

When & How to Use a Compass

▣ Alexei Azarov, CSU, with Jeff Saeger, NEOC

When people run an orienteering course they usually use a compass with the map for navigation. Very seldom does somebody run an orienteering course without a compass. But the problem is that many people don't know how to use a compass correctly. They have it because they heard somewhere that every orienteer must have it. In this article I'll try to explain why to use the compass, when to use the compass and how to use the compass.

It has happened many times in my experience that when people come to their first orienteering training they ask me to give them a compass or they brought their own. I think that is a bad idea. If you are a beginner in orienteering, I would not recommend that you use a compass for the first 3-4 months of your training. This is because there are many more important things for a beginner to learn, such as how to read map, how to read the terrain, how to orient the map, and so on.

The compass may interfere with technique development and prevent the beginner from getting a clear understanding of orienteering basics. For instance, if you used a calculator on your first lesson in calculus you would never understand how to do differentials. Or if I gave a hockey-stick to a beginner who did not know how to skate, he most likely would not become a great hockey player because he would lean on the hockey-stick and would not learn how to skate properly. So, if you just started doing orienteering, don't use a compass before you get comfortable with the map and terrain reading and can complete any orienteering course at your level without the aid of a compass.

Compass Basics

Suppose you have already passed the first stage of your orienteering career. You understand map and terrain and completing an orienteering course at your level is not a big deal for you. So, it is now time to take a compass.

On an orienteering course you will use the compass in three ways: to orient the map, for direction control, and to perform direct compass bearing or azimuth.

Keep in mind that the map is the primary thing; everything else is secondary. You will not be able to complete a course even if you use a compass if you get just a white sheet of paper with control points on it instead of a complete map. I know there are some people who ran and won world championships without a compass,

but nobody could do it without the map. So, the compass is a secondary thing. Consider the compass to be your friend, who helps you to work with the map. I want to emphasize it again: the compass helps you to work with map, but never substitutes for it.

Now let's discuss the three actions the compass is used for in detail.

▣ **Map Orientation.** As you know it is a good idea to keep your map oriented correctly all the time while you are running an orienteering course. As you also know, you can orient the map using linear objects. (By linear features, I mean all the features which have a length, e.g., roads, trails, field boundaries, marsh boundaries, and so on. I distinguish also dot features like boulders, trail intersections, pits, and area features like fields, lakes, and vegetation.)

To orient the map, you should match the direction of any linear feature on the terrain with the direction of the corresponding symbol on the map. With a compass you can do it faster and more precisely. All you have to do is adjust the direction of the magnetic meridian lines on the map with the direction of the compass arrow (Fig 1). You can do it any time, even if there are no linear objects around.

▣ **Direction Control.** You should know all the time exactly in what direction you are going. Every time you make a turn you should control your direction. Unlike map orientation action, the direction control action cannot be performed without a compass.

Keep your map oriented correctly all the time and you should see where the point that represents you on the map is moving. For example, if you come to a road, you should match the real road direction with the road direction on the map before you take any other action.

When you are going away from a control also check your direction. You should perform direction control automatically.

Direction control is extremely important on terrain where a system of branching ridges is present. In this case it is very easy to turn onto

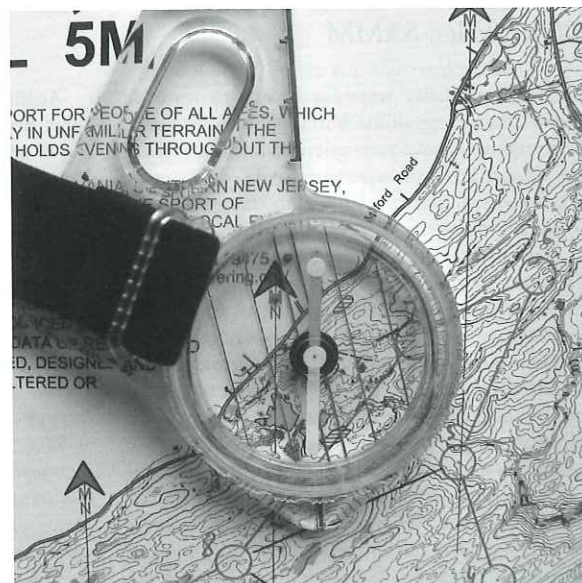


Fig.1 To orient the map adjust the direction of the magnetic meridian lines on the map with the direction of the compass arrow.

the wrong ridge and the time loss due to this error might be huge. The situation becomes worse in the case of strong vegetation and bad visibility. In this case, direction control is even more important.

▣ **Exact Compass Bearing or Azimuth.** In principal, it is possible to perform azimuth using the map only without the compass (this can be done by orienting the map using lengthy features technique) but for practical use, a compass is necessary.

This complex action consists of two almost independent non-connected actions:

1. **Azimuth Taking.** The azimuth taking technique is shown on the next page.

(2a) At first you place your compass plate on the map so its edge line connects start and end points of the azimuth.

(2b) Then you rotate the compass capsule so the direction of the lines on it coincides with the direction of the magnetic meridian lines on the map. (2c) Then you turn so the direction of the compass arrow coincides with the direction of the lines on the compass capsule. Now the direction of the compass plate edge shows the direction of the azimuth where you should move.

You should be able to take the azimuth while

Azimuth Taking Technique

you run without slowing or stopping. It is a good idea to dedicate one day in a class and then in the woods to learn how to perform this action. Do it many times in different situations.

2. Azimuth Keeping. In order to keep an azimuth in the woods, you follow the compass edge line forward and then run along this imaginary line. There are a lot of techniques for azimuth keeping and it does not matter which one you use.

