

GPS Receiver Setup

Welcome back to our online GPS class. We're in the receiver setup section. I'm Aaron Green, and Carl is over on the magic finger button pressing buttons for us. In this segment we'll cover how to navigate around the various screens and pages of your receiver, how to customize it to your needs, and we'll look at some of the features and functions associated with each of the pages you'll be using. The first thing we'll talk about are the different buttons that you'll see on the GPS receiver.

The first button I want to talk about is the power button. This is gonna be turning your display on or off. Don't worry if you hit the off button. All the information on it will still be saved so you never have to hesitate about turning the particular unit off. Another thing that the off button does is with a quick press of it it allows you to adjust the backlight intensity. So if you're in a high-sunlight area or in a darker, under canopy trees, you can still read your display clearly.

The next button I want to talk about is the page key. The page key allows you to cycle through the different screens that you'll be seeing and that we'll be covering here in the next section. This allows you to go back and forth between the pages that are most useful and interesting to you while you're using the GPS.

The quick key allows you to go backwards through those same functions, and so if you want to get back to the page you were just at or you want to get away from anything you've just done, the quick key always allows you to go backward.

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The enter and mark button is the same button on this particular model of GPS, and it allows you to enter in text in some of the different fields, and it allows you to actually mark a particular waypoint, mark a location for a waypoint to exist. Another button that you'll use to find waypoints is the find button. Hitting that brings you into the waypoint menu and starts your process into navigating to or getting information about any of the waypoints that you have stored.

The rocker button in the very center of it allows you to move back and forth between different selections and choose different letters or different numbers or different boxes to edit when you are changing any of the fields that you are in.

The last button that we're gonna talk about is the menu button. The menu button allows you to get to the main setup menu, which allows you to change any of the features on your GPS. By hitting the menu button twice you can get to the main menu, and we're gonna be asking you to do that in several steps throughout this process.

The other buttons that you need to be aware of are the zoom in and out buttons. When you're on the page that has the maps in it, those buttons allow you to zoom in and out so you can see more or less detail on your maps.

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The next section we're gonna be covering are the different pages that your GPS unit has. This page that we're seeing here is the main menu page, but by hitting the page button we talked about earlier, you can cycle through some of the main pages that you'll see.

We start off here with the satellite page, and it gives you some basic information that we'll cover in a little bit. The next page that we see is the trip computer page, which is really data driven and gives you the information that you need to make your GPS mission successful. The next page that we see is the map page, and you've got the ability to set up some data fields up here to give you more information while you're looking at that map. The next page is the compass page, which gives you a quick direction. A lot of people use this page to actually navigate with to and from different waypoints. The next main page is the altimeter page. The altimeter page is one that I don't find very useful, but if you were doing a lot of up and down climbing it would give you some important information like the total ascent that you've done on a given day, and it shows you a line graph of how much up and down in elevation you've done since you've reset it. The only other page is the one we talked about before, and that's the main menu page. Again, the main menu page you get to by pressing the menu button twice. That gets you to the main menu page. All of these pages are customizable, and the receiver allows you to adjust which sequence you see these pages in. You can also add another series of different pages in depending

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on the use. Once you get the hang of it, you'll definitely find a configuration that you like the most.

The next thing we're gonna talk about is specifically the satellite page. This gives you a lot of important information. Again, you would get to the satellite page by pressing the page button until this particular display shows up. There is a lot of important information on this page. Some of it will be visible to us right now and some of it won't be because we're in the demo mode because we can't get a good GPS signal inside of the studio that we're filming. But the good information that it shows you is it will show you where and how much battery power right here, and it will also show you whether or not you have a 3-dimensional fix on your satellite position. The other thing that it will do is it will give you an estimation, which you don't see here but will be available to you when you take it out of demo mode and are actually using it, of the air associated with the calculations it's doing to give you your position. The other thing that this page provides you with information on is which satellites you're currently receiving information from and what their geometry is in the sky. The more spread out they are, usually the better position accuracy you can get. Down below you've got some bars that show you the strength of how strong a signal is coming into your GPS. The stronger the signal the taller the bar, the taller the bar the more accurate your GPS will be. One thing that we won't be able to see in this particular demonstration is down here on the bars if you have enabled WAAS, and again we covered WAAS in the earlier section on some of the basic

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information about GPS, but if you have Ds down here, this indicates that these satellites are having some differential corrections done to them, which will again increase your accuracy, and it's important to get as accurate as you need your data to be.

