

GENERAL KNOWLEDGE (GK) 07 NOV 2006
POSITION CERTIFICATION GUIDE (PCG)

West Coast ATC General Knowledge PCG

Course Objective: Trainee will learn the basic knowledge of Air Traffic Control and the operations at WestCoastATC.

Time Limits For General Knowledge Training	
Apprentice Controller:	Training Time
	Instructional Time: 30 minutes
	Practical Application: 1 hour and 30 minutes

Course Outline

- Overview of the Training process and course outlines
- Overview of the ATC positions utilized at WestCoastATC
- Overview of WestCoastATC 7110.65 (SOP)
- TeamSpeak Set-up
 - Frequency layout and usage
 - Set-up and Use of Whisper
- Radio Communication
 - Message Format
 - ICAO Phonetic Letters
 - ATIS
- Weather
 - Retrieving METAR Information
 - Reading a METAR
 - Basic VFR Minimums
 - Special VFR (SVFR) Minimums
- Airspace Classification
- FSNAV setup
- FSHost Setup

WestCoastATC Training Program

[TR: WCATC 7110.65 Chapter 8](#)

Objective:	The trainee must understand the process of the training programs and what is required of the trainee to succeed at the WestCoastATC Aeronautical University.
-------------------	--

Here is a basic outline of what each controller applicant at WestCoastATC will encounter during his /her training:

An applicant will after going through a selection process receive a class date offer and after which it is accepted will be assigned a set of Controller Initials and a basic course outline for the first portion of the ATC Experience at WestCoastATC.

These courses will initially be held on Saturday's before the WestCoastATC Saturday Scramble. Eventually these classes will be expanded to other days of the week. The expected course time is approximately 4 weeks of training which should amount to about 4 hours of classroom training and 12 hours of practical applications. This will be a fast paced environment and the trainee will be required to do some studying prior to attending the Training Session. The trainee will be required to take a short exam at the end of the classroom session of each training session. The trainee will have the material for the week prior to study and will then be explained the material in a classroom environment prior to taking the exam. There is a required 70% passing grade to move on to the next course level. If you do not pass the instructor may elect/offer you to take the class/exam again during the week or you will be asked to attend the next course in the next class schedule 4 weeks from then.

Once a trainee graduates from the Aeronautical University they will be assigned to a currently active ARTCC team. This selection process will be based on spots available and the trainee's overall course exam average.

WestCoastATC ATC Positions

TR: WCATC 7110.65 Chapter 1

Objective: The trainee must understand the positions and their responsibilities in the WestCoastATC Airspace System..

Here is a basic overview of what each of the Air Traffic Control positions primary functions are:

- **Clearance Delivery (CD)** – Clearance is the position that issues clearance that was filed by the pilots. It is the CD controller's responsibility at WestCoastATC to setup TS Channel info and start up the FSHost Server.
- **Ground Control (GC)** - It is responsible for the airport "movement area", this includes all taxiways and some parking aprons. Any aircraft operating in these areas are required to have clearance from the ground controller and maintain two way radio communications while operating in these positions.
- **Local Control/Tower (TWR)** – the Tower Controller is responsible for the active runway surfaces and movement areas. Local clears aircraft for take off or landing and ensures the runway is clear and safe during these operations. The Tower Controller also controls aircraft in the local area depending on the class of airspace they are in. VFR traffic patterns and practice approach fall under the Local Controllers area of responsibility.
- **Departure Control (DEP)** – As a departure controller you control all IFR aircraft within your portion of the Approach Control's delegated airspace. The Departure controller ensures that the aircraft gets established on the correct course off departure and begins its climb to the aircraft's final altitude in a safe and expeditious manner.
- **Approach Control (APP)** – An Approach Controller controls all IFR aircraft within the Terminal area's delegated airspace. This airspace will include the primary airport and may include other "satellite" or smaller airports. Approach provides vectors to the airport and issues approach clearances to those airports. An Approach controller also works with the Local controller and Departure controller to ensure a smooth flow of traffic in and out of all surrounding airports.
- **Center (CTR)** – A Center or En-route Controller's responsibility is to provide ATC services to aircraft operating on IFR/VFR flight plans within controlled airspace normally during the en-route phase of the aircraft's flight. Center Controllers sometimes control smaller airports where a terminal facility is not in the immediate area and thus would perform the function of an Approach Control.

WestCoastATC 7110.65 Standard Operating Procedures

[TR: WCATC 7110.65](#)

Objective:	The trainee must understand the SOP and how it applies to the ATC Operation at WestCoastATC.
-------------------	--

The Trainee will review the SOP and the Instructor will give a brief overview of specific section in the SOP.

