

# ***Learning IFR Enroute Charts***

**The quickest way to  
teach or learn IFR Enroute  
Chart Symbolology**

**Darren Smith, ATP, CFII/MEI**

**Darren Smith**, ATP, CFII/MEI  
Certificated Flight Instructor  
www.cfidarren.com

*"...the safety of the operator is more important than any other point.  
Greater prudence is needed rather than greater skill."*

— Wilbur Wright, 1901

Purpose of this guide: This guide is meant for pilots to prepare for flight training & Checkrides and to improve the safety of their flying. As a review and reference book for all pilots, it strives to present the information to keep you current. I would love to hear from you regarding your experience with this guide. Often pilots comment about the right way, the wrong way, and the FAA way. The result is most pilots chose the "practical way" which is a combination of all three. I caution all pilots to err on the side of the "safe way" so that you do not become a statistic.

**Copyright © 2006-2010 by Darren Smith.** All rights reserved. Subject to change without notice. This publication is not a substitute for competent flight instruction.

**Limitation of Liability:** By accepting this publication, you understand the following: this service/information is provided solely for your individual, non-commercial use. There are no representations or warranties of any kind made pertaining to this service/information and any warranty, express or implied, is excluded and disclaimed including but not limited to the implied warranties of merchantability and/or fitness for a particular purpose. Under no circumstances or theories of liability, including without limitation the negligence of any party, contract, warranty or strict liability in tort, shall the author or any of its affiliated or related organizations be liable for any direct, indirect, incidental, special, consequential or punitive damages as a result of the use of, or the inability to use, any information or skills provided through this service/information/training even if advised of the possibility of such damages. You covenant and agree, on your behalf and on behalf of your heirs, executors and assigns, not to sue the author or any of its affiliated or related organizations under any of these theories of liability and to indemnify and hold them harmless from your breach of these terms.

Learning IFR Enroute Charts / Darren Smith  
ISBN-13: 978-0-9823940-3-8  
ISBN-10: 0-9823940-3-9

# How To Use This Learning Tool

## The Guide

The first section of this guide includes a review of IFR Enroute Chart symbology. You should be able to understand and explain the book definitions for this symbology prior to your Checkride.

The second section provides the answers to the IFR Enroute Chart Extract. You should be able to identify and explain the symbology on the chart extract prior to your Checkride.

The third section is a review of Instrument Approach Procedure (“plates”) symbology. As with IFR Enroute Charts, you should be able to identify and explain this symbology prior to your Checkride.

The last section of this guide (the appendix) includes some safety information. The most important is the PAVE checklist. As a bonus, the IFR rules of thumb is included.

## The IFR Enroute Chart Extract

The chart extract is a generic extract that contains the most common elements included on IFR Enroute charts. The important elements have a reference number or letter which you should be able to identify prior to your Checkride. If you can identify the symbology on a chart that you are not comfortable with, you should be able to identify the symbology on any chart — including the local chart that you’ll likely use on your Checkride.

While the reference letter/number may not point to something specific, be sure you can identify the things around this reference letter/number.

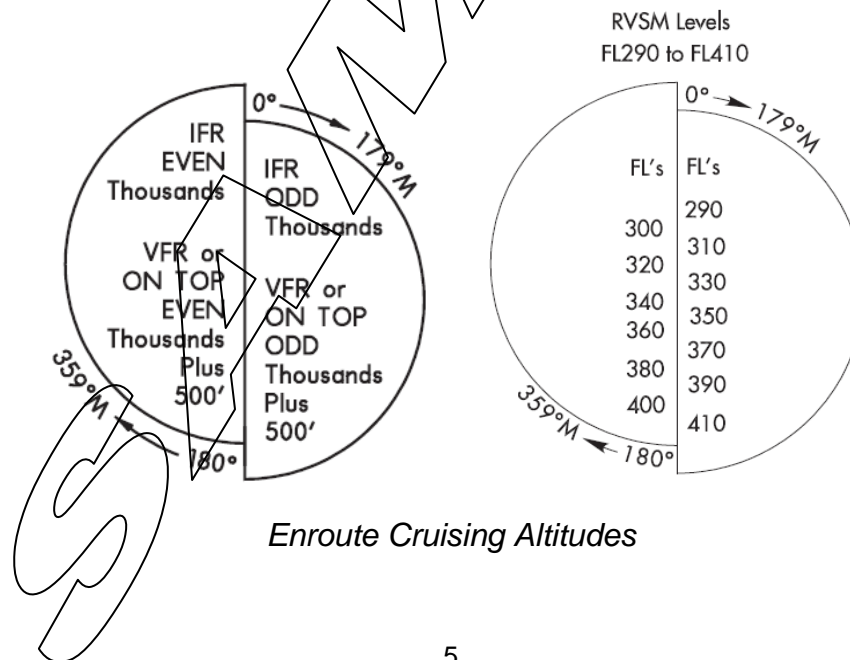
## NASA Reports, Form ARC 277B, AC 00-46D

