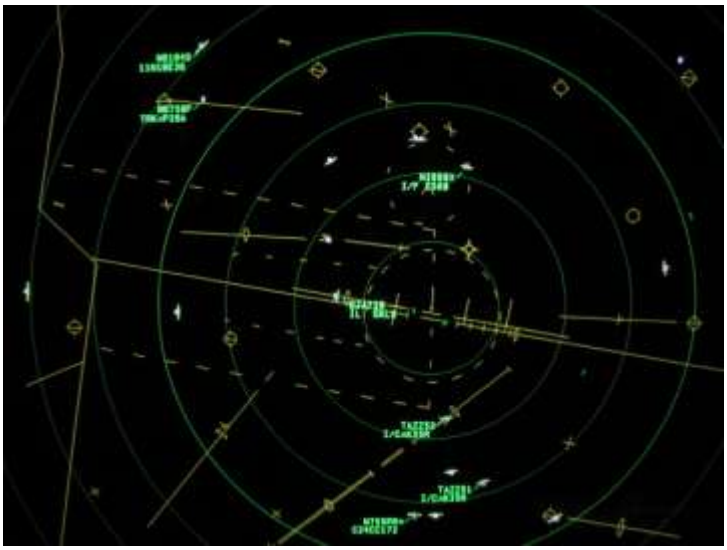
Radio Communications – Part II

In Part I we presented critical radio communications through clearance, ground, tower, and departure services as well as obtaining AWOS/ATIS/ASOS information. While this is sufficient for most short local flights as well as communicating with Class B and C airports, it is not sufficient for cross-country flights. In this part we will examine TRACON, ARTCC, Flight Following, Flight watch, Flight Service Stations, and Remote Communications Outlets (RCOs). Recall from Part I the format of Who, ID, Where, and Why.

A. Flight Following (TRACON and ARTCC) In the last part, we used the services of a Departure controller to leave a Class C Airspace. In reality there are two controllers operating under a facility known as Terminal Radar Approach Control. They have access to the same information on their radar scopes, but one handles aircraft approaching and the other handles departures. Depending on the geographical secor, they may have different frequencies – see below frequencies for Austin Approach and Departure.

AUSTIN APPROACH:119.0 WEST 120.875 SOUTH 127.225 EAST 270.25 SOUTH 317.65 EAST 370.85 WEST
AUSTIN DEPARTURE:119.0 WEST 120.875 SOUTH 127.225 EAST 270.25 SOUTH 317.65 EAST 370.85 WEST



Note that UHF frequencies area also stated, but it is unlikely that you will be flying any aircraft that has a UHF radio.

TRACON's radars have a larger range than say the ones that might be used by a tower, but they, in turn, have a smaller range than those used by the Air Route Traffic Control Center (ARTCC). We need to use either TRACON or ARTCC for Flight Following – a complete tutorial for Flight Following is being developed, so this is just a quick overview.

Before accessing Flight Following, you need to know where to make your request. Generally, if you are within 50 nm of a Class C or B terminal area you can obtain an approach frequency from the VFR sectional.

Yes, I know it says within 20 nm, but that is a minimum distance so they can plan for you entering and leaving their airspace. Let's say we are leaving San Marcos, to the north on a VFR flight to Waco and on a VFR flight plan. San Marcos tower has contacted us as we leave the Class D airspace to the north with the following call:

Diamond nine five two Tango Sierra, San Marcos Tower, frequency change approved

Our response

San Marcos Tower, two Tango Sierra

Now we need to get in touch with Austin Approach, which is a service under TRACON, our call may be:

Austin Approach, Diamond nine five two Tango Sierra, equipment Gulf, five miles north of San Marcos, climbing to 5,500' request flight following to Waco, on VFR flight plan

We don't need to tell them we have GPS, but it alerts them to our navigation capability.