GENERAL KNOWLEDGE (GK) 07 NOV 2006
POSITION CERTIFICATION GUIDE (PCG)

Communications - TeamSpeak

[TR: WCATC AIM Chapter 2, WCATC 7110.65 1-4-2](#)

Objective:	The trainee must understand the TeamSpeak Program and how is used in the communications at WestCoastATC.
-------------------	--

The Trainee will be shown how to setup whisper keys and navigate in the TeamSpeak servers

Communications - Radio Communications

[TR: WCATC AIM Chapter 2, WCATC 7110.65 Chapter 1](#)

Objective:	The trainee must understand the importance of communications at WestCoastATC and the proper and professional way to communicate.
-------------------	--

It is imperative that strict radio message format is followed in all transmission given by a controller. This is also referred to as phraseology and is how we as controllers communicate effectively with the pilot. It is very important that we as controllers strive to give correct and professional transmissions every time and refrain from using "Cowboy" phraseology just to sound cool or act like we know what we are doing.

Radio Message Format

Here are the steps to take on the initial communication with an aircraft:

1. Callsign or Aircraft ID
2. Identification of the position and facility you are operating
3. The ATC message
** After initial contact you may omit identification of the position and facility you are operating*

In the event you must deviate or use non standard phraseology ensure that it is clear, easy to understand, and most importantly professional!

When a radio frequency contains a decimal point, the decimal point is spoken as "POINT."

118.50 is pronounced *one one eight point five*

Altitudes and Flight Levels

Up to but not including 18,000 feet MSL, state the separate digits of the thousands plus the hundreds if appropriate.

12,000 pronounced *one two thousand*

12,500 pronounced *one two thousand five hundred*

At and above 18,000 feet MSL (FL 180), state the words "flight level" followed by the separate digits of the flight level.

190 pronounced *Flight Level One Niner Zero*

275 pronounced *Flight Level Two Seven Five*

Communications - Automatic Terminal Information Service

TR: [WCATC 7110.65 Chapter 1](#)

Objective:	The trainee must understand what is contained in an ATIS Broadcast and when/who will issue the ATIS broadcast.
-------------------	--

Automated Terminal Information Service (ATIS). The following are the items normally contained in an ATIS at WestCoastATC. It is the responsibility of the person performing the Clearance Delivery function to coordinate with the appropriate positions and then issue an ATIS message.

- Facility name, phonetic letter code, time of weather sequence (UTC)
- Weather information consisting of ceiling, visibility, weather phenomenon, temperature, dew point, wind, altimeter, a density altitude advisory when appropriate, and other pertinent remarks.
- Instrument approach and landing runway.
- Departure runway(s) if different from landing runway(s)
- Instructions for the pilot to acknowledge receipt of the ATIS message by informing the controller on initial contact.

Example:

"Little Rock National, Information Delta. one three four eight Zulu. Wind one eight zero at one zero. Visibility seven. Ceiling two thousand six hundred broken. Temperature one one. Dew point zero eight. Altimeter two niner niner two. Expect an ILS Runway Two Two Left Approach. Departing Runway Two Two Right. Advise controller on initial contact you have Delta.

WEATHER - METAR/SPECI Reports

TR: Training Reference

Objective: The trainee must understand the information contained in a METAR/SPECI report and how to retrieve and relay the information.

A METAR is an observation of the current surface weather reported by an official weather observer. Sometimes this is done by the controllers in the tower and sometimes there are weather observers that do nothing but observe weather for that terminal area. Here is a standard METAR report broken down:

**METAR KASG 110248Z 18010KTS 5SM -RA BR FEW008 SCT033 BKN120 11/09 A2992
RMK RAB33**

- **Type of Report** - There are two main types of Weather reports taken. The first is the METAR report that is transmitted every hour. The second is a special weather report (SPECI). This is a special report that can be given at any time to update the METAR for important changing weather conditions, aircraft incidents, or other critical changes in information.
- **Station Identifier** - Each location is identified by a four-letter code as established by the International Civil Aviation Organization also known as "ICAO".
- **Date and Time of Report** - The date and time (261553Z) are depicted in a six-digit group. The first two digits of the six-digit group are the date. The last four digits are the time in which the observation was taken, which is always given in Coordinated Universal Time (UTC) also known as GMT or Zulu time. A "Z" is appended to the end of the time to denote the time is given in Zulu time (UTC) as opposed to local time.
- **Winds** - Winds are normally reported in five digits. The first three digits indicate the direction the wind is blowing, rounded to tens of degrees. If the wind is variable, it is reported as "VRB." The last two digits indicate the speed of the wind in knots (KT). If the winds are gusting, the letter "G" follows the windspeed (G). After the letter "G," the peak gust recorded is provided
- **Visibility** - The visibility is reported in statute miles as denoted by the letters "SM."
- **Present Weather** - Weather phenomena may be reported as being precipitation, obscurations, and other phenomena such as squalls or funnel clouds. Descriptions of weather phenomena as they begin or end, and hailstone size are also listed in the remarks sections of the report. In the case of the example -RA is light rain and BR is Mist. Anytime the visibility is below 7 miles there will be an obscurations.
- **Sky Condition** - Sky condition is always reported in the sequence of amount, height, and type. The heights of the cloud bases are reported with a three-digit number in hundreds of feet above the ground. There will only be 3 levels of the clouds reported in an observation starting from the lowest to the highest. A ceiling which is what you base your VFR/IFR minimums on is either Broken (BKN) or Overcast (OVC).

- **Temperature and Dewpoint** - The temperature and dewpoint are always given in Celsius. Temperatures below 0°C are preceded by the letter “M” to indicate the spoken term “minus”.
- **Altimeter**- The altimeter setting is reported in a four-digit number group.
- **Remarks** – The information contained in this section may include variable wind data, visibility, beginning and ending times of certain phenomenon, and various other information deemed necessary. RAB33 as in the example stands for Rain began at 33 past the hour.

Below are some examples of abbreviations used in a weather observation:

Qualifier		Weather Phenomena		
Intensity or Proximity 1	Descriptor 2	Precipitation 3	Obscuration 4	Other 5
- Light	MI Shallow	DZ Drizzle	BR Mist	PO Dust/sand whirls
Moderate (no qualifier)	BC Patches	RA Rain	FG Fog	SQ Squalls
+ Heavy	DR Low Drifting	SN Snow	FU Smoke	FC Funnel cloud
VC in the vicinity	BL Blowing	SG Snow grains	DU Dust	+FC Tornado or Waterspout
	SH Showers	IC Ice Crystals (diamond dust)	SA Sand	SS Sandstorm
	TS Thunderstorms	PL Ice Pellets	HZ Haze	DS Dust storm
	FZ Freezing	GR Hall	PY Spray	
	PR Partial	GS Small hail or snow pellets	VA Volcanic ash	
		UP *Unknown Precipitation		

The weather groups are constructed by considering columns 1-5 in this table, in sequence; i.e., intensity, followed by descriptor, followed by weather phenomena; i.e., heavy rain showers(s) is coded as +SHRA.
* Automated stations only

WEATHER - VFR and SVFR Operations

[TR: Training Reference](#)

Objective: The trainee must understand what is VFR and SVFR and how they effect operations in a controlled environment.

VFR - Since VFR pilots are under see and avoid rules and do not have to rely on the instruments, there are some restrictions in the manner which they may fly. The main variable that determines the availability of VFR flight is the weather conditions both at the terminal area and en-route. VFR Weather Restrictions are as follows:

- Cloud base must be at or above 1000' AGL (above ground level)
- Visibility - 3 miles or greater
- When flying the pilot must be able to remain clear of all clouds at all times

Special VFR – Sometimes pilots are aloud to fly in less than the basic VFR requirements. This is called Special VFR and is a procedure to let VFR pilots who is not IFR qualified or their aircraft is not IFR qualified to arrive and depart at an airport when the weather is below basic VFR minimums. The SVFR weather minimums are as follows:

- At least 1 mile flight visibility for operations
- At least 1 mile ground visibility if taking off or landing.

Pilots that request Special VFR are normally allowed to only with certain restrictions. One being that there is on one aircraft in and out of the controlled terminal airspace at a time. Usually more stipulations are stated in local operating procedures and vary from place to place.

Airspace Classifications

TR: Training Reference

Objective: The trainee must understand the different airspace classifications and how they interact with each other.

The real national airspace system (NAS) consists of a network of navigational aids (NAVAIDS) and several air traffic control facilities designed to operate in various classes of airspace. These classes are separated into controlled, uncontrolled, special use, and other airspace areas. The following is an explanation of each type and how they intertwine with each other.

Controlled Airspace

Controlled airspace includes all airspace categorized as Class A, B, C, D, or E airspace. While operating in a controlled airspace pilots are subject to certain operating restrictions and requirements.

