

PA-28-161 WARRIOR II SPEEDS

NOTE: All airspeeds shown are expressed in Knots Indicated Airspeed (KIAS) and are based on the aircraft at maximum gross weight unless otherwise noted.

Published V-Speeds

V-Speed Symbol	Speed Value	What Is It?
V _{SO}	44 KIAS	Stall speed or minimum steady flight speed in the landing configuration (flaps fully extended).
V _{S1}	50 KIAS	Stall speed or minimum steady flight speed in the clean configuration (flaps fully retracted).
V _R	55 KIAS, 0° Flaps 52 KIAS, 25° Flaps	Rotation speed. The speed at which the nosewheel is lifted from the runway during takeoff.
V _X	63 KIAS, 0° Flaps 57 KIAS, 25° Flaps	Best Angle speed. In a climb it provides the maximum gain in altitude for the <i>distance</i> traveled forward.
V _Y	79 KIAS	Best Rate speed. In a climb it provides the maximum gain in altitude per unit of <i>time</i> traveled.
V _{ENROUTE CLIMB}	87 KIAS	In a climb it provides increased forward visibility and engine cooling.
V _{BEST GLIDE}	73 KIAS, Max. G.W.	In a glide it provides the maximum distance traveled forward with the minimum altitude lost.
V _{FE}	103 KIAS	Full Flaps Extended speed. Maximum speed at which flaps may be fully extended.
V _A	111 KIAS, Max. G.W. 88 KIAS, 1531 Lbs.	Design Maneuvering speed. Maximum speed at which full, abrupt deflection of the controls can be made without causing structural damage. Reduce speed to this value when in rough air.
V _{NO}	126 KIAS	Maximum Structural Cruising speed. Do not exceed this speed except in <i>smooth</i> air.
V _{NE}	160 KIAS	Never Exceed speed. Do not exceed this speed under any circumstances.
V _{CLOSE DOOR}	89 KIAS	Maximum speed at which to close a door in flight should it inadvertently open.
Max. Demonstrated Crosswind	17 KTS	Maximum crosswind component during which the aircraft has been landed by the manufacturer test pilot.

Airspeed Indicator Markings

Range	Arc Color	Speed Values	What Is It?
Full Flap Operating	White	44-103 KIAS	Range of speed at which flaps may be fully extended.
Normal Operating	Green	50-126 KIAS	Range of speed at which the aircraft is normally operated.
Caution	Yellow	126-160 KIAS	Range of speed at which the aircraft should be operated only in <i>smooth</i> air, and then only with caution.
Never Exceed	Red Line	160 KIAS	Never Exceed speed. Do not exceed this speed under any circumstances.

Operational Speeds

Operation	Speed Values
Normal Takeoff (0° Flaps)	1.) V _R 55 KIAS 2.) V _Y 79 KIAS
Short-Field Takeoff, No Obstacle (25° Flaps)	1.) V _R 52 KIAS 2.) V _Y 79 KIAS
Short-Field Takeoff, Obstacle Clearance (25° Flaps)	1.) V _R 52 KIAS 2.) V _X 57 KIAS 3.) V _Y 79 KIAS (when obstacle cleared)
Soft-Field Takeoff, No Obstacle (25° Flaps)	1.) Lift off as soon as possible 2.) V _Y 79 KIAS
Soft-Field Takeoff, Obstacle Clearance (25° Flaps)	1.) Lift off as soon as possible 2.) V _X 57 KIAS 3.) V _Y 79 KIAS (when obstacle cleared)
Normal Landing (40° Flaps)	1.) 63 KIAS final approach
Short-Field Landing (40° Flaps)	1.) 63 KIAS final approach
Soft-Field Landing (40° Flaps)	1.) 63 KIAS final approach
Traffic Pattern	1.) Downwind: 90 KIAS / 0° Flaps 2.) Abeam Touchdown: 80 KIAS / 10° Flaps 3.) Base: 70 KIAS / 25° Flaps 4.) Final: 63 KIAS / 40° Flaps

Average Cruise Speeds (based on 5000 feet Pressure Altitude, Standard OAT, No Wheel Fairings)

75% power, Best Economy Leaning	110 KTAS (True Airspeed)
65% power, Best Economy Leaning	100 KTAS (True Airspeed)
55% power, Best Economy Leaning	90 KTAS (True Airspeed)