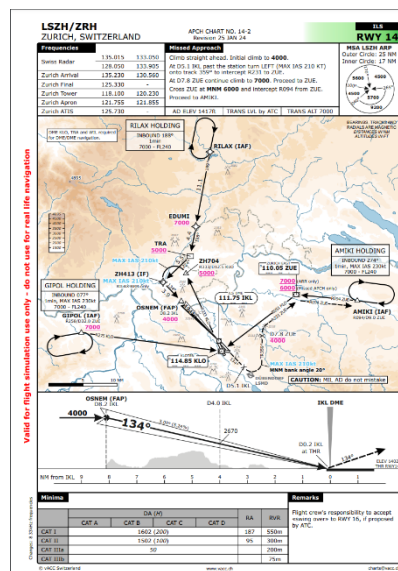
 <p>AMIKI HOLDING 7000-FI240 MAX IAS 230 KT 5 MIN</p>	<p>This box shows holding patterns with their correct minimum and maximum altitudes (in this case 7000-FI240). We can also see the name of the RNAV fix, the maximum speed in knots, the inbound course and holding time.</p>
--	---



## 2. F. Approach chart

This is the approach chart for the ILS approach to Zurich's runway 14. It contains all the information you need to fly the approach correctly, and sometimes also information on transitions leading to the ILS approach.

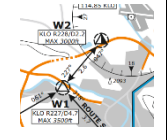


	<p>This is the symbol for the ILS approach itself. The approach route is indicated by the white-dark arrow. The course of the ILS (134°) and the FAP (Final Approach Point, OSNEM) are shown next to it.</p>																																										
<p><b>Missed Approach</b> Climb straight ahead. Initial climb to 4000. At 05.1 DME past the station turn LEFT (MAX IAS 210 KT) onto track 359° to intercept R0331 to ZUE. At 07.8 ZUE continue climb to 7000. Proceed to ZUE. Cross ZUE at <b>MNH 6000</b> and intercept R094 from ZUE. Proceed to AMIKI.</p>	<p>The instructions for the missed approach are written in this box. It is also indicated by a dashed line on the chart itself, starting at the runway (in most cases) and leading to the end point of the procedure, in our case the IAF (Initial Approach Fix) AMIKI).</p>																																										
	<p>This chart shows a side view of the ILS approach. It shows the required altitude at the FAP and at certain distances, the ILS course, the steepness of the glideslope and the mileage from the ILS DME.</p>																																										
<table border="1"> <thead> <tr> <th> minima</th> <th> CAT A</th> <th> CAT B</th> <th> CAT C</th> <th> CAT D</th> <th> RA</th> <th> RVR</th> </tr> </thead> <tbody> <tr> <td> CAT A</td> <td> 160</td> <td> 120</td> <td> 100</td> <td> 80</td> <td> 1000</td> <td> 500</td> </tr> <tr> <td> CAT B</td> <td> 150</td> <td> 110</td> <td> 90</td> <td> 70</td> <td> 1000</td> <td> 500</td> </tr> <tr> <td> CAT C</td> <td> 140</td> <td> 100</td> <td> 80</td> <td> 60</td> <td> 1000</td> <td> 500</td> </tr> <tr> <td> CAT D</td> <td> 130</td> <td> 90</td> <td> 70</td> <td> 50</td> <td> 1000</td> <td> 500</td> </tr> <tr> <td> CAT RA</td> <td> 120</td> <td> 80</td> <td> 60</td> <td> 40</td> <td> 1000</td> <td> 500</td> </tr> </tbody> </table>	minima	CAT A	CAT B	CAT C	CAT D	RA	RVR	CAT A	160	120	100	80	1000	500	CAT B	150	110	90	70	1000	500	CAT C	140	100	80	60	1000	500	CAT D	130	90	70	50	1000	500	CAT RA	120	80	60	40	1000	500	<p>This table shows the minima for the approach. The minima depend on the type of approach and the approach speed of the aircraft. To the right are the required RVR (Runway Visual Range) and the minima for the RA (Radio Altimeter).</p>
minima	CAT A	CAT B	CAT C	CAT D	RA	RVR																																					
CAT A	160	120	100	80	1000	500																																					
CAT B	150	110	90	70	1000	500																																					
CAT C	140	100	80	60	1000	500																																					
CAT D	130	90	70	50	1000	500																																					
CAT RA	120	80	60	40	1000	500																																					

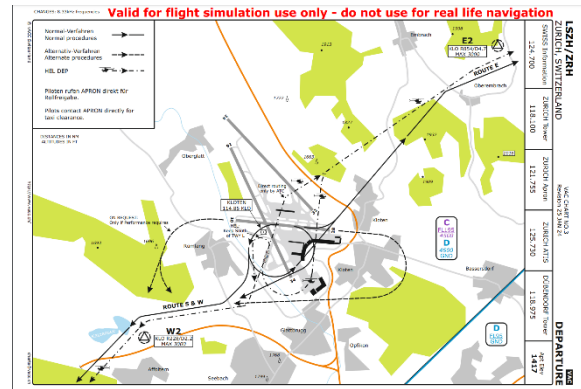


### 3. VFR

#### 3. A. VAC-Chart


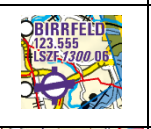
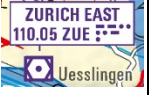
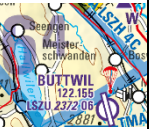
The VAC and AREA charts are used by VFR pilots to navigate around an aerodrome. The VAC provides more detailed information about the aerodrome and its traffic pattern, while the AREA chart provides a broader overview of the aerodrome, it's surroundings and routes.

	There are three different symbols for waypoints on the VAC and Area Chart. They can be either a mandatory waypoint for both inbound and outbound traffic (black triangle), a mandatory waypoint for inbound traffic only (half white and half black triangle) or a non-compulsory waypoint (all white).
	The different airspace classes are shown here. The boundaries and class of a particular airspace are indicated by the coloured lines and the heights in the boxes.
	This shows waypoint E2 and its holding. Also shown is the approach and helicopter route E. When entering or leaving a CTR, you must strictly follow the path described by the route unless otherwise instructed by ATC.



#### 3. B. ICAO Aeronautical chart 1:500'000 (VFR)

VFR pilots use the ICAO Aeronautical Chart for en-route navigation. It includes information on airspace, navigation landmarks, and danger and restricted areas. A more detailed description of the symbols on VFR charts can be found in the [GEN section](#) of the VFR Manual, from part MAP 1-2-1 onwards.

	Here you can find information about airspaces. In the box, you can see the class of the airspace and the altitude limit of the airspace. The blue line is the boundary of the airspace. Above the line, you'll find the name and type of airspace, as well as the responsible station and its frequency.
	This is the airfield icon. The text block shows the name of the airfield, the AD frequency of the airfield (if available), the ICAO code, the altitude of the airfield in feet and the length of the longest runway in hundreds of metres.
	This symbol is like a VOR station. There are different symbols for different types of equipment. The text box shows the station's name, frequency, callsign and Morse code callsign.
	The large number on the left is the maximum elevation figure. At the bottom right you can see a red parachute, this symbolises parachute activity at the airfield. Next to the parachute is a castle symbol, which means there is a castle at this location.



Dian Wendel, Andrin Schoch

Pilot-Training-Dept VACC Switzerland