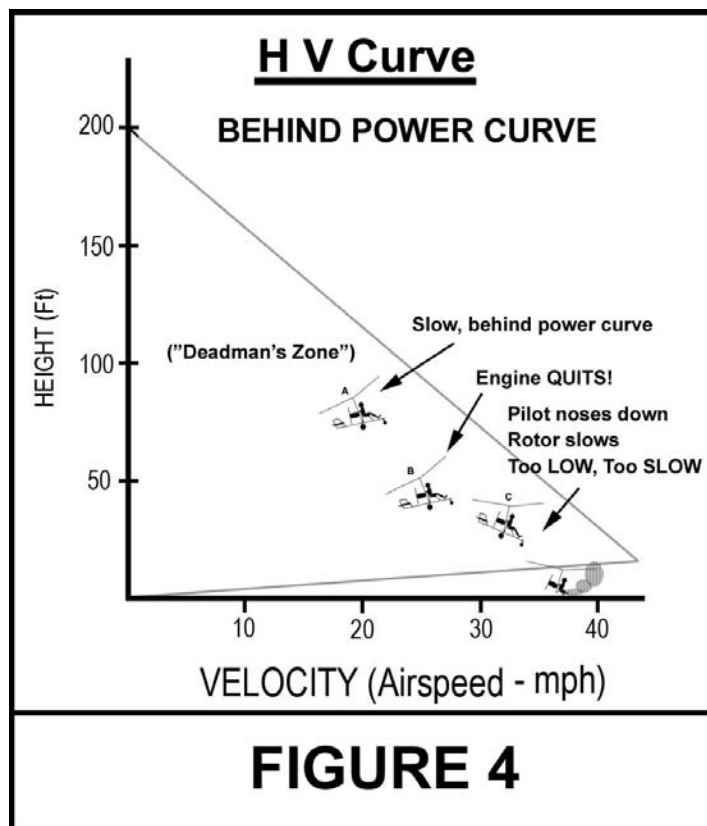


climbout, close to the ground, if the engine quits, not many pilots should or would gradually lower the nose! To be able to raise the nose in a landing flare requires more than just adequate airspeed – it also requires adequate rotor RPM – or you are likely to strike the ground in a nose-down attitude – surprisingly not able to raise the nose for a flare - not very survivable! Engines don't quit often, but right after takeoff at full power is a highly likely occasion for engines to quit. I suggest you religiously avoid flying within the HV curve on all takeoffs – just not worth risking a really bad day!

Figure 4 – behind the power curve:

There is nothing wrong (in most gyros) with flying “behind the power curve” – nose up, lots of power, hanging on the prop – at adequate height to recover if the engine quits! Nose high, hanging on the prop, itself lowers the Rotor RPM because the prop is carrying some of the weight of the gyro. If the engine were to quit, just as in Figure 3 above, the rapid lowering of the nose will further lower the Rotor RPM – with the same rapid altitude loss discussed above – maybe more! If you are practic-



ing – or showing off for the crowd – with your fantastic skills to fly very slow “behind the power curve,” please do so either below or above the HV curve – so you don't personally add even more credence to the “Deadman's Zone” description.

Above I mentioned several times that the HV curve applies “mostly” if the engine quits or is not available. Engines quitting is the origin of the HV curve. However, the situations depicted in Figures 3 and 4, recovery from a steep nose-high altitude at slow speed, does not really require the engine to quit. If the engine just sputters, or the pilot is otherwise excited into a sudden nose-down input, the scenarios of reduced and slow to recover rotor RPM and rapid altitude loss – “dropping like a rock” can be

initiated – just from the rapid forward stick motion! So, the engine doesn't really have to QUIT to cause problems if you are flying within the HV curve – unable to recover before striking the ground.

How do I know what my HV curve is? Hopefully your gyroplane manufacturer has determined and provided the curve in your aircraft flight manual – all certificated aircraft (Standard or Experimental) are supposed to have a Flight Manual or Pilot's Operating Handbook (POH). If you don't have a curve provided to you, you can go up to a safe altitude and descend at zero airspeed and see how much altitude it takes you to recover rotor RPM and airspeed for a good simulated landing flare at altitude. This will be the top peak of your HV curve. The highest airspeed tip of the curve might range from 35 mph for a light single-place gyro up to 50 mph for heavier gyroplanes – but, for this, your normal landing sequence would be a good representation of the lower “ledge” of your curve. When you make a normal deadstick landing, note your height above the ground and airspeed just after raising the nose to start your flare on a normal deadstick landing. This is the right “tip” of your HV curve. Add a little airspeed for a conservative safety margin to account for not being perfect in a sudden surprise engine failure, and you have pretty well defined your HV curve.

In summary, please review and respect your HV curve, or a very conservative version of one. On my gyroplane, the HV curve starts at 200 ft as shown in Figure 1. But, I treat this very conservatively, and certainly begin to recover airspeed from a zero airspeed vertical descent at no lower than 300 feet. Allowing a little conservative safety margin minimizes the necessity of doing everything perfectly in a surprise situation! You certainly do not want to discover why the HV curve is important the first time your engine sputters or quits or won't respond to throttle.

Fly safe and have fun – Greg