Mountaineers Required Compass Features

Wilderness Navigation & Other Courses

Revised July 2018

1. **Adjustable declination**: This feature simplifies map and compass work. Most compasses with adjustable declination have an adjustment screw, usually brass or copper-colored, and a small key attached to the lanyard. Some have a 'tool-less', pinch-to-adjust feature.

- All students MUST have a compass with adjustable declination. The presence of a declination scale does not guarantee that it can be adjusted.
- Even if you already have a compass without adjustable declination, you may not use it in this course. Experience indicates that such compasses detract from the learning experience.

2. A **transparent rectangular base plate** with a direction of travel arrow or a sighting mirror.

- Transparency allows map features to be seen underneath the compass.
- A rectangular shape provides straight edges and square angles to plot on the map.

3. A **0 to 360 bezel** (the rotating housing) marked clockwise from 0 to 360 degrees in increments of two degrees or less. Bezels should be large to allow use with gloves - the larger size also improves accuracy. Do not get one marked in 0-90 degree quadrants OR one marked in 0-6400 mils!

4. **Meridian lines**: Parallel 'meridian lines' on the bottom of the interior of the circular compass housing rotate with the bezel when it is turned. Longer lines are better. Meridian lines run parallel to the north-south axis of the bezel, however turned, for use with a topo map.

5. A **ruler and/or gradient scale** engraved on one of the straight edges, used for measuring distances. In the U.S. 1:24000 scales (rather than 1:25000) are preferred. Both are acceptable.

6. A **3 to 4-inch base plate**. A longer straight edge makes map work easier.

Additional recommendations

- A sighting mirror in the cover: May reduce error introduced when moving compass from eye-level after sighting to waist-level for reading the dial. Protects the bezel.
- A liquid-filled housing: Reduces erratic needle movement (common on better compasses). In some cases, steadying the compass needle can be difficult
- An inclinometer: A gravity driven arrow that allows you to measure slope angle.

Current favorites: Silva, Suunto, and Brunton are favorites. All have adjustable declination. Their quality and usability varies, so **keep any receipt**. We have unfortunately seen many defective compasses in the past.

Maker	Models	Features +	Features -	Vendors	Cost
Silva of Sweden	Ranger CL515 Ranger 2.0	Slope card, New, more features	Still available?	Cabela's, Online	~$55 ~$50
Suunto of Finland	MC-2 M3-D Leader MC-2G Navigator	Northern Hemisphere Mirrorless 20 degree tilt margin	Lacks clinometer	REI, Online	~$40-64 ~$44 ~$95
Brunton of Colorado	TRUARC 15* TRUARC 5	*Global needle, mirror Global needle, 51 Grams Luminous	Bezel may pop out Bubbles? Mirrorless	REI, Cabela's, Online	~$50-60 ~$20-30

Manufacturers make continuing improvements and corrections in models. Model variations and designations proliferate – insist on features 1 to 6 above.

(Rev 3July2018/ph bb bs jl)

Table 1. Results of 6 compass bench tests June 2018

Compass Test	**Silva Ranger** #1 & #2	**Brunton TruArc** #3 & #4	**Suunto MC-2** #5 & #6	**Other Remarks** Both USGS Suuntos are for the US
Packaging	Overdone	Overdone	Easy Open	
Shipped By	Amazon	Back Country	Amazon	
Freezer Test	Good	Good	Good	
Opens	Easy	Easy	Easy	
Hinge	Good	Good	Good	
Lanyard	Short & pulls apart	Short but good	Short but good	Silva has a two piece measuring lanyard that can pop apart, loosing your compass.
Scales	UTM & others	Scales but not UTM	UTM & others	
Magnifying Lens	Yes	Yes	Yes	
Leveling Bubble	No	Yes	No	
Information Cards	Yes	Yes	Yes	These cards have miscellaneous information & scales.
Bezel Turns	Good & Very Hard To Turn	Too Loose	Good	Compass #2 took two hands to turn. The Bruntons will almost turn themselves. Compass #5 glows in dark.
Declination	With a screw driver	Friction	With a screw driver	The Brunton system is hard to master
Bezel Centered	Yes	Yes	OK	Keep Suunto bezel pushed forward.
Mirror	Good	Good	Some warpage	The Silva has an X to look at. Suunto mirror makes a poor signaling device.
Needle Length	1 - 7/16"	1-1/8"	1-5/16"	Longer is better to align.
Global Needle	No	Yes	No	The Suunto global needle has a lot of needle dip, which can be hard to align.
Orienting Lines	Good	Good	Yes, but short	First remove white plastic from bottom of the Brunton bezel.
Set A Bearing	Easy	Too Easy	Good	Compass #2 has a still bezel. The Bruntons will almost turn themselves.
Pointing Error	1º Lt & Good	2º Rt & 1º Rt	Both good	
Clinometer	Yes	Yes	Yes	