



Highlights and Margin Notes in  
Wolfgang Langewieshe's

***Stick and Rudder: An Explanation of the Art of Flying***  
**Chapter 19 Notes**

Perhaps my notes and observations will inspire you to buy your own copy and learn from this classic...or to take the copy you already own off the shelf and revisit its great lessons, just as I am doing again now.

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Continuing my notes on Wolfgang Langewieshe's essential classic, ***Stick and Rudder***.

**Part VII: Some More Air Sense**

**Chapter 19: "The Working Speeds of an Airplane"**

Page No.	Highlighted Text (Langewiesche's words)	My margin notes
351	"Scientific Cruising Control"	
353	Most miles per gallon...slowed up, throttled back...in nose-high flight at a speed about 5 mph faster than the speed of his normal glide.	Carson's speed
354-355	Speed of Best Distance..."normal glide"...the Speed of Least drag	
355	The Speed of Best Distance is one speed which in power-off flight will get the most distance out of a given altitude...it stands to reason that it must also be the speed which in power-on flight will get you the most distance for your tankful of fuel.	
356	...it [is] possible to fly a little faster without undue penalties.... If you are trying to make your tankful of fuel take you as far as possible, and you have a head wind, it does pay to add a few miles per hour. If you have a tail wind, it does pay to decrease your air speed by a few miles per hour....[but] <i>wind influences the Speed of Best Distance very much less than you might think.</i>	Indicated airspeed, and take what ground speed you get
357	The Speed of Least Power Required...the Speed of Best Duration.... The airplane is not covering distance very effectively, for it is too slow; but it develops perfectly astounding endurance.	Loitering speed
	An airplane in a glide will make the <i>slowest descent</i> if it is <i>glided extremely slowly</i> ...almost at the stall.	Power Off Landing speed; least rate of descent speed
358	The most important use...forced landings.... The great danger in forced landing [is a] spin.... The ship will come around with the least loss of altitude if it is flown at the Speed of Best Duration...banked at 45 degrees....	NOT Best Glide for the turnback maneuver
360	The pilot who glides slowly will get a very steep flight path, but because of this very slow progress along that flight path he will still be in the air when the faster-gliding fellow, with his shallower glide path, is already on the ground.	
	Maneuvering speed...will protect your wings from structural failure in rough air and in acrobatic maneuvers.	
361	The idea of a maneuvering speed is simply this—to fly so slowly that, when the ship begins to bear down on its wings too heavily, the wings will not attempt to support that additional weight but will stall instead, thus relieving	But you'll hit design load before it stalls

	themselves.	
	In most airplanes, maneuvering speed is arbitrarily set at twice the ship's normal straight-flight stalling speed.	Because it is based on stall speed, reduce Va with a reduction in weight...unless the speed really is arbitrary. Is Va set differently now than it was in the 1940s?
362	If you wanted to double the top speed of an airplane that has a 65-horsepower engine, you would have to give it an engine of 520 horsepower	Bonanza engine on a Luscombe
363	An airplane's rate of climb depends on its excess power...whatever speed leaves you the biggest margin of excess horsepower will also give you the best rate of climb.	
364	Flying it 10 mph faster or 10 mph slower than the Speed of Fastest Climb will still give you almost the same rate of climb. In practice, a pilot should always favor the higher air speed.	(2020) What I teach, especially in turbocharged and turbonormalized Bonanzas
	In routine flying, it is seldom necessary to achieve the steepest possible climb...[for] a margin of safety in case of engine failure or gustiness.	

Secure your own copy of *Stick and Rudder* and make your own notes and observations. Beyond simply reading its words, analyze, criticize, mark up and understand Langewiesche's teachings to, as Adler suggests, **make this book your own**.

I look forward to your comments on these notes and the larger work. Please send your thoughts to me at [mastery.flight.training@cox.net](mailto:mastery.flight.training@cox.net). Thank you.



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