Attitude Flying

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If you take a look at figure 3-5 in the Airplane Flying Handbook you will see that the FAA recommends that your eyes should be outside the cockpit for 90% of your time flying, The other 10% should be in the airplane. This means that every 9 out of 10 seconds should be outside the airplane.

Many pilots I fly with are constantly looking inside the airplane at the instruments.

When I start someone off, I cover everything up for the first four or five flights. You need to get in the habit of looking outside the airplane.
Here is a perfect example: many instructors will start off letting students use the attitude indicator. So right off the bat you are staring inside the airplane. This instrument is also called the artificial horizon. Remember that old Memorex commercial "is it live or is it Memorex"? Why would you want to look at the fake one when the real one is right outside the airplane? It is a lot easier flying using the real one than the fake one.

So I will walk you thru my basic attitude system. Remember that your instructor is ultimately responsible for you, but I will give you some pointers.
One other thing I want to explain is that flying is just like Light Bulbs. You probably think I am crazy, but here I go, until you turn on the switch the light bulb won't light on and you are in the dark until you flip the switch. Your brain and flying act in the exact same way, so I tell people "you are going to be in the dark till the light bulb goes on". This is so funny and until this starts happening you may not really get what I am saying. Then, you may be out to dinner or at happy hour when it will just come to you. "Oh, that is what my instructor is talking about". I

personally had light bulbs coming on in my head until I had about 500 hours. After that I had Flight Instructor light bulbs also and I sometimes still do.

You are probably used to driving a car, so it is going to take you a while for your brain to realize that you are in an airplane. Now I will go thru all the maneuvers and give you some tips to make things easier for you. I am not going to give you textbook examples here. In the course materials you choose to use these are explained. I will explain how I teach them and why. Go up with your instructor, then come back and review this section. These are tips on how to make flying as easy as possible.

I will explain a little system I came up with years ago to make flying very easy. You will have to go up a few times before you figure out exactly what I am saying. Go up and have some fun and then go thru this again. The light bulb will come on sooner or later.

I will start out giving you a few simple things that I base everything in the airplane on. Everything you do in an airplane will be a combination of one or more of these.

Four Fundamentals of Flight

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Feeling The Airplane

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One thing I always tell my students is you fly the airplane, don't let it fly you. To do this you want to get the airplane working for you. This is done by a combination of trimming the airplane and feeling the airplane.

Instead of trying to just man handle the airplane, I tell students to "Stop the airplane from doing what you don't want it to. I have this listed below

1: In order to do this you will first put the airplane in the attitude you want

2: Trim the airplane so it will stay at the attitude you want

3: Now just feel the plane gently, I tell students you should only have to use two fingers. Your thumb and your pointer finger.

Three Attitudes of Flight

THREE ATTITUDES OF FLIGHT: There are three attitudes that I use when starting new students off. An attitude of flight put simply is where the nose of the aircraft is. Later on we will add two more, but for now we will stay with these three. For these three you will see what I mean once you get in the airplane.

You have a built in gauge in your hand. Just put your hand up and form a "C" with your thumb and pointer finger. Now we will use the NATURAL HORIZON. Following are the three ATTITUDES:

CLIMB ATTITUDE: Put your hand up against the dashboard of the plane and put your thumb were the horizon goes across the dashboard. (It should be a few inches below the top of the dash), then line your other finger on the front of the cowling. It may be a little tricky to figure out what I am saying at first but wait for your first light- bulb. If you have trouble you can look at the wing when the plane is flying. Look at the wing compared to the horizons. As you bring it up just put your hand

up and put your thumb on the horizon and your other finger on the bottom of the wing. If you can't see over the nose of the airplane you have it to high.

LEVEL ATTITUDE: This is where the horizon goes thru the dashboard when you aren't climbing or descending. Once again look at the wing, when it is level with the horizon then look forward and see what it looks like.

DESCENT ATTITUDE: This is opposite climb attitude. Just put your "C"up against the dashboard again now you want the horizon on your top finger and your thumb on the reference point on the dash.

Now ever thing you do in the airplane will be a combination of one or more of these three attitudes. I call this "FLYING WITH AN ATITUDE"

Using the Wing

USING THE WING: Remember using the wing is one thing you want to practice. Once you get the hang of this it will help make flying simple. Also use the wing. My line is: "the wing will tell you everything".

If you go to any air shows, you will notice all the aerobatic planes have this funny looking thing at the end of one wing and sometimes both. Sometimes it will just be a little triangle and other times it will be a thing that has many angles on it. These are used to get precision angles during aerobatic flight. If you have ever seen a video of Patty Wagstaff from inside the plane, you will notice she is always looking out the side of the plane. She is using the wing of the plane for her reference.

You want to get into this habit because you can look out for traffic and at the same time fly the airplane.

Power Settings of Flight

POWER SETTINGS OF FLIGHT: There are four power settings of flight that I explain to students. You also want to listen to how the engine sounds at each one of these power settings. If you get this down you will not have to stare at the tachometer. You will want to just quick glance at it but don't want to stare inside the airplane. Using the power settings and attitudes of flight, you can make flying very simple.

