

E6B

The E6B is a flight computer used to make several different important calculations which are needed to plan and complete a safe and successful flight.

There are two different versions of the E6B...

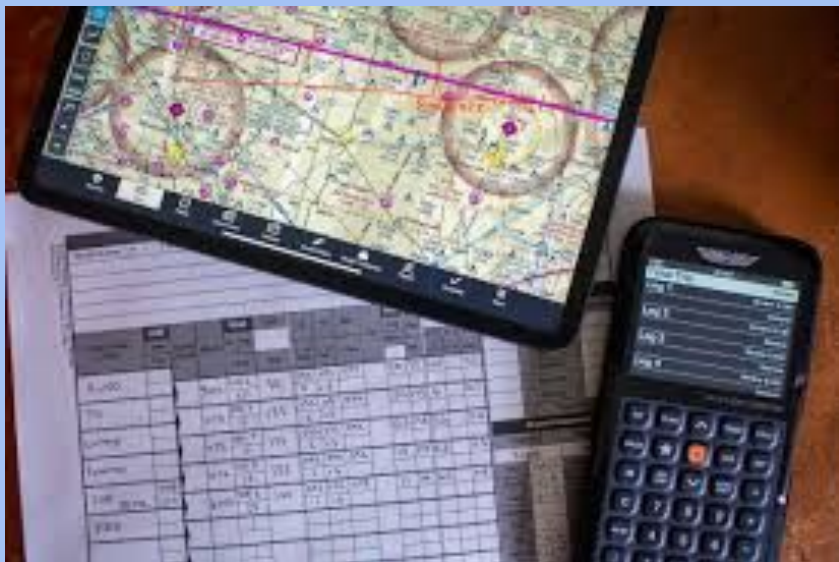
Manual E6B

The manual E6B...



Electronic E6B

And the electronic E6B...



E6B

At this point you may be saying, “The manual E6B looks like a slide rule my great-grandfather used to use. Certainly there are easier and faster ways to make calculations!”



Manual E6B

Well, you're not wrong. There are easier and quicker devices we can use to make calculations (such as the electronic E6B). In some cases the navigation systems on your aircraft, such as the G1000 will automatically make these calculations for you.

However, these devices rely on the DC current generated by the alternator in your aircraft, or from a battery.

If these fail you will need a backup plan.

E6B

And...

The FAA requires you to know how to use a manual and/or electronic E6B, and you may have to demonstrate your knowledge and proficiency during the written and/or oral exams.

The good news is mastering the manual E6B is not as difficult as it may appear.

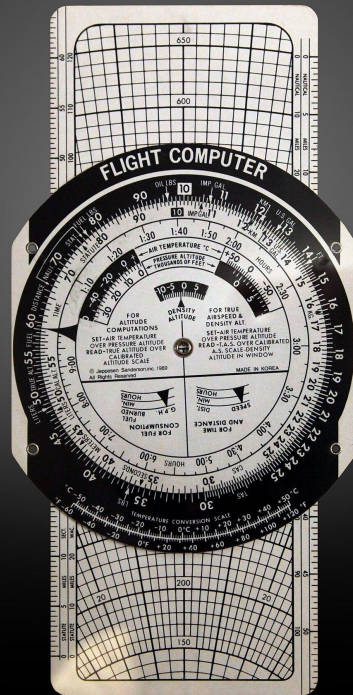
E6B

In this lesson we will learn about the general design and functions of both the manual and electronic E6B flight computers.

In separate lessons, such as “Flight Planning: Direction and Speed” we will learn how to perform specific calculations to with each device.