Austin Approach will likely respond ***Diamond nine five two Tango Sierra, squawk 2014, climb and maintain 5,500', maintain heading 330***

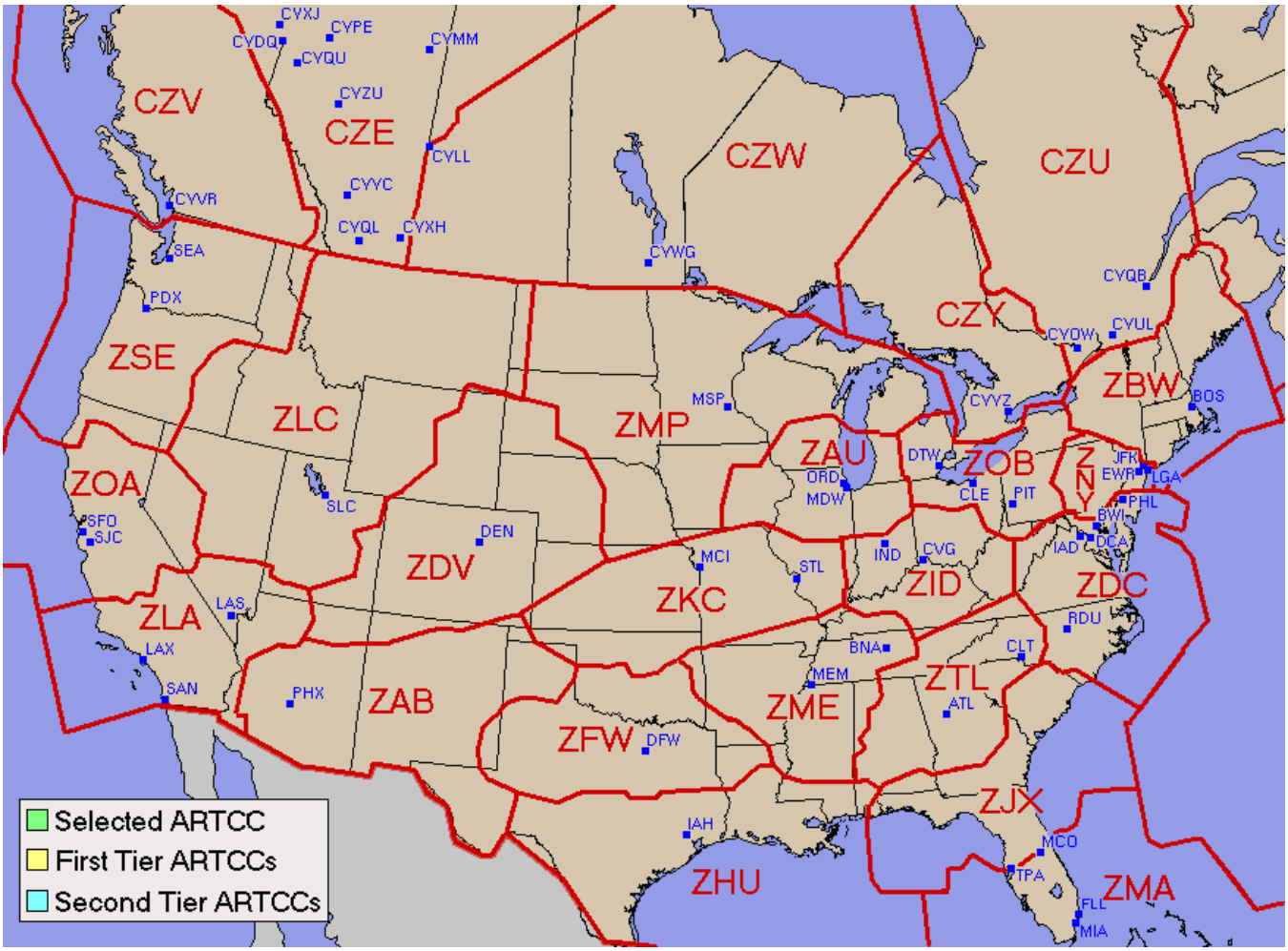
We would respond ***squawk 2014, climb and maintain 5,500' heading 330, two Tango Sierra***

After a minute or so we will likely receive the following: ***Diamond nine five two Tango Sierra, radar contact 9 miles north of San Marcos, proceed on course***

You would respond ***two Tango Sierra, proceeding on course***

At this point you are being followed on radar by Austin TRACON. It is likely they may hand you off to another frequency as you transition the Class C airspace. Certainly after you are 20 to 25 miles north of Austin you will be handed off to an ARTCC. The reason for this is the radar

range of the Austin TRACON as well as their workload is not suited to following you all the way. So we will likely be handed off to Houston Air Route Traffic Control Center (ZHU).