A joint program of the FAA & NASA was developed to improve aviation safety through voluntary collection of safety information. Anyone responsible for aviation safety (pilots, mechanics, ATC, etc) may contribute to the process. FAR 91.25 allows for immunity from FAA enforcement action when report is filed within 10 days of the incident, was not deliberate or criminal, did not result in an aircraft accident, and does not involve incompetence. Immunity can be used when there are no previous violations in the preceding 5 years. When filing the report, the identification strip is confidential and returned to you, validated. Use care in selecting the title of the report, in other words don’t hint at a FAR violation in the title of the report. You can now enter these online.

*“To most people, the sky is the limit.  
To those who love aviation, the sky is home.”*

*— Jerry Crawford*

# IFR Enroute Chart Review



# Enroute Charts: Terrain & Airspace Charting

SHORELINE

TERRAIN

Area Charts

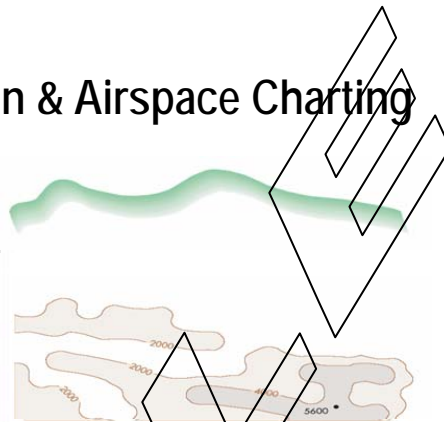
OFF ROUTE OBSTRUCTION CLEARANCE ALTITUDE (OROCA)

AIR ROUTE TRAFFIC CONTROL CENTER (ARTCC)

AIR DEFENSE IDENTIFICATION ZONE (ADIZ)

SPECIAL USE AIRSPACE

USA



LOW ALTITUDE

Example: 12,500 feet

OROCA is computed similarly to the Maximum Elevation Figure (MEF) found on Visual charts except that it provides an additional vertical buffer of 1,000 feet in designated non-mountainous areas and a 2,000 foot vertical buffer in designated mountainous areas within the United States.

LOW/ HIGH ALTITUDE

NEW YORK  
WASHINGTON

WASHINGTON  
Hagerstown  
134.15 385.4

ARTCC Remoted Sites with discrete VHF and UHF frequencies

LOW/ HIGH ALTITUDE

CONTIGUOUS U.S. ADIZ

ALASKA ADIZ

Adjoining ADIZ

CANADA ADIZ

LOW/ HIGH ALTITUDE

P-000  
R-000  
W-000  
A-000  
CYR-000  
CYA-000  
GMLJ D-000

P - Prohibited Area  
R - Restricted Area  
W - Warning Area  
  
Low Only  
A - Alert Area  
  
Canada Only  
CYR - Restricted Area  
CYA - Advisory Area  
  
Caribbean Only  
D - Danger Area

In the Caribbean, the first 2 letters represent the country code, i.e. MY: Bahamas, MU: Cuba

W-000A  
W-000B

EXCLUSION AREA AND NOTE

Internal lines delimit separation of the same Special Use Area or Exclusion Areas