Manual E6B

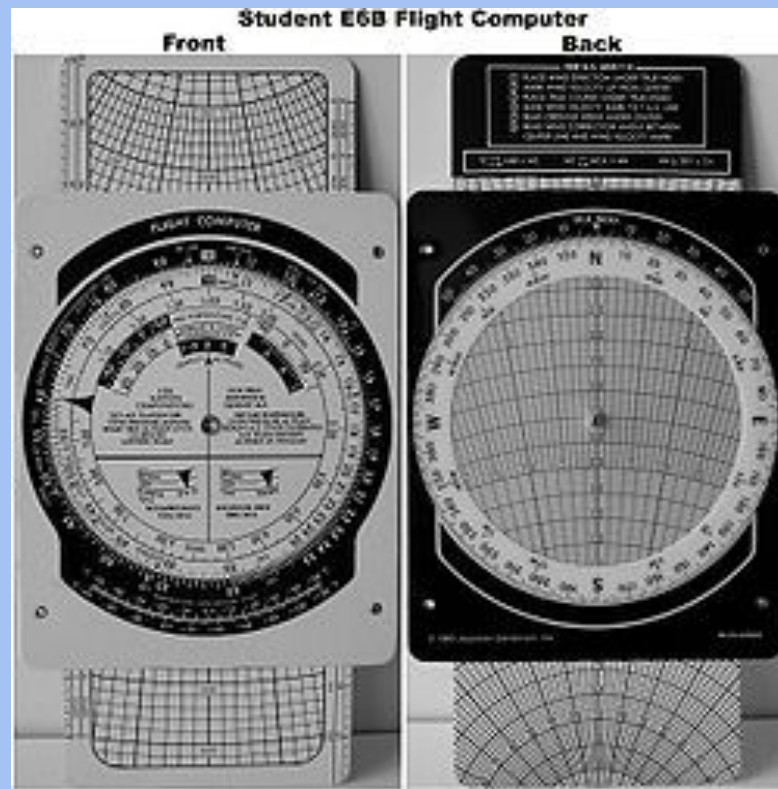
Let's start with the manual version of the E6B...



Manual E6B

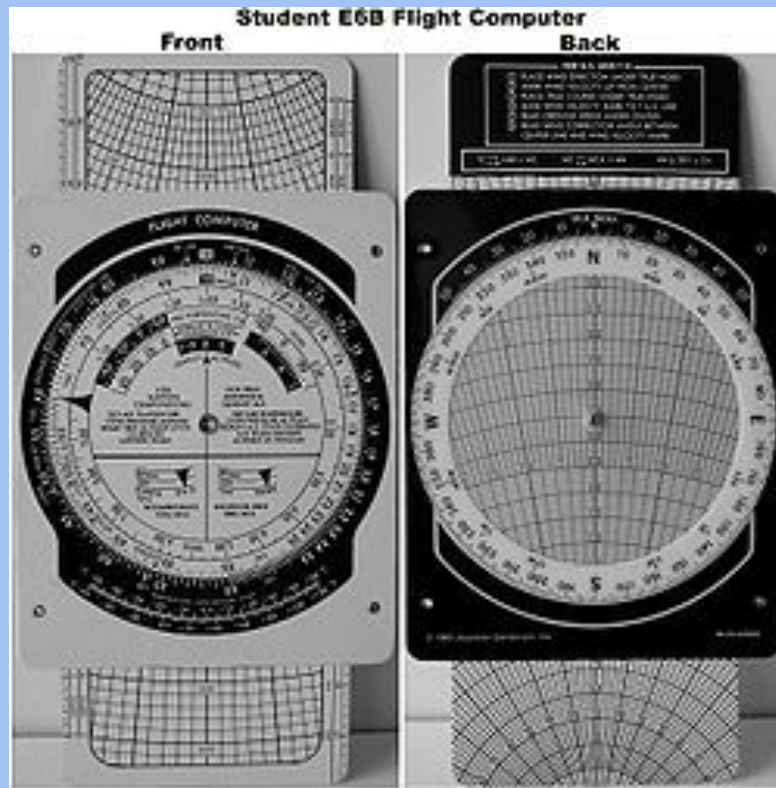
The Manual E6B has two sides. The front (shown on the left) is the Flight Computer side. This is used to calculate things such as Density Altitude, True Airspeed, Time and Distance Enroute, and Fuel and Oil Consumption.

It also provides a Fahrenheit/Celsius temperature conversion chart.



Manual E6B

The back side of the manual E6B (shown on the right) is the Wind Side. It is used to make calculations regarding the effects of wind on our aircraft, providing us with Wind Correction Direction and Angle, and Groundspeed.



Manual E6B

The front consists of a stationary outer ring (black), and a rotating inner ring (silver).

These rings contain scales for Calibrated Airspeed, True Airspeed, Time, Distance, Fuel, and Oil.