Looking at the above map, we can see that ZHU has a large area to cover, but it covers the area to the north of Austin.

You will obtain Flight Following from TRACON and ARTCC facilities on a workload permitting basis. That means, if their IFR workload is impacted, they may issue you a termination clearance something like this: ***Diamond nine five two Sierra Tango, Houston Center, radar services terminated, squawk VFR***

Your response, ***two Tango Sierra, Squawking VFR***

B. Flight Watch Enroute Flight Advisory Service (EFAS) is commonly called Flight Watch. It is a function under the aegis of the National Weather Service (NWS) under Flight Service Station (more on that later) but has only two functions:

- Provide enroute weather information updates, and
- Receive and disseminate pilot reports (PIREPS)

Flight Watch uses a common frequency of 122.0 MHz, and has guaranteed access between 5,000' AGL to FL180. However, it is likely that you can access Flight Watch below 5,000' AGL. Furthermore, the RCOs assigned to Flight Watch do not relay back to the nominal FSS physical location in your area, instead, they are centrally located at ARTCCs so as to obtain large area weather information from the Center Weather Service Unit (CSWU) that is located at each regional ARTCC. Hence a call to Flight Watch goes something like this: ***Houston Flight Watch, Diamond nine five two Tango Sierra, five miles north of CWK VOR***

This tells the Flight Watch operator which RCO to activate to talk to you. (Normally several of the RCOs will activate, but this location data is necessary for him/her to select the best one).

He/she may say something like this: ***Diamond nine five two Tango Sierra, Houston Flight Watch say request?***

Here you might request weather advisories along your route of flight: ***Houston Flight Watch, two Tango Sierra, VFR to Waco on Victor one seven, request advisories***

Flight Watch is a great source of current weather radar information. Flight Watch specialists have access to some of the latest-generation weather radar imagery. In the case of weather hazards along your course, the weather specialist may provide course deviation suggestions.

Think of Flight Watch as your 'fly along' weather advisor. For a more complete description of their job duties, paste this link into your web browser:
http://www.faa.gov/air_traffic/publications/atpubs/FSS/fss0406.html

Flight Watch is not used to:

- Obtain Flight Following
- Detailed Weather briefings
- Open/close flight plans
- Make decisions for you, you are the PIC – but if they have a suggestion, would you ignore it?

C. Flight Service Stations When you call 1 800 WXBRIEF you are talking to a Flight Service Station specialist in your geographical area. Their job is to provide detailed weather briefings tailored to your proposed flight, accept flight plans, and provide search and rescue support services. But wait, you can talk to a FSS specialist when you are in the air. This is valuable for:

- Opening/closing/modifying a flight plan
- Checking any NOTAMS or TFRs that may have recently gone into effect
- Helping if you are lost
- Flight emergencies

Radio Communications – Part II

A few years ago, the FAA awarded Lockheed Martin with a contract to operate all Flight Service Stations in the CONUS. At the same time, many of the regional FSSs were decommissioned and combined into FSSs that serve a larger area. So when you call a FSS on the radio, it is important to state your location. Each FSS has many radio receivers and transmitters in their servicing area. Because your VHF transmission is a line of sight, it may reach more than one location. If the specialist is not watching the radio switch near their console (which has lights to show which receiver(s) is(are) being activated by your call) there may be some initial confusion on their part as the best path for transmission back to you. When you are talking to a FSS specialist in Texas, he/she is likely located at the Automated Flight Service Station (AFSS) located in Ft Worth, Texas.

