



## Heli Flight Training manual Addendum: Flybarless Helis with 3-axis gyro stabilization



Today's flybarless helis utilizing 3-axis gyro stabilization are making it significantly easier for newcomers to the sport to quickly become successful heli pilots. This is particularly true when the helis feature progressive SAFE technology that offers novice pilots the option to start out in an easier STABILITY/BEGINNER mode. This mode limits how far the heli can tilt in any direction and therefore limits the heli to mild maneuvering. Most importantly, in this mode the heli returns to a level attitude the instant the transmitter controls are returned to neutral, thus helping new pilots avoid losing control.

Switching to AGILITY/NORMAL mode deactivates the self-leveling feature and therefore the heli is flown with "conventional" control techniques, i.e., the heli does whatever the pilot tells it to do, whether correct or incorrect.

The most significant feature built into most flybarless helis is the system's ability to correct un-commanded deviations, such as those caused by turbulence, whereas traditionally pilots had to manually correct every deviation. Consequently, when this feature is active, a pilot's work load is appreciably less.

Technically speaking, it is not the absence of a flybar (pg. B-35) that makes flybarless helis noticeably superior but rather the 3-axis gyro stabilization technology, which also happens to make flybars unnecessary. However, as amazing as the stabilization technology is, it is common for these systems to occasionally fail to initialize or perform properly. Furthermore, these systems sometimes require multiple flights before they are properly "dialed in". Hence, every heli pilot will be called upon fairly often to pilot their heli without the benefit of the gyro stabilization working 100%.

Heli Flight Training was written when flybars were standard and flybarless technology was in its infancy. Of course, flybarless helis are now

the standard, although, not many feature SAFE technology and the level of sophistication and performance of their gyro systems varies greatly among manufacturers and models. Hence, Heli Flight Training teaches traditional control techniques like those used to fly with little or no help from 3-axis gyro stabilization.

With or without the stabilization technology, the conventional control techniques presented in Heli Flight Training apply in either scenario to promote maximum proficiency and long term success. The difference is that fewer overall corrections are needed when flying a quality flybarless heli compared to the constant corrections needed when flying a heli without the benefit of 3-axis gyro stabilization.

If your heli offers progressive SAFE technology, you will certainly want to start out in the BEGINNER mode, and then after you have built some confidence, graduate to AGILITY mode and using conventional control techniques.

The primary difference flying in the BEGINNER mode versus conventional control is that you will have to continually coax the heli in whichever direction that you want it to go because it will be continually trying to return to a level attitude. Conversely, in the AGILITY mode, repeated inputs in any one direction would quickly result in over-controlling. Hence, all your control inputs must be kept very brief, i.e., small "bumps", and you will have to manually counter every movement of the heli to keep it from escalating (pg. A-15). Of course, your study of Heli Flight Training should ensure a smooth transition from BEGINNER to AGILITY mode when you are ready to make the switch. Enjoy the manual and good luck!