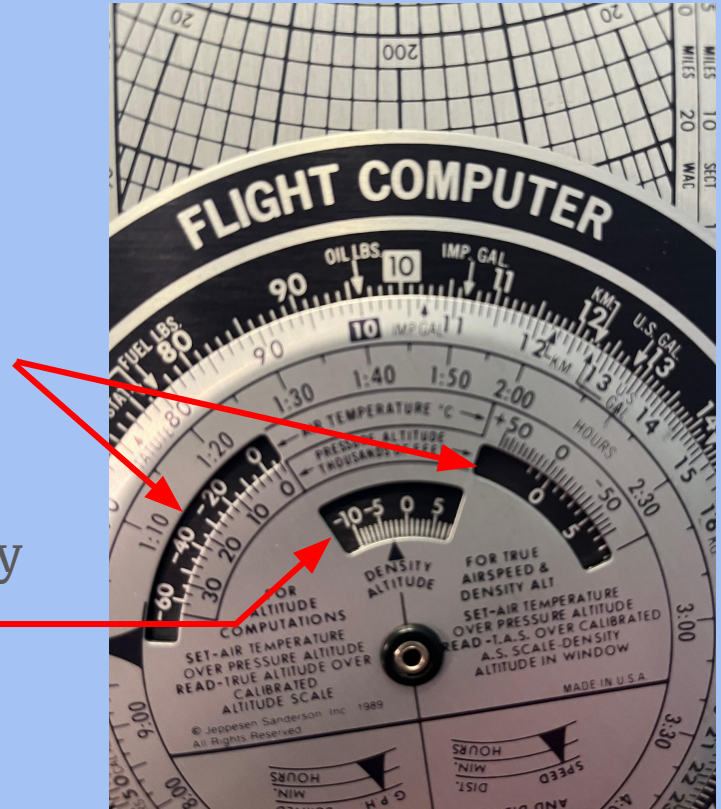


Manual E6B

There are also three windows inside the rotating ring.

The windows on the left and right have scales for Temperature (degrees celsius) and Pressure Altitude.

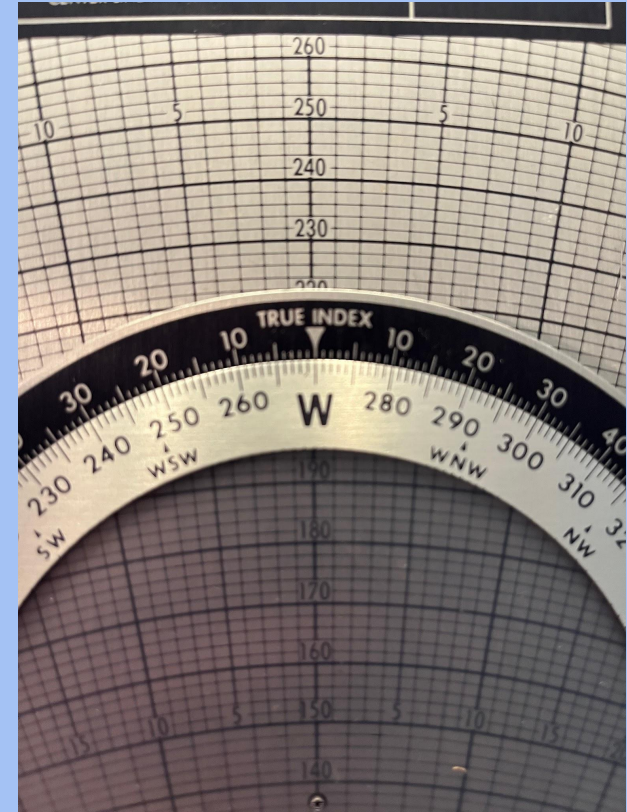
These scales are used to compute Density Altitude (center window), — and True Airspeed (outer ring).



Manual E6B

The back of the manual E6B is used to calculate True Heading, Wind Correction Angle, and Ground Speed, given True Airspeed and Wind Direction and Speed.