The universal call up frequency for FSS is 122.2 MHz. The universal emergency call up frequency is 121.5 MHz. Don't use 121.5 MHz unless there is a true emergency. The radio call to a FSS has a special format, it always begins with the AFSS location, followed by 'Radio', an example for a call up is:

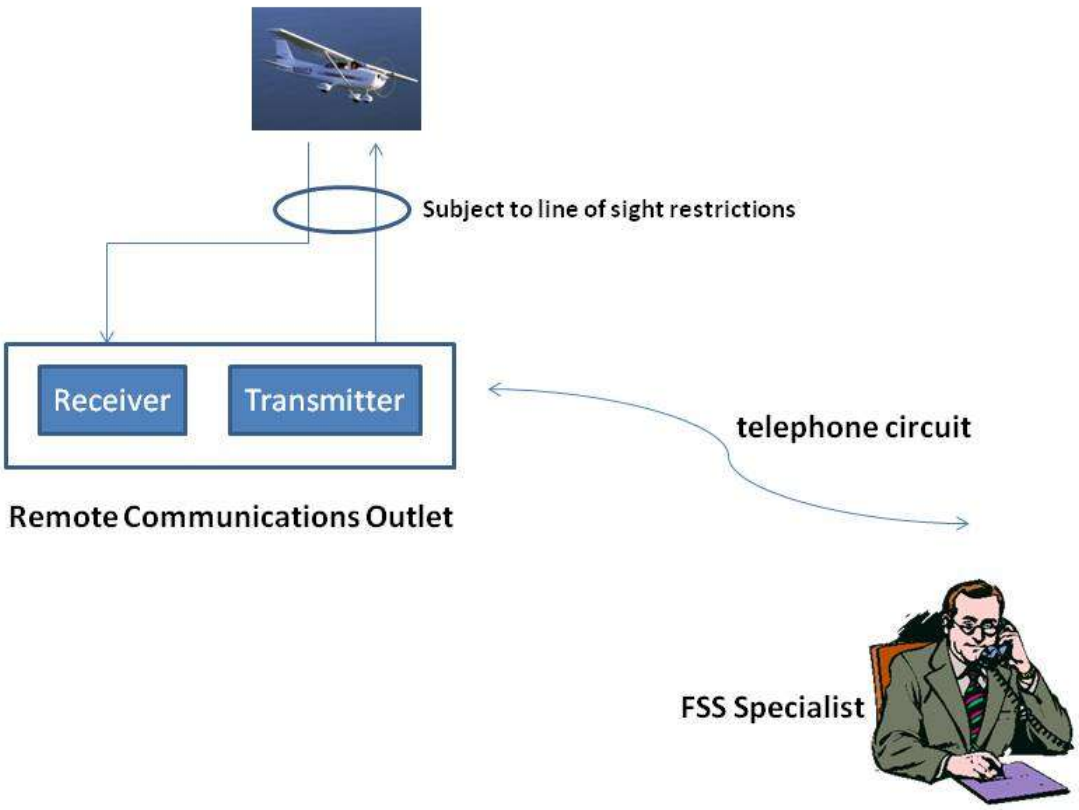
San Angelo Radio, Diamond nine five two Tango Sierra, listening two two point two

Now here is where it gets confusing. The physical San Angelo FSS was decommissioned several years ago – yet the same name is used even though you are talking to a FSS specialist in Ft Worth. This lets them know what sector you are in and the additional location of being near CENTEX VOR is important just as it was when you were calling Flight Watch. You can find out what FSS sector you are in from the Airport Facility Directory.

If you don't get a response on 122.2 MHz there is usually a discrete frequency that covers your area. For San Marcos, that discrete frequency is 122.55 MHz. This can be obtained from a current Airport Facility Directory, the tower operator, or from 1 800 WXBRIEF. Other locations for discrete frequencies can sometimes be obtained by looking above the VOR identification box near a VOR or VORTAC facility. For example, if you are near the San Antonio VORTAC, you have both 122.2 and 122.3 MHz.

Remember, when you are talking to a FSS you are using a combination of a VHF receiver/transmitter that is located close to your area that is connected by means of telephone lines to the regional FSS. These are called Remote Communication Outlets or RCOs. Let's look at these in a bit more detail.

D. Remote Communications Outlets: As you can see in the below diagram, you must be within a line-of-sight to a RCO for satisfactory communications. Each RCO has a receiver transmitter pair and typically a backup receiver transmitter pair for the same frequency. These are used just in the same manner as if you were talking to ground or tower. That is, you use a discrete frequency in simplex mode. This means you talk, and then you listen. While the FSS is connected by a duplex circuit (you can talk and listen at the same time) just the same as in your home phone, the radio circuit limits you to simplex operation. The FSS specialist talks by pressing a button on his phone the same manner as you push a push to talk (PTT) button in your airplane.