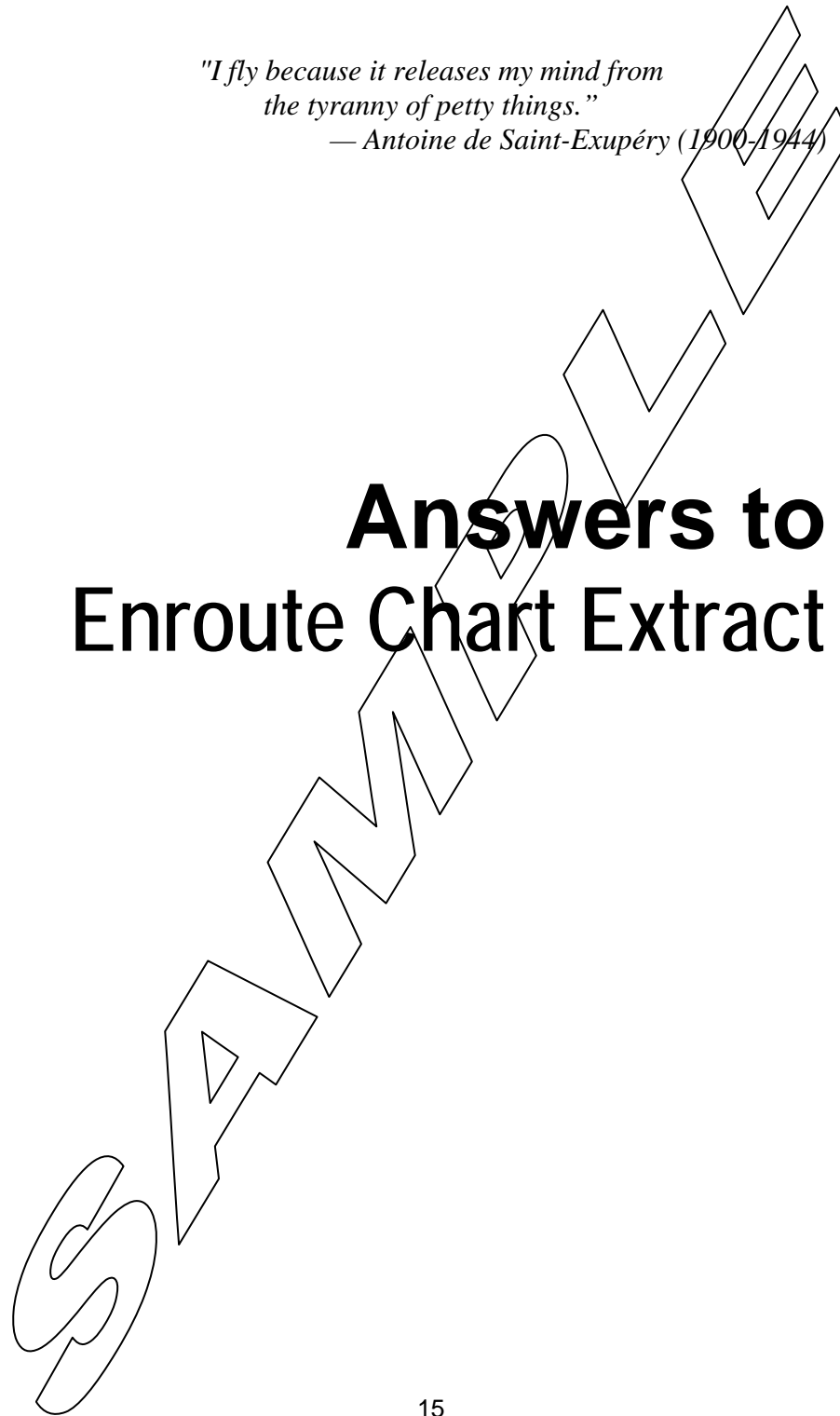
SEE AIRSPACE TABULATION ON EACH CHART FOR COMPLETE INFORMATION ON:



AREA IDENTIFICATION  
EFFECTIVE ALTITUDE  
OPERATING TIME  
CONTROLLING AGENCY VOICE CALL

*"I fly because it releases my mind from  
the tyranny of petty things."*

*— Antoine de Saint-Exupéry (1900-1944)*

# Answers to Enroute Chart Extract



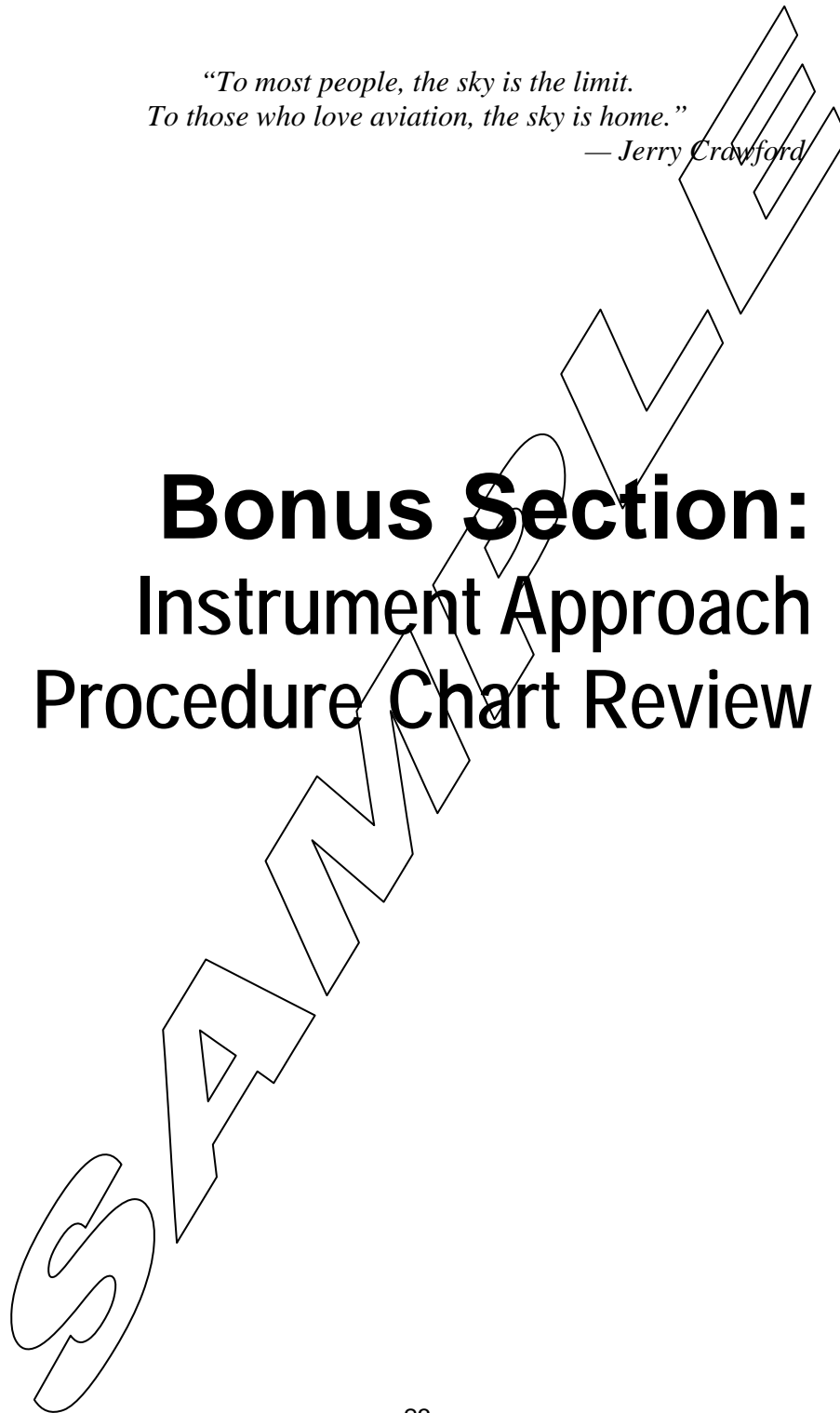
| Code   | Answer   |
|--|--|
| <b>S</b>   | <input type="radio"/> This symbology indicates the route is unusable. Always check NOTAMs or contact the FSS.  |
| <b>T</b>   | <input type="radio"/> This indicates a Maximum Authorized Altitude (MAA) of 8000MSL. The MEA here is 2000MSL.  |
| <b>U</b>   | <input type="radio"/> At EKSEW, the airway bends but the MEA/MOCA/MAA did not change.  |
| <b>V</b><br>    | <input type="radio"/> Note the hatching over the 080° radial. This “overprint” or hatching indicates an abnormal status of the facility. Always check NOTAMs to check the status.<br><input type="radio"/> Note that this is true of 053° 068° & 110° radials as well.   |
| <b>AA</b>  | <input type="radio"/> This symbol indicates an Air Route Traffic Control Center (ARTCC) boundary.  |
| <b>BB</b>  | <input type="radio"/> This is a VFR Military Training Route VR84. The arrow depicts the direction of travel. The Military Training Route is a corridor 5NM on either side of the centerline. See the tables on the edges of the chart to determine altitudes in use. They are not depicted on IFR Enroute Charts if at or below 1500AGL. |
| <b>CC</b>  | <input type="radio"/> This blue hatching indicates Special Use Airspace. They are designated by type. P=Prohibited, R=Restricted, W=Warning, A=Alert.<br><input type="radio"/> In Canada: CYR=Restricted CYD=Danger CYA=Advisory<br><input type="radio"/> In the Caribbean: D=Danger   |
| <b>DD</b><br> | <input type="radio"/> This symbol is the Air Defense Identification Zone (ADIZ). You must be on a flight plan, squawking a discrete transponder code, and in contact with ATC to cross this boundary.<br><input type="radio"/> The name of the ADIZ will be listed, i.e. Contiguous U.S. ADIZ. Other examples include Canada ADIZ.       |
| <b>EE</b>  | <input type="radio"/> This box indicates the Air Route Traffic Control Center responsible for the area depicted.<br><input type="radio"/> In this example, you can contact Washington Center on 124.025. This frequency is remoted to Washington Center from Wilmington.   |
| <b>FF</b>  | <input type="radio"/> This shaded color indicates shoreline/coastline.   |

Other:

- Describe fully the NAVAID ID box for Carolina Beach
- Describe fully the airport ID for Oak Island
- Describe fully the airport ID for Wilmington Intl

*“To most people, the sky is the limit.  
To those who love aviation, the sky is home.”  
— Jerry Crawford*

# **Bonus Section: Instrument Approach Procedure Chart Review**





*“What freedom lies in flying, what Godlike power it gives  
to men . . . I lose all consciousness in this strong immortal  
space crowded with beauty, pierced with danger.*

— Charles A. Lindbergh (1902-1974)

# Appendices

A. Personal Minimums Checklist

Topics

