

Training Corner

Advanced Skills

The ninth in a series of articles by:
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In my last article I discussed solo skill levels that must be mastered before proceeding on to advanced fly skills. In this article I'll discuss three neat maneuvers that will make your flying more fun and safer. The maneuvers are: the flat pedal turn; the hovering vertical landing; and the descending turn to a hovering landing.

The flat pedal turn is a 180-degree turn flying back in the direction from where you came. Since no bank is re-

quired, you can fly back-and-forth staying right over a taxiway. The turn takes no horizontal distance, but it does require altitude. Here is how you do it.

Start with a minimum altitude of 300-ft AGL. From level flight reduce power and increase pitch to slow airspeed. When you start running out of lift and feel yourself sinking, begin adding power [going behind the power curve] to hold altitude while slowing to near zero airspeed. You will hit a point where you

are at full power with little or no airspeed and beginning to sink. Kick full left rudder and bring your stick back toward your right shoulder. Make the turn to the left in the direction of the rotating blade. The throttle is at full power. The gyro will spin around very quickly as it sinks. You must keep the stick back to hold the nose up and use right stick to keep from rolling left as you turn. You will end up pointing in the reverse direction in a flat sink. Keep the gyro level, and let it pick up speed restoring full lift.

The problems with automotive gas

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unwanted carbon fouling. I have been told that it will not hurt the engine from the rings down, but will build up on the piston dome, cylinder head, and fowl plugs at a faster rate. This means more frequent teardowns for cleaning. The alcohol-based additives seem to cause more damage from the rings down including carbon, but also varnishing the cylinder walls, which can lead to sticking pistons.

To help protect our engines against corrosion mineral based oil provides the greatest protection. However depending on the brand, it may create a lot more carbon due to incombustion. A blend of synthetic/mineral may give the best of both worlds with cleaner burning and still a level of corrosion resis-

tance. Pure synthetic may burn the cleanest, but if the engine is not run on a regular basis, especially if alcohol is present, may not do a good enough job of coating the metal parts as they sit idle. Decisions, decisions.

Given the problems facing us with the continuing production increases of oxygenated fuels, we all need to formulate our own game plans and decide what is the best solution on an individual basis.

We need to be aware of what it is we are burning and the possible consequences that are involved. I believe we need to approach this systematically. Picking a particular brand of auto fuel and monitoring it for water absorption would be the place to start. If you decide to burn Av gas be aware of its drawbacks,

and be prepared for more frequent cleanings.

Find a two-cycle oil that suits your needs and stick with it. If you consistently use the same oil and gas, you can become familiar with what the engine looks like on teardown. Any changes can tip you off that something is going awry. Don't go back and forth between fuels and oils. This can only lead to hypothetical analysis when you have a problem with no real foundation to base corrective measures.

As with everything else about flying, don't take your fuel for granted. With careful consideration, and good habits we can continue to enjoy the benefits of light two-cycle engines on our rotorcraft.

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You will lose about 100 feet before your speed returns to cruise. Climb back to 300 feet and reverse again.

Here are the CAUTIONS: [1] Do not start your turn below 300 feet. [2] Do not turn until you have stopped moving forward and begin to sink. [3] Do not let your nose drop after your turn. This is all done with a fully loaded rotor!

The next maneuver is the hovering vertical landing. Mastering this skill could save your life. In an emergency landing, you should be able to set down with no forward movement. This is especially true if you are going into water or very soft ground.

One of my past students lost an engine over some marsh. He misjudged a bit and hit with some forward speed. The main gear went into the water and it slapped the nose wheel down hard enough to shove his head under the water and mud. He was able to unbuckle his belt and get free. He later told me that if I had not had him practice that type of landing, he would have been knocked senseless and drowned. He almost had his speed bled off, but not quite. A little more speed at touch down would have done him in.

Here is how you make a hovering vertical landing. Start by practicing this into a 10-15 mph wind. Set up a power-off glide into the wind. Rotate into a nose-high flare coming to a complete stop at 2-3 feet above the runway. Just as forward speed stops, move the stick forward to level the rotor. You will have enough blade energy to make a soft vertical landing. Keep the rotor level, which will increase rear clearance and most likely prevent a blade strike. When you get real good at it, practice in a 5-10 mph wind.

Here are the CAUTIONS: [1] If you flare too high or balloon up, be ready with throttle. [2] Practice into a stiff breeze. In a 15-mph wind a vertical land-

ing touches down at 15mph airspeed. The slower you land the more delicate the timing and coordination becomes. [3] Heavy gyros run out of energy faster than light single-place machines.

The last maneuver is the descending turn to a hovering landing. This one can be a real crowd stopper. From pattern altitude you make a descending turn to your landing point and touch down with little or no roll.

Here is how you do that. From a safe altitude fly a downwind leg tighter than you normally would. Reduce power and start a descending turn. The turn over-spins your blades. Time your landing such that you roll level slightly before your intended point of touch down. With a slight pitch up of the nose and the over spin on the rotors, you can hover to a stop just as you touch down! Most people will think you are a helicopter.

CAUTION: This all may sound easy, but it is not. Be patient and master each stage of flying before venturing on. The longer you are in aviation the more you find out you are never as good as you think you are.

In my next article, ONE-DOZEN SKILLS, I'll tell you why gyroplane training takes some time to master and why you can't rush it. You should then be able to answer the question of how

many hours it will take and how much it will cost.

At this point, I'd like to include an index to the last nine articles. This should be helpful to newer members who might be following my series, but don't know of the earlier articles.

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STAGES OF SOLO SKILL

Remember, "the air, even more so than the sea, is most unforgiving for the slightest mistake." Get qualified flight instruction before getting into a gyro. Skillful pilots make it look easy, but it is not.

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