There is another highly specialized RCO that you need to understand. It is associated with a VOR and allows you to contact a FSS by listening to the VOR.

Let's say you are near the STONEWALL VORTAC, looking at the below figure you see a frequency above the VORTAC box that has 122.1R. That means, in order for the FSS station to

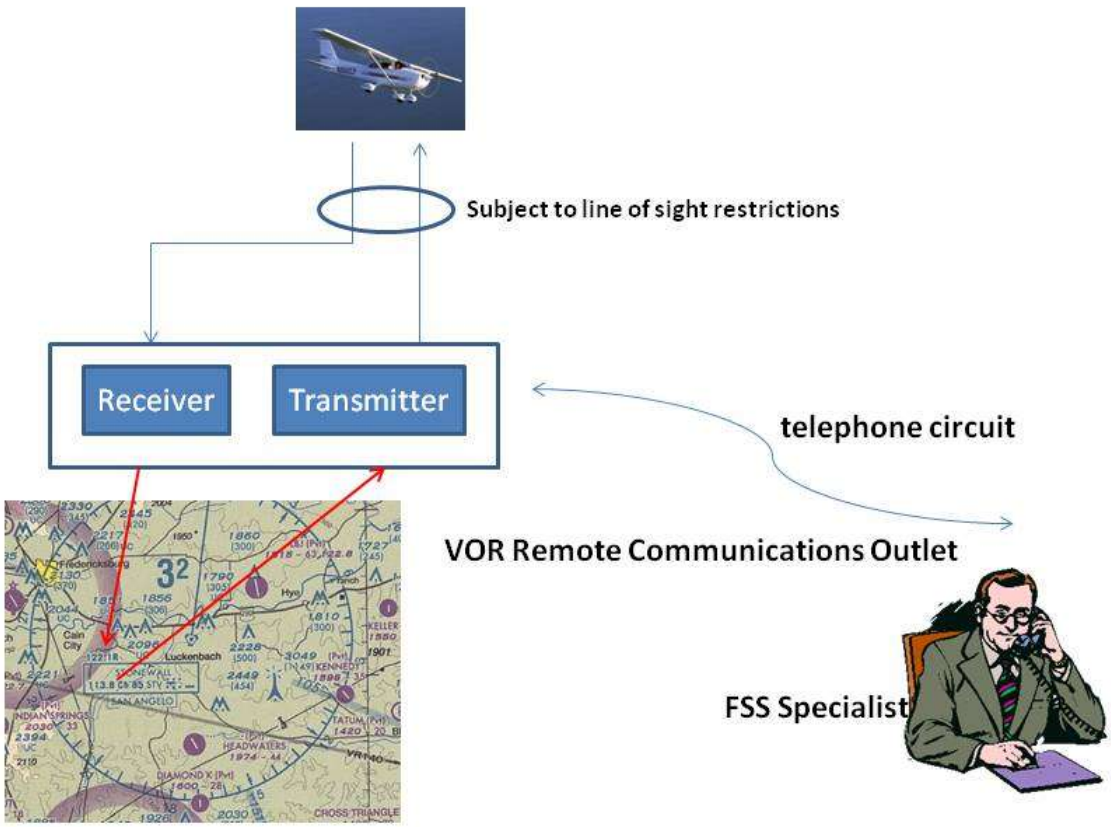
hear your transmissions you will transmit on 122.1 via your COM radio; to hear their transmissions you need to monitor the audio on the VORTAC frequency of 113.8 MHz in your NAV receiver. The R means that 122.1 is their receive frequency. A radio call like this will be:

San Angelo Radio, Diamond nine five two Tango Sierra, near Stonewall VOR, listening one one three point eight

Alternatively the call could be:

San Angelo Radio, Diamond nine five two Tango Sierra, near Stonewall VOR, listening Stonewall VOR

I like this one since it reinforces you are using a VOR RCO a bit more explicitly – further, it seems to be the one that the FSSs like as there is an example in the FAR/AIM very similar to this one (just a different VOR).



In summary, between these two parts we have covered nearly all of the radio communications that are necessary to get your Private Pilot. For more reinforcement and some additional

information on this topic, read the AIM and take the AOPA interactive course on radio communications.