“Aircraft Performance Work Sheet”

INSTRUCTIONS

When flying in canyons you want to do so at a safe airspeed, but you will be flying slower than in normal cruise flight. The reason for flying more slowly in canyons may not be intuitive at first, but realize that you will be maneuvering the airplane in a confined space. Slowing down is the best way to decrease your turn radius while maneuvering; you can turn using shallower bank angles, which avoids "pulling G's" that could stress the airframe and increase your stall speed. Additionally, when turning in a canyon you will not have reference to the normal horizon that you are used to seeing, and you may become easily disorientated in a turn, especially while climbing or descending. Shallower bank angles decrease the risk of becoming disorientated. The following section addresses in more detail the relationship between turn radius and airspeed. (see “Turn Radius v’s Air Speed” in the Mountain/Canyon Flight Training Manual)

During your first Mountain/Canyon flight, you will work with your instructor to execute a series of procedures that will enable you to make a precise determination of power settings, flap settings, and indicated airspeeds to use in backcountry operations. This will enable you to become intimately familiar with your airplane and how it behaves at different airspeeds and in different configurations at a given weight and CG.

Another exercise you will do with your instructor is determine the indicated airspeeds at which your airplane stalls for a given weight and CG in different configurations and at what airspeed the stall-warning indicator activates. Every airspeed indicator is different, and even for two aircraft of the same make, model, and year it is important to determine those parameters for each airplane. Each time you load the airplane with a different weight and CG, you can use this exercise to determine those parameters. There is no room for guesswork when it comes to knowing your airplanes performance data. Once you have the "numbers" for your airplane it will be easier to maneuver in canyons and fly a stabilized approach into a back country strip without ever having to execute a steep bank turn and destabilize the airplane, become disoriented, or stress the airframe.

All exercises and maneuvers on this worksheet such as; minimum controllable airspeed, slow flight, and stalls must be ***completed*** at an altitude of no less than 1500 feet AGL.

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Instructions for Pilots

During the first day's flight, you will be working with your instructor to determine precise power settings, flap settings, and airspeeds to use in different situations when operating in mountain and canyon areas.

Part 1: Indicated stall speeds (Vs) and minimum controllable airspeeds (MCA)

In part one, you will determine the indicated airspeed at which the airplane stalls in different configurations, and the indicated airspeed at which the stall warning activates. This indicated airspeed will change as the weight of the aircraft changes, so you should load the airplane at the weight you plan to operate. At any fixed weight, the indicated airspeed will be the same at different altitudes, but the power settings will change. Thus, you will also determine the power required to maintain level flight at MCA at your test altitude.

N#_____ **Aircraft YMM:** _____

Test Altitude _____ **Aircraft Weight** _____

Flap Setting	MCA	Vs	Power req for level flight at MCA
0	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____ **(Turning)**

Part 2: Power settings, airspeeds, and configurations for mtn/canyon flight

In part two, you will determine the power settings and airspeeds for normal cruise flight, slow cruise, canyon maneuvering speed (downwind speed), initial descent, and final approach.

	Flaps	VSI	Airspeed	Power (mp/RPM)
Cruise	0	_____	_____	_____/_____
Slow cruise	_____	_____	_____	_____/_____
Canyon speed	_____	_____	_____	_____/_____
Initial descent	_____	_____	_____	_____/_____
Base	_____	_____	_____	_____/_____
Final approach	_____	_____	_____	_____/_____

Vr _____ **Vx (initial)** _____ **Vy (clean)** _____

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