One other field that will show up in this particular setting when it's out of demo mode is it will show you your current location in whatever format you've decided to set it up in, and usually that's gonna be latitude and longitude for most of our fire applications, but it can be any of the different position formats that we covered in the previous section.

The next part that we're gonna go to is the main menu and setup pages because once you know how to use the buttons and are familiar with some of the screens there are some settings that you're gonna want to be able to change and check on your GPS to make it more useful and more accurate while you're using your GPS, and again, I mentioned this before, but one of the ways we're gonna get to this main menu is by pressing the menu button twice. Two presses on it automatically gets you away from the menu of the page that you're on and into the main menu. When we're doing some of the setup, one of the first things we're gonna need to do when you pick up your GPS is at least check some of these settings, and so we're gonna go down to setup, which is the little wrench icon right here, and we're gonna hit enter, and we have a setup menu that allows us to change some of the units and some of the ways that we see and our data is

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displayed. The first thing that we want to do is go to the units part. We're gonna be changing some of these things. The units menu is the little ruler or tape measurer down at the bottom. You select that by using your rocker bar and going down and then hitting enter to select it. When you get there, the first thing you're gonna see is a position format box. This position format box will allow you to select which type of position format you're gonna have the GPS display to you. It's an important distinction that all of the data stored inside of the GPS will always be in latitude and longitude in decimal degrees, but how it's displayed to you is a setting that you can change, and it's a setting that you're gonna need to change depending on who you're trying to give information to. So by going through this menu you can select the different position formats that we talked about in the previous selection. For this example, we're gonna go with the degrees minutes seconds, which is the standard for on-the-ground firefighters. The next setting that we're gonna change is our map datum, and map datums are important. They can definitely provide some error in what the data is displaying, and making sure that you get this right is definitely a watch-out situation because getting it wrong can put your position off by as many as 300 feet. So we are gonna select what is the federal standard for map datums, which will be NAD 83. So we're moving up these series of datums, more datums than you'll ever use. Probably you'll be using three datums with any great regularity. You'll be using NAD 83, NAD 27 con US for continental United States, and WGS 84. Here we've selected NAD 83, which is a federal standard. Remember, check the map that you're working with and make sure that if you're gonna be

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using information from that map with your GPS that the datums match. Again, something to pay particular attention to, I know we've covered this before but it's important, when you're receiving a communication either verbally or written about a position or a latitude and longitude, it's really important to make sure that you get the information about what datum the particular coordinates are in. That datum shift will move your point up to 300 feet apart and can put your location quite a distance off. So it's important to remember to change this particular setting.

So once you've verified that you have the correct position format and the correct map datum selected that you want to collect your data with or have the GPS display it for you, you can change some of these other settings too. Distance, feet, whether it's showing you information in any of those different units. At this point in time, the information that we've entered has already been saved, and simply by hitting the quit button you can go out and cycle through some of the pages. It first brings you to the main menu page, but we're back where we started. Again, checking this information should be your first step whenever you pick up a GPS.

The next topic I would like to talk about is using WAAS or the wide area augmentation system. The wide area augmentation system is a satellite-based real-time differential correction service, and under ideal conditions this particular receiver with 100% WAAS correction can achieve an accuracy of 1 to 3 meters.

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Now it's important to note that WAAS is a really valuable tool in increasing the accuracy of your GPS. You're going to be able to tell whether or not WAAS is on by whether or not there are Ds in these particular bars. If you need to change the setup so that WAAS is enabled, you would do that by hitting the menu button twice, going into that same setup, the little wrench, and going into the system. Then you're going to choose that WAAS is enabled right here in this thing, and it can be enabled or disabled. You want to make sure WAAS is highlighted that it's enabled, and then once it's enabled you can quit out of that and it will save that selection. Now WAAS is a way to improve the accuracy of your GPS. It relies on direct line of sight to the satellite, and so sometimes when you're in some fairly remote places you might not get a good WAAS signal. That would be the only time where you'd want to disable WAAS, but for the most part in most of the continental United States you're gonna be receiving a good WAAS signal and I would recommend that WAAS is always enabled unless you notice that these Ds aren't showing up in your satellite bars.

So we've learned how to use and understand the various pages of your receiver. We learned how to see and monitor the satellite configuration of the receiver and determine which satellites it's using to determine your exact location. We also discussed how to use WAAS to improve the accuracy of the data that you're collecting. In our next segment, Carl will cover on how to calibrate the electronic compass.