CLIMB POWER: In most training aircraft you fly, climb power will be full power. You will have the throttle all the way in. Listen to what is sounds like.

CRUISE POWER: This is the power setting you will use when you are in level flight. In most cases this will be close to 2300- 2400 RPM. Listen to what it sounds like.

DESCENT POWER / TRAFFIC PATTERN POWER: This will be the power setting you use when you want a normal cruise descent. If you are in level flight at cruise power (nice and trimmed) and you bring your power back until the nose goes to descent attitude You should be at descent power setting. This will normally be about 1900-2100 RPM. You will also use this power setting for your traffic patterns. Once again, listen to what the engine sounds like.

DESCENT TO LANDING POWER: This is the power setting that is used on your approach to landing. Depending on the airplane, it should be somewhere around 1500-1700 RPM.

The Fundamentals of Flight

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FOUR FUNDAMENTALS OF FLIGHT: Now I want to tie this all together for you. Everything you want to do in the plane is a simple combination of all the things I have listed above. Make sure you are looking outside the airplane and using the horizon. There is no need to stare inside the airplane. The horizon should be your main reference. You want to use your sight and hearing to fly the plane. Remember the three attitudes of flight.

Climbs

CLIMBS: If you want to climb bring the nose up to climb attitude and bring the power to full. This should get you pretty close to an airspeed known as Vy. Every airplane will be slightly different so you will have to experiment. If for some reason you are in a plane that has a lot of extra horsepower, you may get a slightly higher airspeed. Don't worry about the airspeeds for now you just want to get the attitude set in your mind. In most planes it should be about Vy + - 10 knots. You can adjust this to get your Vy attitude.

Turns

TURNS: When turning the airplane at first you can use just the ailerons, but you may want to also use the rudder. You will find that turns to the left are pretty simple and feel pretty smooth. Turns to the right won't be as smooth and you will need to add a little right rudder. Remember since we are talking about attitude flying you will want to use the horizon as your reference. If you don't turn too steep at first you will notice that the nose will pretty much stay where it is. If you

start turning steeper you will have to add some backpressure on the control column to keep the nose level.

90 Degree Turns: In most cases instructors will have you turn to a heading using the directional Gyro. In some cases you will need it and in many you won't, but you may want to get into the habit of flying the plane by looking outside. You have two very simple 90 degree direction indicators built right into the plane. Yes, once again the answer is the wings. If you are flying along straight and level and you want to do a 90 degree turn to the left turn your head 90 degrees to the left and then look at the row of rivets going down the wing. Now line it up on the best point you can find VERY FAR OUT. There is your new point. Turn the airplane till the nose is lined up with that point. This is pretty simple, and you would do the same for a turn to the right. If you are in a composite airplane (DIAMOND) you won't have any rivets. Just find the imaginary center line of the wing and use that.

360 Degree Turns: This one is even easier. You already have a point lined up on the nose of the airplane. Start your turn and then roll out then the nose is lined up again. Piece of cake.!!!!

Once you get the idea of this you can use imaginary points for 45 degree turns.

Descents

DESCENTS: Descents using my attitude system are pretty easy. When you want to start a descent you will just bring the power back until the nose of the airplane goes to descent attitude, then if you have any adjustments you want to make you can do it with the trim. If the airplane is trimmed in straight and level flight and

you bring the power back, the plane will pitch for the airspeed you were at in level flight. If you are at 95 knots when you are in straight and level flight, bringing the power back will set your descent rate. You should notice that once you bring the power back to your descent power setting (about 2100 RPM) your airspeed won't change (Unless you push the nose forward). Make sure the plane is trimmed up for hands off flying before you bring the power back.

Straight And Level Flight

STRAIGHT AND LEVEL FLIGHT: The main thing you will want to get used to in straight and level flight is the attitude of the nose and the wing. Most planes will look slightly nose down in level flight. This is because the cowling of the aircraft is not straight. They are stream lined for aerodynamic reason. If you start off using the wing, you will be able to see what the cowling / front of the airplane looks like in this attitude. The wing of the plane should be level with the horizon.

It will take a little while to get used to. Just practice with your instructor and you will get it in a few flights. Remember you don't need to stare at the altimeter. If the wings and nose of the plane are level, the plane will hold altitude. Another thing you want to do when starting out is look as far out as you can. The farther out you look, the easier it will be.

Use Of Rudder

USE OF RUDDER: You will probably get in the plane with your instructor and he/she may use the term “Step on the Ball”. This refers to the ball on the turn coordinator. But once again you are looking inside the airplane. Remember when I said "The wing will tell you everything"? Well it will. When you are up in the plane, do this quick little thing:

When you are in level flight you shouldn’t need much rudder, maybe a little or right rudder. Bring your power in and go to a climb configuration and don’t step on the rudder at all. You will notice that if your wings are level as you bring the nose of the plane up, the nose of the plane will start to yaw to the left. Now look at the left wing while you are doing this. You can clearly see the wing yaw back on the left side and forward on the right side. All you need to do is apply rudder until that stops, then you will be in coordinated flight. You want to get into the habit of flying the plane outside. If you are looking inside all the time you are not going to see that person who is coming right at you.