I want to emphasize one thing. Remember that the map is primary but all maps are not ideal. A map is ideal if any three points, which lie on one straight line on the map, lie on one straight line in the terrain and vice versa. No one map in the world satisfies this condition. So, if you run straight according to your compass, some objects that you should pass according to the map will appear beside you. In this case, you must come to the object and then continue along your azimuth. Don't lose contact with the map when you perform an azimuth.

Now two final items regarding the azimuth:

a) When should azimuth be used? The answer is always when you have to run a significant distance without linear features. Significant distance means you can't see your destination feature.

b) Azimuth is a precise action. It means that you can't use azimuth to run from nowhere to somewhere. To perform azimuth, you must know your start and finish points exactly.

Summary

Finally, let's summarize when you should use the three actions with a compass which have been discussed.

1. Map orientation: you should try to keep your map oriented correctly all the time on the course.

2. Direction control: should be performed every time you make a turn.

3. Azimuth: should be used always when you run without linear features and don't see your destination point. In other words refer to your compass as often as possible. Don't be too lazy to look at the compass and don't worry that it might reduce your speed in the woods. As you use the compass more, the faster you will be able to work with it. Believe me, with just a little practice you can achieve a level of performing these three actions with the compass so that it does not take time or slow your pace at all.

For more information regarding the compass and other orienteering techniques, you can read my article "System of Actions", which was published in *ONA* in 2004. You can find an electronic version of the article on my website at <http://www.alexplace.com/Orienteering/2005/Camp0512/System of actions.pdf>

Fig.2a At first you impose your compass plate on the map so its edge line connects start and end points of the azimuth.

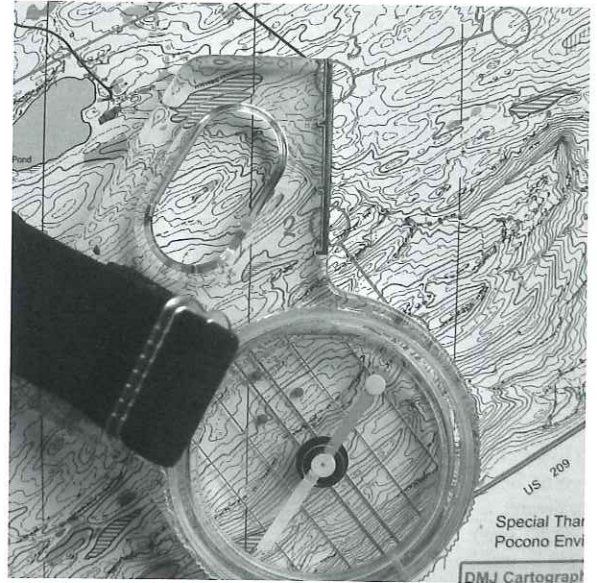


Fig.2b Then you rotate the compass capsule so the direction of the lines on it coincides with the direction of the magnetic meridian lines on the map.

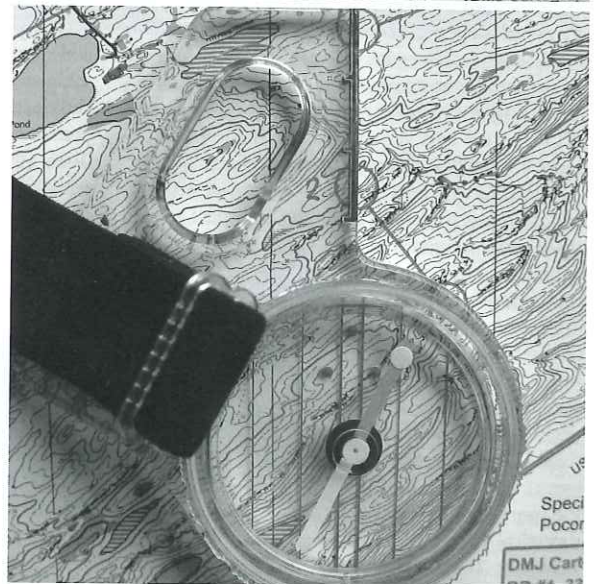
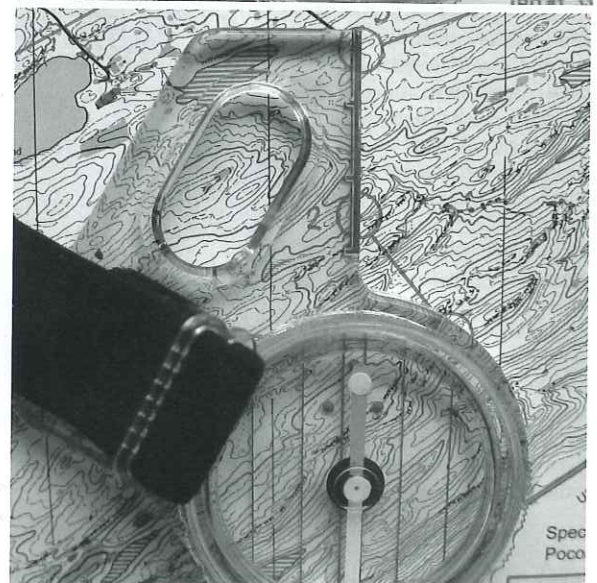


Fig.2c Then you turn so the direction of the compass arrow coincides with direction of the lines on the compass capsule. Now the direction of the compass plate edge shows the direction of the azimuth where you should move.



This DVOA map of the Delaware Water Gap depicts terrain located near that designated for a 2012 A-meet.