Training Corner

The eleventh in a series of articles by: Bill Ortmayer, CFI, CFII, MEI

In my last article I discussed One-Dozen Skills that you must be able to fly before trying anything advanced. In this article I'll give you a listing of tasks and the sequence in which I usually teach them. It is important to note that I am giving you some of my personal views and philosophy on how to attain the flying skills to meet the Practical Test Standards (PTS) for the FAA rating, Rotorcraft, Gyroplane. It is not the only way. Other CFI's can have a different approach based on their training equipment and airport facilities. This is perfectly okay. The bottom line is whether or not you can fly to the PTS standards. I'll have more on the Practical Test Standards coming in future articles.

Flying a teeter rotor gyroplane involves some kinesthetic motor skills that need time to be developed into automatic responses. You don't have time to think about it—it must be there automatically. You must coordinate both feet and both hands all at the same time. The most difficult sub-skill is being able to move the cyclic stick fore and aft to control pitch while at the same time being able to move it right and left to control rotor tilt. Holding the stick in the right hand and applying aft pressure usually results in an aft tilt plus a right rotor tilt at the same time, because you tend to draw toward your right shoulder.

A fast spinning rotor as you become light will over power the rudder authority. If the right side is low, the rotor will drag you off the runway to the right. That is where that mysterious crosswind came from that has claimed so many of your blades!

Because pitch control and rotor tilt is so important, I teach it first. You can not safely take-off and land without being able to control the basics of level wings for take-off and pitching for speed control. Flying in the air is quite simple. It does not take much time to teach air skills. This, however, requires you to be able to coordinate pitch and power and to orient your rotor disk.

I am fortunate to have three 5,000-foot runways with parallel taxiways to do a lot of ground and low-level work. Low level work is important to establish pitch control. It is very easy to find and maintain a level-flying attitude at 10-20 feet. You can easily see yourself gaining or losing altitude. At 200 feet you will never see or be able to appreciate what is really going on.

Therefore, what follows is my usual sequence of training tasks.

LOW SPEED/GROUND HANDLING: [nose wheel down; blades at or below a blur]
STEERING CONTROL USING NOSE WHEEL STEERING
LEVEL ROTOR [wings level]
ROTOR RPM CONTOL [de-pitching rotor & cyclic orientation]

HIGH SPEED HANDLING: [nose wheel up]
STEERING CONTROL USING RUDDER
MAINTAINING A LEVEL ROTOR AS NEEDED
BALANCE CONTROL ON MAIN GEAR & NOSE IN LANDING ATTITUDE [high drag-not touching tail wheel]
BALANCE CONTROL ON MAIN GEAR & NOSE IN T/O SWEET SPOT
[minimum drag to gain speed not touching nose wheel]

LOW ALTITUDE FLYING

NORMAL T/O FLYING 5 FT HIGH OVER THE CTR LINE LANDING AT END OF R/W
NORMAL T/O FLYING 5 FT HIGH OVER THE CTR LINE MAKING GENTLE S-TURNS & LANDING AT END OF R/W
NORMAL T/O AND STD PATTERN AT 10 FT HIGH
FLYING SIDE SLIPS AT 5 FT HIGH AWAY FROM & BACK TO THE CTR LINE
X/WND T/O FLYING 5 FT & X/WND LANDING AT END OF R/W
X/WND T/O AND STD PATTERN AT 10 FT
FIG 8 PATTERN AT 20 FT MAINTAINING ALT & SPEED
LANDING AT BOTTOM END OR BEHIND THE POWER CURVE
SHORT FIELD T/O

HIGH ALTITUDE FLYING

NORMAL & X/WND T/O & LNGS AT 100 FT PATTERN
NORMAL & X/WND T/O & LNGS AT 200 FT PATTERN
VERTICLE DESCENT TO A LANDING WITH POWER
STEEP TURNS ABOVE HEIGHT-VELOCITY CURVE
CROSS-COUNTRY FLYING

EMERGENCY PROCEDURES

POWER-OFF LANDINGS [short field landings]
*VERTICLE AUTOROTATIONAL DESCENT TO A LANDING WITHOUT POWER
HOVERING LANDING TO A VERTICAL TOUCH DOWN

***SPECIAL NOTE**: Most of you do not know your rudder effectiveness with the propeller stopped. Reducing the engine power to an idle still provides steering air past the rudder providing directional control. With the propeller stopped, you will most likely begin to spin in the direction your blades turn until you drop the nose and gain enough airflow past the rudder to regain directional control.

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, The FAA's Practical Test Standards, I'll tell you about the flying exam more commonly known as "the check-ride." It is no mystery and very straight forward. It is what we as CFI's are to train our students to be able to do.

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.