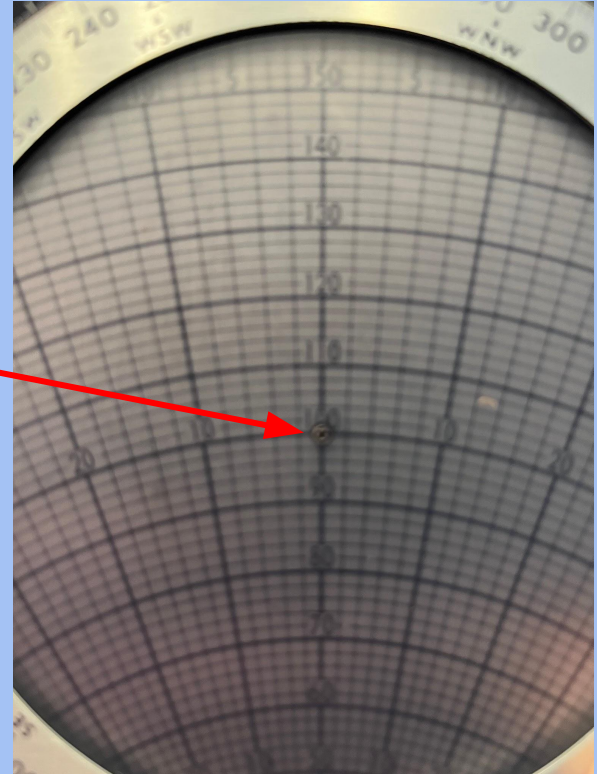
The back also has a stationary black ring and a rotating silver disc.



Manual E6B

At the center of the rotating disc is a small hole, or grommet.

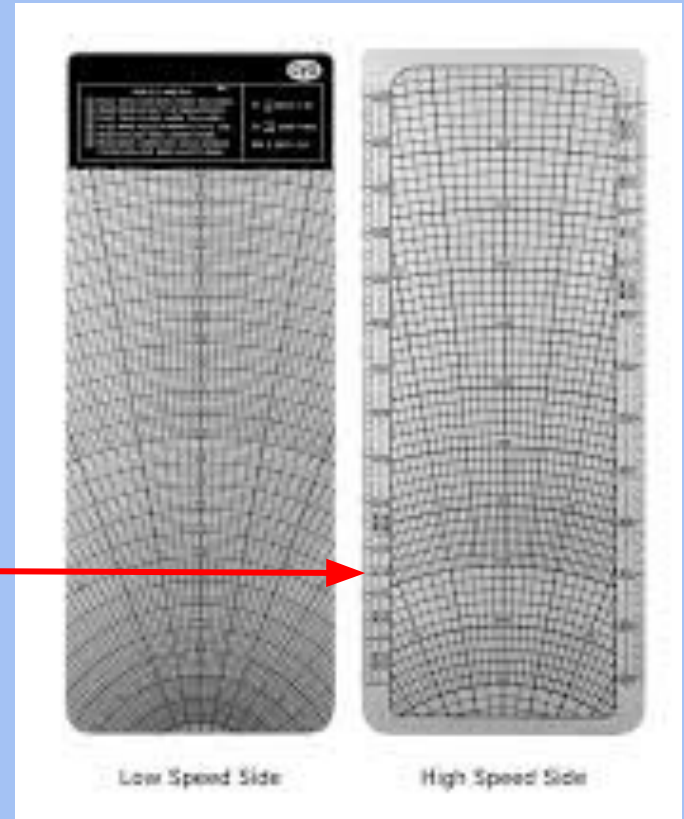
The grommet is used as a reference point for marking wind speed.



Manual E6B

The wind side of the manual E6B also used a slide card, which has two sides, one for aircraft operating at slow speeds, and the other for aircraft operating at high speeds.

The high speed side of the card also has scales for nautical and statute miles.



Electronic E6B

Now let's take a look
at the electronic
E6B...



Electronic E6B

The electronic E6B is a hand-held device that performs many functions, including wind, speed, distance, fuel, and pressure altitude and density altitude calculations.

The electronic E6B will also convert back and forth between degrees celsius and fahrenheit, as well as meters to feet, lbs to kgs, and nautical miles to kilometers.

The electronic E6B also functions as a calculator.

