

# Basic Instruments 1 - Introduction

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This is the first of a set of six articles aiming to cover basic functioning and use of instruments for paragliding and hang-gliding, knowledge for the BHPA "Pilot" exam, use of GPS for rescue and retrieve, and how to look after your instruments and batteries. It does not attempt to cover modern competition or flight computer type instruments, although much will be relevant to them. I apologise for any bias towards paragliding. Unfortunately I do not fly hang-gliders. The other articles are:

- Basic Instruments 2 Altimeters
- Basic Instruments 3 Variometers
- Basic Instruments 4 GPS And Loggers
- Basic Instruments 5 Compasses
- Basic Instruments 6 Batteries

## Simplifications

Understanding flight instruments is necessarily rather technical. I have tried to strike a compromise which I hope will enable most PG and HG pilots to acquire the understanding of basic instruments they need to fly safely and well. As a result some details I could have included have been left out and some explanations may appear incomplete or slightly inaccurate.

If there is anything which seems wrong to the reader he or she must seek assistance to clarify the issue and I am happy to try and assist anyone by email. Feedback is useful for improving the articles.

## What Makes A Good Instrument?

Easy to read. - We want to concentrate on our flying and not have to struggle to read our instruments. In general electronic displays which are self illuminating such as as most cellphones and tablets are difficult to read in strong sunlight. Displays which work by using reflected sunlight like liquid crystal and eInk displays are usually OK in this respect.

Not distractive. - If we need to concentrate on something else in our flight we do not want to be distracted by our instruments.

Reliable. - There is little as frustrating as getting going on a good flying day and our instruments failing.

Robust. - Paragliding and hang-gliding can sometimes be a bit rough on equipment.

Light weight.

Appearance - Some pilots are apparently unable to use instruments which do not look “cool”. I have done much of my flying with instruments which are home built with all sorts of screws, sticky tape and other fixings showing. I do not think I can usefully advise these pilots.

An instrument has to be the right one for you, the pilot. People vary greatly in their perception and how they think about their flying. Furthermore pilots are doing all sorts of flying from cross country to “hike and fly” to speed flying. What suits one pilot may very well not suit another.

### Units Of Measurement

Aviation uses a mixture of units. In theory internationally heights are specified in feet in aviation although metres appear here and there.

### Care Of Instruments

Manufacturers try to make their instruments robust but pilots use their instruments in different ways. Some expose their instruments to physical abuse more when transporting them than when actually flying. So some kind of padded case is a good idea. When not flying try to avoid storing instruments where they are exposed to extreme temperatures or dampness.

The better we treat our instruments the more reliable they will be and the longer they will last.

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