- **Class A** - This airspace includes the areas over the US and the airspace overlying the waters within 12 nautical miles of the coast of the 48 contiguous states, from 18,000 feet mean sea level (MSL) up to and including 60,000 feet MSL, also known as flight level 600 (FL600). All aircraft in Class A airspace are required to be flying under Instrument Flying Rules (IFR).
- **Class B** – One of the airspaces that surround our busier airports. This class typically has two or more shelves or levels of airspace. Certain things must be present to require a Class Bravo airspace. Things such as Terrain, the amount and flow of air traffic, and the location of other airports determine the class designation and the design of its particular airspace boundaries. Normally, Class Bravo airspace begins at the surface and extends vertically up to 10,000 feet MSL.
- **Class C** – The other airspace that surrounds busier airports is the Class Charlie. This class surrounds those airports that have an operating control tower serviced by radar approach control and facilitate a certain number of traffic operations. Class C airspace is also individually tailored for each airport. The Class C boundaries normally consists of a five mile radius that extends from the surface up to 4,000 feet above the ground level (AGL) and a ten mile radius shelf that normally extends from 1,200 feet to 4,000 feet above the airport's field elevation.
- **Class D** - This airspace normally extends from the surface up to approximately 2,500 feet AGL with a 5 mile radius and surrounds those airports with an operating control tower. This airspace is classified as Class Delta only when the Control tower is operational.
- **Class E** - This airspace consists of all controlled airspace that is not associated with Class A, B, C, or D airspace. This airspace is typically found around airports that do not have an

operating control tower or en route airspace above 700 feet AGL or 1,200 feet AGL.

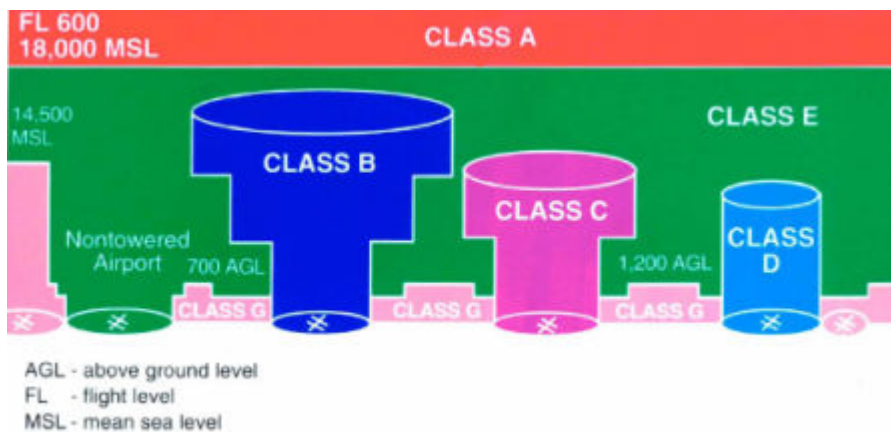
Uncontrolled Airspace

Uncontrolled airspace is designated as Class Golf or G airspace. Normally, G airspace includes all airspace that is not classified as Class, A, B, C, D, or E airspace. Whereas ATC services are provided with controlled airspace, no ATC services are provided within Class G's airspace. Class G airspace typically extends from the surface to the base of the overlying controlled airspace, which is normally 700 or 1,200 feet AGL.

Special Use Airspace

Special use airspace consists of airspaces in which activities within the airspace must be confined because of their nature of flight; the following list identifies the different types of special use airspaces in the national airspace system:

- **Military Operations Areas (MOA)** - A MOA is airspace established outside of Class A airspace area to separate or segregate certain nonhazardous military activities from IFR traffic and to identify for VFR traffic where these activities are conducted.
- **Restricted Areas** - Airspace within which the flight of aircraft, while not wholly prohibited, is subject to restriction. Most restricted areas are designated joint use and IFR/VFR operations in the area may be authorized by the controlling ATC facility when it is not being utilized by the using agency. Restricted areas are depicted on en route charts. Where joint use is authorized, the name of the ATC controlling facility is also shown.
- **Prohibited Areas** - Airspace within which no person may operate an aircraft without the permission of the using agency.



FSNAV Program and Setup

[TR: Training Reference](#)

Objective:	The trainee must understand how to utilize and setup the FSNAV program successfully.
-------------------	--

The Trainee must have a licensed full version of the FSNAV program in order to control at WestCoastATC. The Trainee will be shown the optimal settings and hwo to best use FSNAV to control on the WestCoastATC Servers.

FHost Servers and Setup

[TR: Training Reference](#)

Objective: The trainee must understand how to utilize and setup the FHost Server successfully.

The Trainee will be shown the ins and outs of the FHost ATC Server and how to utilize the functions to control on the WestCoastATC Servers.