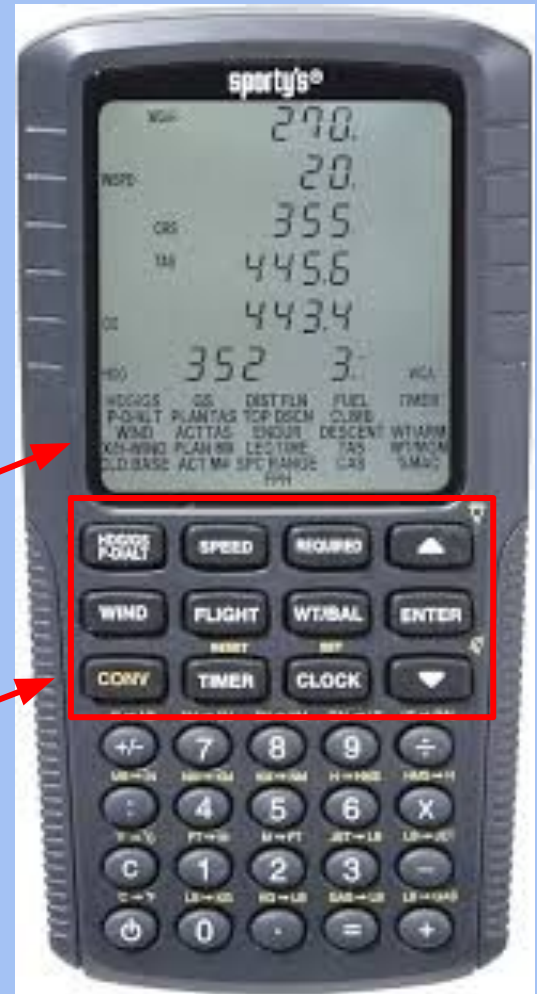


Electronic E6B

The electronic E6B has a bank of function keys, each of which brings up an on screen menu with specific items for which you can calculate.

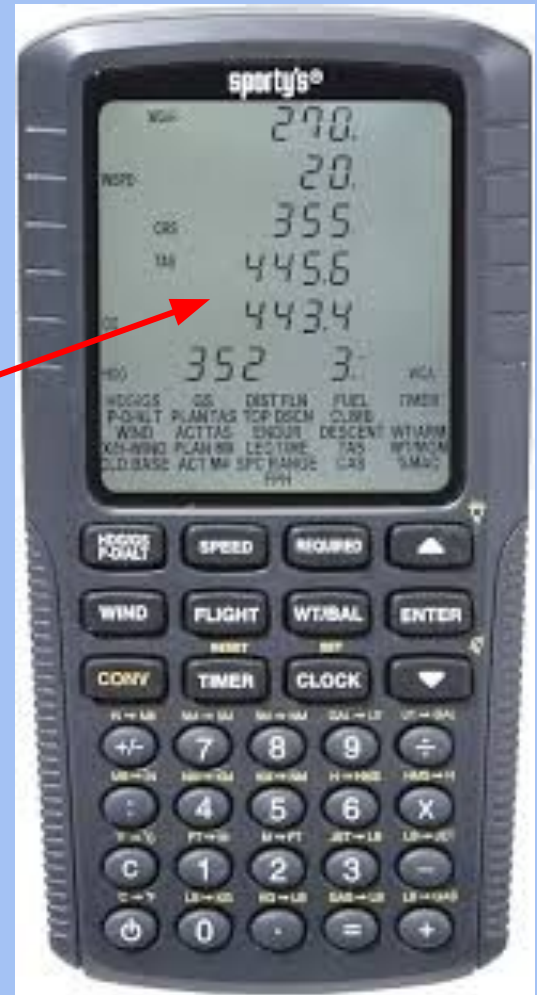
On screen Menu

Function Keys



Electronic E6B

After you have chosen specific calculations to be performed, such as “Headings”, the electronic E6B will prompt you for each piece of information needed to perform the calculation.



Electronic E6B

As another nice feature, if the electronic E6B requires a piece of information, such as Density Altitude, and you have, on a previous screen, entered your Pressure Altitude and Outside Air Temperature (which is required to compute Density Altitude), it will automatically populate the Density Altitude on the current screen.



Manual and Electronic E6B

Again, in later lessons we will learn how to perform specific calculations for both the manual and electronic E6B.



Questions?

